

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

Form 20-F

- REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934
or
ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE FISCAL YEAR ENDED DECEMBER 31, 2019
or
TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
or
SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Date of event requiring this shell company report.....

Commission file number 1-15242

Deutsche Bank Aktiengesellschaft

(Exact name of Registrant as specified in its charter)

Deutsche Bank Corporation

(Translation of Registrant's name into English)

Federal Republic of Germany

(Jurisdiction of incorporation or organization)

Taunusanlage 12, 60325 Frankfurt am Main, Germany

(Address of principal executive offices)

Andreas Loetscher, +49-69-910-44468, andreas.loetscher@db.com, Taunusanlage 12, 60325 Frankfurt am Main, Germany

(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act

See following page

Securities registered or to be registered pursuant to Section 12(g) of the Act.

NONE

(Title of Class)

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.

NONE

(Title of Class)

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report:

Ordinary Shares, no par value 2,066,101,774

(as of December 31, 2019)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes [] No [x]

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes [] No [x]

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes [x] No []

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes [x] No []

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See definition of "large accelerated filer", "accelerated filer", and emerging growth company in Rule 12b-2 of the Exchange Act.

Large accelerated filer [x] Accelerated filer []

Non-accelerated filer [] Emerging growth company []

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards* provided pursuant to Section 13(a) of the Exchange Act.

*The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP [] International Financial Reporting Standards [x] Other []

as issued by the International Accounting Standards Board

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow

Item 17 [] Item 18 []

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes [] No [x]

(APPLICABLE ONLY TO ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PAST FIVE YEARS)

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court.

Yes [] No []

Securities registered or to be registered pursuant to Section 12(b) of the Act (as of February 29, 2020)

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Ordinary shares, no par value	DB	New York Stock Exchange
6.55% Trust Preferred Securities of Deutsche Bank Contingent Capital Trust II		
6.55% Company Preferred Securities of Deutsche Bank Contingent Capital LLC II*		
Subordinated Guarantees of Deutsche Bank AG in connection with Capital Securities*	DXB	New York Stock Exchange
Fixed to Fixed Reset Rate Subordinated Tier 2 Notes Due 2028	DB /28	New York Stock Exchange
4.50% Fixed Rate Subordinated Tier 2 Notes Due 2025	DB 25	New York Stock Exchange
DB Crude Oil Double Short Exchange Traded Notes due June 1, 2038	DTO	NYSE Arca
DB Gold Double Long Exchange Traded Notes due February 15, 2038	DGP	NYSE Arca
DB Gold Double Short Exchange Traded Notes due February 15, 2038	DZZ	NYSE Arca
DB Gold Short Exchange Traded Notes due February 15, 2038	DGZ	NYSE Arca

* For listing purpose only, not for trading

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Deutsche Bank Aktiengesellschaft, which we also call Deutsche Bank AG, is a stock corporation organized under the laws of the Federal Republic of Germany. Unless otherwise specified or required by the context, in this document, references to “we”, “us”, “our”, “the Group”, “Deutsche Bank” and “Deutsche Bank Group” are to Deutsche Bank Aktiengesellschaft and its consolidated subsidiaries.

Due to rounding, numbers presented throughout this document may not add up precisely to the totals we provide and percentages may not precisely reflect the absolute figures.

Our registered address is Taunusanlage 12, 60325 Frankfurt am Main, Germany, and our telephone number is +49-69-910-00.

Inclusion of Our Annual Report

We have included as an integral part of this Annual Report on Form 20-F our Annual Report 2019, to which we refer for the responses to certain items hereof. Certain portions of the Annual Report 2019 have been omitted, as indicated therein. The included Annual Report 2019 contains our consolidated financial statements, which we also incorporate by reference into this report, in response to Items 8.A and 18. Such consolidated financial statements differ from those contained in the Annual Report 2019 used for other purposes in that (i) Notes 42, 43 and 44, which address non-U.S. requirements, have been deleted, (ii) Note 45 is set forth as Note 42 and (iii) Notes 43 and 44 are notes addressing U.S. requirements. Such consolidated financial statements have been audited by KPMG AG Wirtschaftsprüfungsgesellschaft, as described in their “Report of Independent Registered Public Accounting Firm” included in the Annual Report 2019, which report is included only in the version of the Annual Report 2019 included in this Annual Report on Form 20-F.

Cautionary Statement Regarding Forward-Looking Statements

We make certain forward-looking statements in this document with respect to our financial condition and results of operations. In this document, forward-looking statements include, among others, statements relating to:

- the potential development and impact on us of economic and business conditions and the legal and regulatory environment to which we are subject;
- the implementation of our strategic initiatives and other responses thereto;
- the development of aspects of our results of operations;
- our expectations of the impact of risks that affect our business, including the risks of losses on our trading processes and credit exposures; and
- other statements relating to our future business development and economic performance.

In addition, we may from time to time make forward-looking statements in our periodic reports to the United States Securities and Exchange Commission on Form 6-K, annual and interim reports, invitations to Annual General Meetings and other information sent to shareholders, offering circulars and prospectuses, press releases and other written materials. Our Management Board, Supervisory Board, officers and employees may also make oral forward-looking statements to third parties, including financial analysts.

Forward-looking statements are statements that are not historical facts, including statements about our beliefs and expectations. We use words such as “believe”, “anticipate”, “expect”, “intend”, “seek”, “estimate”, “project”, “should”, “potential”, “reasonably possible”, “plan”, “aim” and similar expressions to identify forward-looking statements.

By their very nature, forward-looking statements involve risks and uncertainties, both general and specific. We base these statements on our current plans, estimates, projections and expectations. You should therefore not place too much reliance on them. Our forward-looking statements speak only as of the date we make them, and we undertake no obligation to update any of them in light of new information or future events.

We caution you that a number of important factors could cause our actual results to differ materially from those we describe in any forward-looking statement. These factors include, among others, the following:

- the potential development and impact on us of economic and business conditions;
- other changes in general economic and business conditions;
- changes and volatility in currency exchange rates, interest rates and asset prices;
- changes in governmental policy and regulation, including measures taken in response to economic, business, political and social conditions, including with regard to the current COVID 19 pandemic;
- the potential development and impact on us of legal and regulatory proceedings to which we are or may become subject;
- changes in our competitive environment;
- the success of our acquisitions, divestitures, mergers and strategic alliances;
- our success in implementing our strategic initiatives and other responses to economic and business conditions and the legal and regulatory environment and realizing the benefits anticipated therefrom; and
- other factors, including those we refer to in “Item 3: Key Information – Risk Factors” and elsewhere in this document and others to which we do not refer.

Use of Non-GAAP Financial Measures

This document and other documents we have published or may publish contain non-GAAP financial measures. Non-GAAP financial measures are measures of our historical or future performance, financial position or cash flows that contain adjustments that exclude or include amounts that are included or excluded, as the case may be, from the most directly comparable measure calculated and presented in accordance with IFRS in our financial statements. Examples of our non-GAAP financial measures, and the most directly comparable IFRS financial measures, are as follows:

Non-GAAP Financial Measure	Most Directly Comparable IFRS Financial Measure
Net income attributable to Deutsche Bank shareholders,	
Adjusted profit (loss) before tax	Profit (loss) before tax
Revenues excluding specific items	Net revenues
Adjusted costs, Adjusted costs excluding transformation charges, Adjusted costs excluding transformation charges and the impact of the Global Prime Finance transfer to BNP Paribas	Noninterest expenses
Net assets (adjusted)	Total assets
Tangible shareholders’ equity, Average tangible shareholders’ equity, Tangible book value, Average tangible book value	Total shareholders’ equity (book value)
Post-tax return on average shareholders’ equity (based on Net income attributable to Deutsche bank shareholders)	Post-tax return on average shareholders’ equity
Post-tax return on average tangible shareholders’ equity	Post-tax return on average shareholders’ equity
Tangible book value per basic share outstanding, Book value per basic share outstanding	Book value per share outstanding

For descriptions of these non-GAAP financial measures and the adjustments made to the most directly comparable financial measures under IFRS, please refer to “Supplementary Information (Unaudited): Non-GAAP Financial Measures”, which is incorporated by reference herein.

When used with respect to future periods, our non-GAAP financial measures are also forward-looking statements. We cannot predict or quantify the levels of the most directly comparable financial measures under IFRS that would correspond to these measures for future periods. This is because neither the magnitude of such IFRS financial measures, nor the magnitude of the adjustments to be used to calculate the related non-GAAP financial measures from such IFRS financial measures, can be predicted. Such adjustments, if any, will relate to specific, currently unknown, events and in most cases can be positive or negative, so that it is not possible to predict whether, for a future period, the non-GAAP financial measure will be greater than or less than the related IFRS financial measure.

Regulatory fully loaded measures

Our regulatory assets, exposures, risk-weighted assets, capital and ratios thereof are calculated for regulatory purposes and set forth throughout this document under the regulation on prudential requirements for credit institutions and investment firms (“CRR”) and the Capital Requirements Directive (“CRD”) implementing Basel 3, which were published on June 27, 2013 and which apply on and after January 1, 2014. CRR/CRD provides for “transitional” (or “phase-in”) rules, under which capital instruments that are no longer eligible under the new rules are permitted to be phased out as the new rules on regulatory adjustments are phased in, as well as regarding the risk weighting of certain categories of assets. Unless otherwise noted, our CRR/CRD solvency measures set forth in this document reflect these transitional rules. We also set forth in this document such CRR/CRD measures on a “fully loaded” basis, reflecting full application of the final CRR/CRD framework without consideration of the transitional provisions under CRR/CRD, except as described below. Measures calculated pursuant to our fully loaded methodology are non-GAAP financial measures.

With effect from January 1, 2018, the CRR/CRD transitional rules under which Common Equity Tier 1 (CET 1) regulatory adjustments were phased in have reached a rate of 100 %, together with the 100 % phase-out rate of minority interest only recognizable under the transitional rules. For risk-weighted assets (RWA) the grandfathering of equity investments at a risk weight of 100 % expired by the end of 2017. Instead a risk weight between 190 % and 370 % determined based on Article 155 CRR under the CRR/CRD is applied. Hence, starting 2018 onwards, the CET 1 capital and RWA figures show no difference between CRR/CRD and fully loaded CRR/CRD.

Transitional arrangements are still applicable for Additional Tier 1 (AT1) and Tier 2 (T2) capital. Capital instruments that no longer qualify as AT1 or T2 capital under the fully loaded CRR/CRD applicable until June 26, 2019 are subject to grandfathering rules during the transitional period and are being phased out from 2013 to 2022 with their recognition capped at 40 % in 2018, 30 % in 2019 and the cap decreasing by ten percentage points every year thereafter.

We present in this report certain figures based on our definition of own funds (applicable for AT1 capital and T2 capital and figures based thereon, including Tier 1 capital and Leverage Ratio) on a “fully loaded” basis. We calculate such “fully loaded” figures excluding the transitional arrangements for own funds introduced by the CRR/CRD applicable until June 26, 2019, but reflecting the latest transitional arrangements introduced by the amendments to the CRR/CRD applicable from June 27, 2019.

We believe that these “fully loaded” calculations provide useful information to investors as they reflect our progress against the regulatory capital standards and as many of our competitors have been describing calculations on a “fully loaded” basis. As our competitors’ assumptions and estimates regarding “fully loaded” calculations may vary, however, our “fully loaded” measures may not be comparable with similarly labelled measures used by our competitors.

For descriptions of these fully loaded CRR/CRD measures and the differences from the most directly comparable measures under the CRR/CRD transitional rules, please refer to “Management Report: Risk Report: Risk and Capital Performance: Capital, Leverage Ratio and MREL” in the Annual Report 2019, in particular the subsections thereof entitled “Development of Own Funds”, “Development of Risk-Weighted Assets” and “Leverage Ratio”, each of which are incorporated by reference herein.

When used with respect to future periods, our fully loaded CRR/CRD measures are also forward-looking statements. We cannot predict or quantify the levels of the most directly comparable transitional CRR/CRD measures that would correspond to these fully loaded CRR/CRD measures for future periods. In managing our business with the aim of achieving targets based on fully loaded CRR/CRD measures, the relation between the fully loaded and transitional measures will depend upon, among other things, management action taken in light of future business, economic and other conditions.

Use of Internet Addresses

This document contains inactive textual addresses of Internet websites operated by us and third parties. Reference to such websites is made for informational purposes only, and information found at such websites is not incorporated by reference into this document.

PART I

Item 1: Identity of Directors, Senior Management and Advisers

Not required because this document is filed as an annual report.

Item 2: Offer Statistics and Expected Timetable

Not required because this document is filed as an annual report.

Item 3: Key Information

Selected Financial Data

We have derived the data we present in the tables below from our audited consolidated financial statements for the years presented. You should read all of the data in the tables below together with the consolidated financial statements and notes included in “Item 18: Financial Statements” and the information we provide in “Item 5: Operating and Financial Review and Prospects.” Except where we have indicated otherwise, we have prepared all of the consolidated financial information in this document in accordance with International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board (“IASB”) and as endorsed by the European Union (“EU”). Our corporate division and segment data comes from our management reporting systems and is not in all cases prepared in accordance with IFRS. For a discussion of the major differences between our management reporting systems and our consolidated financial statements under IFRS, see Note 4 “Business Segments and Related Information” to the consolidated financial statements.

Income Statement Data

in € m.	2019	2018	2017	2016	2015
Net interest income	13,749	13,192	12,378	14,707	15,881
Provision for credit losses	723	525	525	1,383	956
Net interest income after provision for credit losses	13,026	12,667	11,853	13,324	14,925
Commissions and fee income	9,520	10,039	11,002	11,744	12,765
Net gains (losses) on financial assets/liabilities at fair value through profit or loss	193	1,332	2,926	1,401	3,842
Other noninterest income (loss)	(298)	753	142	2,161	1,037
Total net revenues	23,165	25,316	26,447	30,014	33,525
Compensation and benefits	11,142	11,814	12,253	11,874	13,293
General and administrative expenses	12,253	11,286	11,973	15,454	18,632
Policyholder benefits and claims	0	0	0	374	256
Impairment of goodwill and other intangible assets	1,037	0	21	1,256	5,776
Restructuring activities	644	360	447	484	710
Total noninterest expenses	25,076	23,461	24,695	29,442	38,667
Income (loss) before income taxes	(2,634)	1,330	1,228	(810)	(6,097)
Income tax expense	2,630	989	1,963	546	675
Net income (loss)	(5,265)	341	(735)	(1,356)	(6,772)
Net income attributable to noncontrolling interests	125	75	15	45	21
Net income (loss) attributable to Deutsche Bank shareholders and additional equity components	(5,390)	267	(751)	(1,402)	(6,794)
in € (unless stated otherwise)					
Basic earnings per share ^{1,2}	(2.71)	(0.01)	(0.53)	(1.08)	(4.52)
Diluted earnings per share ^{1,3}	(2.71)	(0.01)	(0.53)	(1.08)	(4.52)
Dividends paid per share ⁴	0.11	0.11	0.19 ⁶	0.00	0.75
Dividends paid per share in U.S.\$ ⁵	0.13	0.13	0.21	0.00	0.84

¹ The number of average basic shares outstanding has been adjusted for all periods before April 2017 in order to reflect the effect of the bonus element of the subscription rights issue in connection with the capital increase in April 2017.

² We calculate basic earnings per share for each period by dividing our net income attributable to Deutsche Bank shareholders by the average number of common shares outstanding. Earnings were adjusted by € 330 million before tax and € 292 million, € 298 million, € 276 million and € 228 million net of tax for the coupons paid on Additional Tier 1 Notes in April 2019, April 2018, April 2017, April 2016 and April 2015, respectively. Since 2019 the tax impact is recognized in net income (loss) directly.

³ We calculate diluted earnings per share for each period by dividing our net income attributable to Deutsche Bank shareholders by the average number of common shares outstanding, both after assumed conversions. Earnings were adjusted by € 330 million before tax and € 292 million, € 298 million, € 276 million and € 228 million net of tax for the coupons paid on Additional Tier 1 Notes in April 2019, April 2018, April 2017, April 2016 and April 2015, respectively. For 2019, 2017, 2016 and 2015, there was no dilutive effect as the Group reported a net loss. There was no dilutive effect for 2018 as the net income was offset by coupons paid on Additional Tier 1 Notes.

⁴ Dividends declared and paid in the year.

⁵ Dividends declared and paid in U.S.\$ were translated from euro into U.S.\$ based on the exchange rates as of the respective payment days.

⁶ The dividend paid in 2017 consisted of € 0.11 for 2016 and of € 0.08 for 2015 that were paid simultaneously in 2017 after the agreement by the annual general meeting in 2017.

Balance Sheet Data

	2019	2018	2017	2016	2015
in € m.	in € m.	in € m.	in € m.	in € m.	in € m.
Total assets	1,297,674	1,348,137	1,474,732	1,590,546	1,629,130
Loans at amortized cost	429,841	400,297	401,699	408,909	427,749
Deposits	572,208	564,405	581,873	550,204	566,974
Long-term debt	136,473	152,083	159,715	172,316	160,016
Common shares ¹	5,291	5,291	5,291	3,531	3,531
Total shareholders' equity	55,857	62,495	63,174	59,833	62,678
Common Equity Tier 1 capital (CRR/CRD 4) ²	44,148	47,486	50,808	47,782	52,429
Common Equity Tier 1 capital (CRR/CRD 4 fully loaded) ²	44,148	47,486	48,300	42,279	44,101
Tier 1 capital (CRR/CRD 4) ²	50,546	55,091	57,631	55,486	58,222
Tier 1 capital (CRR/CRD 4 fully loaded) ²	48,733	52,082	52,921	46,829	48,651
Total regulatory capital (CRR/CRD 4) ²	56,503	61,292	64,016	62,158	64,522
Total regulatory capital (CRR/CRD 4 fully loaded) ²	56,503	61,292	63,250	59,502	60,976

¹ Capital increased from authorized capital against cash contributions through a public offering with subscription rights in April 2017.

² Figures presented based on the transitional rules ("CRR/CRD 4") and the full application ("CRR/CRD 4 fully loaded") of the CRR/CRD 4 framework.

Certain Key Ratios and Figures

	2019	2018	2017	2016	2015
Share price at period-end ¹	€ 6.92	€ 6.97	€ 15.88	€ 15.40	€ 20.10
Share price high ¹	€ 8.32	€ 16.46	€ 17.82	€ 19.72	€ 29.83
Share price low ¹	€ 5.78	€ 6.68	€ 13.11	€ 8.83	€ 18.46
Book value per basic share outstanding ^{2,4}	€ 26.37	€ 29.69	€ 30.16	€ 38.14	€ 40.31
Tangible book value per basic share outstanding ^{3,4}	€ 23.41	€ 25.71	€ 25.94	€ 32.42	€ 33.83
Post-tax return on average shareholders' equity ⁵	(9.5) %	0.4 %	(1.2) %	(2.3) %	(9.8) %
Post-tax return on average tangible shareholders' equity ⁶	(10.9) %	0.5 %	(1.4) %	(2.7) %	(12.3) %
Cost/income ratio ⁷	108.2 %	92.7 %	93.4 %	98.1 %	115.3 %
Compensation ratio ⁸	48.1 %	46.7 %	46.3 %	39.6 %	39.7 %
Noncompensation ratio ⁹	60.1 %	46.0 %	47.0 %	58.5 %	75.7 %
Common Equity Tier 1 capital ratio (CRR/CRD 4) ¹⁰	13.6 %	13.6 %	14.8 %	13.4 %	13.2 %
Common Equity Tier 1 capital ratio (CRR/CRD 4 fully loaded) ¹⁰	13.6 %	13.6 %	14.0 %	11.8 %	11.1 %
Tier 1 capital ratio (CRR/CRD 4) ¹⁰	15.6 %	15.7 %	16.8 %	15.6 %	14.7 %
Tier 1 capital ratio (CRR/CRD 4 fully loaded) ¹⁰	15.0 %	14.9 %	15.4 %	13.1 %	12.3 %
Employees at period-end (full-time equivalent):					
In Germany	40,941	41,669	42,526	44,600	45,757
Outside Germany	46,656	50,068	55,009	55,144	55,347
Branches at period-end:					
In Germany	1,325	1,409	1,570	1,776	1,827
Outside Germany	606	655	855	880	963

¹ Historical share prices have been adjusted on March 20, 2017 with retroactive effect to reflect the capital increase by multiplying a correcting factor of 0.8925.

² Shareholders' equity divided by the number of basic shares outstanding (both at period-end).

³ Shareholders' equity less goodwill and other intangible assets, divided by the number of basic shares outstanding (both at period-end).

⁴ The number of average basic shares outstanding has been adjusted for all periods before April 2017 in order to reflect the effect of the bonus element of the subscription rights issue in connection with the capital increase in April 2017.

⁵ Net income attributable to our shareholders as a percentage of average shareholders' equity.

⁶ Net income attributable to our shareholders as a percentage of average tangible shareholders' equity.

⁷ Total noninterest expenses as a percentage of net interest income before provision for credit losses, plus noninterest income.

⁸ Compensation and benefits as a percentage of total net interest income before provision for credit losses, plus noninterest income.

⁹ Noncompensation noninterest expenses, which is defined as total noninterest expenses less compensation and benefits, as a percentage of total net interest income before provision for credit losses, plus noninterest income.

¹⁰ Figures are based on the transitional rules ("CRR/CRD 4") and the full application ("CRR/CRD 4 fully loaded") of the CRR/CRD 4 framework.

Dividends

The following table shows the dividend per share in euro and in U.S. dollars for the years ended December 31, 2019, 2018, 2017, 2016 and 2015. We declare our dividends at our Annual General Meeting following each year. For 2019, the Management Board will propose in the Annual General Meeting not to pay dividend as there is no distributable profit available. Our dividends are based on the non-consolidated results of Deutsche Bank AG as prepared in accordance with German accounting principles. Because we declare our dividends in euro, the amount an investor actually receives in any other currency depends on the exchange rate between euro and that currency at the time the euros are converted into that currency.

In general, the German withholding tax applicable to dividends is 26.375 % (consisting of a 25 % withholding tax and an effective 1.375 % surcharge). According to an amendment of the German Investment Tax Act, dividends received by a fund within the meaning of the German Investment Tax Act are subject to 15 % German withholding tax equal to the Treaty tax rate. For individual German tax residents the withholding tax paid represents for private dividends, generally, the full and final income tax applicable to the dividends. Dividend recipients who are tax residents of countries that have entered into a convention for avoiding double taxation may be eligible to receive a refund from the German tax authorities for a portion of the amount withheld and in addition may be entitled to receive a tax credit for the German withholding tax not refunded in accordance with their local tax law.

Generally, U.S. residents will be entitled to receive a refund equal to 11.375 % of the dividends received. For US federal income tax purposes, the dividends we pay are not eligible for the dividends received deduction generally allowed for dividends received by US corporations from other US corporations.

Dividends in the table below are presented before German withholding tax.

See "Item 10: Additional Information – Taxation" for more information on the tax treatment of our dividends.

	Dividends per share ^{1,4}	Dividends per share ⁴	Payout ratio ^{2,3}	
			Basic earnings per share	Diluted earnings per share
2019 (proposed)	\$ 0.00	€ 0.00	N/M	N/M
2018	\$ 0.13	€ 0.11	N/M	N/M
2017	\$ 0.13	€ 0.11	N/M	N/M
2016	\$ 0.12	€ 0.11	N/M	N/M
2015	\$ 0.09	€ 0.08	N/M	N/M

N/M – Not meaningful

¹ For your convenience, we present dividends in U.S. dollars for each year by translating the euro amounts at the period end rate for the last business day of each year.

² We define our payout ratio as the dividends we paid per share in respect of each year as a percentage of our basic and diluted earnings per share for that year.

³ The number of average basic and diluted shares outstanding has been adjusted in order to reflect the effect of the bonus element of the subscription rights issue in connection with the capital increase in April 2017. For 2019, 2017, 2016 and 2015, there was no dilutive effect as the Group reported a net loss attributable to shareholders and no dilutive effect for 2018 as net income was offset by AT1 coupons paid.

⁴ Dividends for 2016 and 2015 were approved by the annual general meeting in 2017 and were paid simultaneously in 2017.

Capitalization and Indebtedness

Consolidated capitalization in accordance with IFRS as of December 31, 2019

	in € m.
Debt: ^{1,2}	
Long-term debt	136,473
Trust preferred securities	2,013
Long-term debt at fair value through profit or loss	4,761
Total debt	143,247
Shareholders' equity:	
Common shares (no par value)	5,291
Additional paid-in capital	40,505
Retained earnings	9,644
Common shares in treasury, at cost	(4)
Accumulated other comprehensive income, net of tax	
Unrealized net gains (losses) on financial assets at fair value through other comprehensive income, net of tax and other	45
Unrealized net gains (losses) on derivatives hedging variability of cash flows, net of tax	14
Unrealized net gains (losses) on assets classified as held for sale, net of tax	0
Unrealized net gains (losses) attributable to change in own credit risk of financial liabilities designated at fair value through profit and loss, net of tax	25
Foreign currency translation, net of tax	336
Unrealized net gains (losses) from equity method investments	0
Total shareholders' equity	55,857
Equity component of financial instruments	4,665
Noncontrolling interests	1,638
Total equity	62,160
Total capitalization	205,406

¹ €734 million (0.5 %) of our debt was guaranteed as of December 31, 2019. This consists of debt of a subsidiary which is guaranteed by the German government.

² €57,293 million (40 %) of our debt was secured as of December 31, 2019.

Reasons for the Offer and Use of Proceeds

Not required because this document is filed as an annual report.

Risk Factors

An investment in our securities involves a number of risks. You should carefully consider the following information about the risks we face, together with other information in this document, when you make investment decisions involving our securities. If one or more of these risks were to materialize, it could have a material adverse effect on our financial condition, results of operations, cash flows or prices of our securities.

Risks Relating to the Macroeconomic, Geopolitical and Market Environment

As a global investment bank with a large private client franchise, our businesses are materially affected by global macroeconomic and financial market conditions. Significant risks exist that could negatively affect the results of operations and financial condition in some of our businesses as well as our strategic plans, including deterioration of the economic outlook for the euro area and slowing in emerging markets, trade tensions between the United States and China as well between the United States and Europe, inflation risks, geopolitical risks and risks posed by the COVID 19 pandemic.

In 2019, the global economy slowed markedly due to the adverse effects of trade-related and geopolitical uncertainties. Global manufacturing output experienced a slowdown thereby depressing investment in machinery and equipment. Trade tensions between the U.S. and China as well as between the U.S. and Europe weighed significantly on global trade. But towards the end of 2019, the most important downside risks had moderated somewhat. The announcement to seek a phased trade agreement between the U.S. and China led to more favorable financial conditions and improved growth prospects. Constructive developments regarding Brexit have added to this positive drift. Overall, global economic growth slowed to 3.1 % in 2019, after 3.8 % in 2018. Global inflation was 3.0 % in 2019. In the industrialized countries, GDP grew by 1.7 % and consumer prices rose by 1.4 % while GDP of emerging market economies increased by 4.0 % and inflation reached 4.0 %.

The euro area economy was adversely affected by the slowing of international trade as well as by the fear of a hard Brexit and temporary effects in some member states. In particular, manufacturing output of export-oriented economies declined, while the more domestic oriented services sectors held up well. Growth was supported by domestic demand underpinned by solid income growth and easy financial conditions. Monetary policy remained accommodative as the European Central Bank ("ECB") reinitiated its net asset purchase program at a monthly pace of € 20 billion by November 2019. Overall, the euro area economy expanded by 1.2 % and consumer prices rose by 1.2 % in 2019. Due to the industrial recession caused by the external headwinds, German economic growth more than halved to 0.6 %. The services and construction sectors continued to support growth, as well as private consumption, driven by a tight labor market and solid wage growth.

The U.S. economy showed solid performance in 2019. Driven by fiscal spending as well as supportive financial conditions and consumer spending, backed by wage growth and a tight labor market, U.S. GDP grew by 2.3 % in 2019. Nevertheless, trade uncertainty weighed on manufacturing output and thus reduced capex investments. The inflation rate reached 1.8 % in 2019. The U.S. central bank's monetary policy supported economic activity by cutting its policy rate three times in 2019.

Japan's GDP grew by 0.7 % in 2019, following 0.3 % for 2018. Activity in the manufacturing industry had weakened due to the slowdown in overseas economies. Slower employment growth, cuts in overtime work hours and the consumption tax have weighed on consumption growth. Against this backdrop, the inflation rate fell to 0.5 % in 2019, after 1.0 % in 2018.

In 2019, emerging markets GDP grew by 4.0 %. Emerging Asia economies expanded by 5.3 % as they were heavily affected by the slowdown of global trade. This is particularly true for the smaller, more open economies. In China, GDP grew by 6.1 %. Economic activity slowed due to adverse impacts of U.S. tariffs and weaker world trade in general, but tax cuts and infrastructure spending supported economic activity. Chinese inflation edged higher to 2.9 % in 2019.

There are a number of global economic and political risks that could jeopardize global, regional and national economies. Challenges in containing the COVID 19 pandemic or a more severe global spread could considerably dampen economic momentum further. Despite the signing of the 'Phase One' trade agreement between the U.S. and China in January 2020, further trade conflicts including upcoming trade negotiations between the U.S. and the European Union (EU) could negatively impact the global economic outlook. The introduction of car duties on EU exports to the U.S. would have a negative impact on EU industrial production, especially in Germany. Following Brexit, the United Kingdom ("UK") has entered into a transition period with the EU that is expected to expire at the end of 2020. During 2020, the focus will be on the UK's future trading relationship with the EU with the risk that both parties are unable to reach a trade deal before the end of the transition period. In the eurozone, the government debt burden in some countries, especially in Italy, is a risk due to the fragile political situation. We expect fiscal stimulus proposals from the upcoming U.S. elections, the extent of which, however, will depend on the Congressional composition. Additionally, rising geopolitical tensions, particularly in the Middle East could create further uncertainty.

If these risks materialize, or current negative conditions persist or worsen, our business, results of operations or strategic plans could be adversely affected.

We are subject to global economic, market and business risks with respect to the current COVID 19 pandemic.

The current COVID 19 pandemic is expected to have a negative impact on global, regional and national economies and to disrupt supply chains and otherwise reduce international trade and business activity. Reflecting this, the COVID 19 pandemic has already in February and March 2020 caused the levels of equity and other financial markets to decline sharply and to become volatile, and such effects may continue or worsen in the future. This may in turn reduce the level of activity in which certain of our businesses operate and thus have a negative impact on such businesses' ability to generate revenues or profits. If the pandemic is prolonged and/or extends more widely to countries around the world this could amplify the current negative demand and supply chain effects as well as the negative impact on global growth and global financial markets. Additionally, despite the business continuity and crisis management policies currently in place, travel restrictions or potential impacts on personnel may disrupt our business.

In addition, a substantial proportion of our assets and liabilities comprise financial instruments that we carry at fair value, with changes in fair value recognized in our income statement. The market declines and volatility could negatively impact the value of such financial instruments and cause us to incur losses. The economic slowdown and market downturn could also negatively impact specific portfolios through negative ratings migration and higher than expected loan losses.

The current COVID 19 pandemic and its potential impact on the global economy may affect our ability to meet our financial targets. While it is too early for us to predict the impacts on our business or our financial targets that the expanding pandemic, and the governmental responses to it, may have, we may be materially adversely affected by a protracted downturn in local, regional or global economic conditions. In that situation, we would need to take action to ensure we meet our minimum capital objectives. These actions or measures may result in adverse effects on our business, results of operations or strategic plans and targets, or the prices of our securities.

In the European Union, continued elevated levels of political uncertainty could have unpredictable consequences for the financial system and the greater economy, and could contribute to European de-integration in certain areas, potentially leading to declines in business levels, write-downs of assets and losses across our businesses. Our ability to protect ourselves against these risks is limited.

The last several years have been characterized by increased political uncertainty as Europe in particular has been impacted by the European sovereign debt crisis, the withdrawal of the UK from the European Union ("Brexit"), Italian political and economic developments, protests in France, the refugee crisis and the increasing attractiveness to voters of populist and anti-austerity movements. Negotiations of the future trade relationship between the UK and European Union in the transition period following Brexit could aggravate the already uncertain economic outlook in the UK and Europe and hamper growth. Although the severity of the European debt crisis appeared to have abated somewhat over recent years as the actions by the ECB, the rescue packages and the economic recovery appeared to have stabilized the situation in Europe, political uncertainty has nevertheless continued to be at an elevated level in recent periods and could trigger unwinding of aspects of European integration that have benefitted our businesses. Against this backdrop, the prospects for national structural reform and further integration among EU member states, both viewed as important tools to reduce the eurozone's vulnerabilities to future crises, appear to have worsened. These trends may ultimately result in material reductions in our business levels as our customers rein in activity levels in light of decreased economic output and increased uncertainty, which would materially adversely affect our operating results and financial condition.

An escalation of political risks could have consequences both for the financial system and the greater economy as a whole, potentially leading to declines in business levels, write-downs of assets and losses across our businesses.

In addition, in a number of EU member states which had national elections in recent years, including France, Germany and the Netherlands, political parties disfavoring current levels of European integration, or espousing the unwinding of European integration to varying extents, have attracted support. Brexit has also given a voice to some of these political parties to challenge European integration. The resulting uncertainty could have significant effects on the value of the euro and on prospects for member states' financial stability, which in turn could potentially lead to a significant deterioration of the sovereign debt market, especially if Brexit or any other member country's exit did not result in the strongly adverse effects on the exiting country that many have predicted. If one or more members of the eurozone defaults on their debt obligations or decides to leave the common currency, this would result in the reintroduction of one or more national currencies. Should a eurozone country conclude it must exit the common currency, the resulting need to reintroduce a national currency and restate existing contractual obligations could have unpredictable financial, legal, political and social consequences, leading not only to significant losses on sovereign debt but also on private debt in that country. Given the highly interconnected nature of the financial system within the eurozone, and the high levels of exposure we have to public and private counterparties around Europe, our ability to plan for such a contingency in a manner that would reduce our exposure to non-material levels is likely to be limited. If the overall economic climate deteriorates as a result of one or more departures from the eurozone, our businesses could be adversely affected, and, if overall business levels decline or we are forced to write down significant exposures among our various businesses, we could incur substantial losses.

The withdrawal of the United Kingdom from the European Union – Brexit – may have adverse effects on our business, results of operations or strategic plans.

The UK left the European Union on January 31, 2020. Relationships of the UK with Member States of the European Union are subject to a transition period until December 31, 2020 under a withdrawal agreement. The withdrawal agreement allows us to operate our business in the UK during the transition period as if the UK were still a Member State. During the transition period, the European Union and the UK will be negotiating the terms regarding trade and other relations between them. The UK Government aims to complete a Free Trade Agreement with the European Union during 2020 which would come into effect on January 1, 2021. Any areas where agreement is not reached or alternative arrangement not made would be subject to World Trade Organization rules from this date. However, there remains the risk that a trade deal is not reached in time.

Given the ongoing uncertainty over the UK's withdrawal from the European Union, it is difficult to determine the exact impact on us over the long term. However, the UK's economy and those of the eurozone countries are very tightly linked as a result of EU integration projects other than the euro, and the scale of our businesses in the UK – especially those dependent on activity levels in the City of London, to which we are heavily exposed and which may deteriorate as a result of Brexit – means that even modest effects in percentage terms can have a very substantial adverse effect on our businesses. Brexit without an appropriate agreement between the European Union and the UK following the transition period could, in particular, lead to a disruption of the provision of cross-border financial services. Also, failure to reach such agreement may lead to greater costs to reorganize part of our business than would have been the case with an agreed phase-in solution and may restrict our ability to provide financial services to and from the UK. The currently unsettled future relationship between the EU and the UK is also likely to lead to further uncertainty in relation to the regulation of cross-border business activities.

Also, after the expiry of the transition period, Deutsche Bank AG is planning to continue to provide banking and other financial services on a cross-border basis into the UK as well as through its London branch, which it will retain. Deutsche Bank AG will then be subject to additional regulatory requirements in the UK, and its activities in the UK will be supervised and monitored by both the Prudential Regulatory Authority (“PRA”) and the Financial Conduct Authority (“FCA”). Deutsche Bank AG is already in the process of applying for authorization to provide banking and other financial services in the United Kingdom after the expiry of the transition period. However, Brexit has impacted the structure and business model of our UK operations, and we will need to complete during 2020 the implementation of the governance structure and business controls necessary to comply with new authorization requirements.

Despite our preparations, as a result of Brexit, our business, results of operations or strategic plans could be adversely affected.

We may be required to take impairments on our exposures to the sovereign debt of European or other countries if the European sovereign debt crisis reignites. The credit default swaps into which we have entered to manage sovereign credit risk may not be available to offset these losses.

The effects of the sovereign debt crisis have been especially evident in the financial sector, as a large portion of the sovereign debt of eurozone countries is held by European financial institutions, including Deutsche Bank. As of December 31, 2019, we had a direct sovereign credit risk exposure of €6.2 billion to Italy, €1.2 billion to Spain, €437 million to Greece, €265 million to Ireland and €228 million to Portugal. Despite the apparent abatement of the crisis in recent years, it remains uncertain whether, in light of the current political environment, Greece or other eurozone sovereigns, such as Spain, Italy, Portugal and Cyprus, will be able to manage their debt levels in the future and whether Greece will attempt to renegotiate its past international debt restructuring. The rise of anti-austerity parties and populist sentiment in many of these countries poses a threat to the medium- to long-term measures recommended for these countries to alleviate the tensions in the eurozone caused by drastically differing economic situations among the eurozone states. In the future, negotiations or exchanges similar to the Greek debt restructuring in 2012 could take place with respect to the sovereign debt of these or other affected countries. The outcome of any negotiations regarding changed terms (including reduced principal amounts or extended maturities) of sovereign debt may result in additional impairments of assets on our balance sheet. Any negotiations are highly likely to be subject to political and economic pressures that we cannot control, and we are unable to predict their effects on the financial markets, on the greater economy or on ourselves.

In addition, any restructuring of outstanding sovereign debt may result in potential losses for us and other market participants that are not covered by payouts on hedging instruments that we have entered into to protect against the risk of default. These instruments largely consist of credit default swaps, generally referred to as CDSs, pursuant to which one party agrees to make a payment to another party if a credit event (such as a default) occurs on the identified underlying debt obligation. A sovereign restructuring that avoids a credit event through voluntary write-downs of value may not trigger the provisions in CDSs we have entered into, meaning that our exposures in the event of a write-down could exceed the exposures we previously viewed as our net exposure after hedging. Additionally, even if the CDS provisions are triggered, the amounts ultimately paid under the CDSs may not correspond to the full amount of any loss we incur. We also face the risk that our hedging counterparties have not effectively hedged their own exposures and may be unable to provide the necessary liquidity if payments under the instruments they have written are triggered. This may result in systemic risk for the European banking sector as a whole and may negatively affect our business and financial position.

We are also subject to other global macroeconomic and political risks, including with respect to the Middle East.

The escalation of tensions in the Middle East is another important political risk, which came into focus in light of a brief US-Iran military escalation in January 2020. A full scale conflict would lead to a sharp increase in oil prices and affect oil dependent industries (such as Automotives, Chemicals, Aviation). Ensuing turbulence in global financial markets would impact risky assets and countries. Taken together, a full blown conflict would lead to a substantial slowdown in the global economy and diminish our ability to generate revenues and the profitability on specific portfolios as well as result in higher than expected loan losses. Despite the business continuity and crisis management policies currently in place, a regional conflict could pose challenges related to a potential personnel evacuation as well as loss of business continuity, which may disrupt our business and lead to material losses.

Risks Relating to Our Business and Strategy

Our results of operation and financial condition continue to be negatively impacted by the challenging market environment, uncertain macroeconomic and geopolitical conditions, lower levels of client activity, increased competition and regulation, and the immediate impact of our strategic decisions. If we are unable to improve our profitability as we continue to face these headwinds, we may be unable to meet many of our strategic aspirations, and may have difficulty maintaining capital, liquidity and leverage at levels expected by market participants and our regulators.

In 2019, revenues in our Investment Bank and Private Bank corporate divisions declined and results in our Corporate Bank and Asset Management corporate divisions were essentially flat, reflecting the negative impact of a challenging market environment characterized by low interest rates and low volatility, uncertain macroeconomic and geopolitical conditions, lower levels of client activity and increased competition and regulation. The ultra-low interest rate environment, especially in the eurozone, has put pressure on our margins in our traditional banking business and our trading and markets businesses. Additionally, the low volatility in the market has had a negative impact on our trading and client-driven businesses that may perform well in more volatile environments.

Changes in our business mix towards lower-margin, lower-risk products can limit our opportunities to profit from volatility. Regulators have generally encouraged the banking sector to focus more on the facilitation of client flow and less on risk taking. This has been effected in part by increasing capital requirements for higher-risk activities. In addition, some of our regulators have encouraged or welcomed changes to our business perimeter, consistent with their emphasis on lower-risk activities for banks. In recent years, we have reduced our exposure to a number of businesses that focused on riskier but more capital-intensive products (but that in earlier periods also had the potential to be more highly profitable). Further pressure on our revenues and profitability has resulted from long-term structural trends driven by regulation (especially increased regulatory capital, leverage and liquidity requirements and increased compliance costs) and competition that have further compressed our margins in many of our businesses. Should a combination of these factors continue to lead to reduced margins and subdued activity levels in our trading and markets business over the longer term, this could impair our ability to reach our financial targets.

Although we have in current years made considerable progress resolving litigation, enforcement and similar matters broadly within our established reserves, this pattern may not continue. In particular, these costs could substantially exceed the level of provisions that we established for our litigation, enforcement and similar matters, which can contribute to negative market perceptions about our financial health, costing us business. This, combined with the actual costs of litigation, enforcement and other matters, could in turn adversely affect our ability to maintain capital, liquidity and leverage at levels expected by market participants and our regulators.

Adverse market conditions, asset price deteriorations, volatility and cautious investor sentiment have affected and may in the future materially and adversely affect our revenues and profits, particularly in our investment banking, brokerage and other commission- and fee-based businesses. As a result, we have in the past incurred and may in the future incur significant losses from our trading and investment activities.

As a global investment bank, we have significant exposure to the financial markets and are more at risk from adverse developments in the financial markets than are institutions engaged predominantly in traditional banking activities. Sustained market declines have in the past caused and can in the future cause our revenues to decline, and, if we are unable to reduce our expenses at the same pace, can cause our profitability to erode or cause us to show material losses. Volatility can also adversely affect us, by causing the value of financial assets we hold to decline or the expense of hedging our risks to rise. Reduced customer activity can also lead to lower revenues in our “flow” business.

Specifically, our investment banking revenues, in the form of financial advisory and underwriting fees, directly relate to the number and size of the transactions in which we participate and are susceptible to adverse effects from sustained market downturns. These fees and other income are generally linked to the value of the underlying transactions and therefore can decline with asset values. In addition, periods of market decline and uncertainty tend to dampen client appetite for market and credit risk, a critical driver of transaction volumes and investment banking revenues, especially transactions with higher margins. In recent and other times in the past, decreased client appetite for risk has led to lower levels of activity and lower levels of profitability in our Investment Bank corporate division. Our revenues and profitability could sustain material adverse effects from a significant reduction in the number or size of debt and equity offerings and merger and acquisition transactions.

Market downturns also have led and may in the future lead to declines in the volume of transactions that we execute for our clients and, therefore, to declines in our noninterest income. In addition, because the fees that we charge for managing our clients’ portfolios are in many cases based on the value or performance of those portfolios, a market downturn that reduces the value of our clients’ portfolios or increases the amount of withdrawals reduces the revenues we receive from our asset management and private banking businesses. Even in the absence of a market downturn, below-market or negative performance by our investment funds may result in increased withdrawals and reduced inflows, which would reduce the revenue we receive. While our clients would be responsible for losses we incur in taking positions for their accounts, we may be exposed to additional credit risk as a result of their need to cover the losses where we do not hold adequate collateral or cannot realize it. Our business may also suffer if our clients lose money and we lose the confidence of clients in our products and services.

In addition, the revenues and profits we derive from many of our trading and investment positions and our transactions in connection with them can be directly and negatively impacted by market prices. In each of the product and business lines in which we enter into these trading and investment positions, part of our business entails making assessments about the financial markets and trends in them. When we own assets, market price declines can expose us to losses. Many of the more sophisticated transactions of our Investment Bank corporate division are influenced by price movements and differences among prices. If prices move in a way we have not anticipated, we may experience losses. Also, when markets are volatile, the assessments we have made may prove to lead to lower revenues or profits, or may lead to losses, on the related transactions and positions. In addition, we commit capital and take market risk to facilitate certain capital markets transactions; doing so can result in losses as well as income volatility. Such losses may especially occur on assets we hold for which there are not very liquid markets to begin with. Assets that are not traded on stock exchanges or other public trading markets, such as derivatives contracts between banks, may have values that we calculate using models other than publicly-quoted prices. Monitoring the deterioration of prices of assets like these is difficult and could lead to losses we did not anticipate. We can also be adversely affected if general perceptions of risk cause uncertain investors to remain on the sidelines of the market, curtailing their activity and in turn reducing the levels of activity in those of our businesses dependent on transaction flow.

Additionally, the current market environment is characterized by very low interest rates, particularly in the eurozone, including negative interest yields on German government bonds. A prolonged period of low interest rates in the eurozone or elsewhere could materially impact our net interest margin, profitability and balance sheet deployment. While our revenues are particularly sensitive to interest rates, given the size of our loan and deposit books denominated in Euros, the low interest rates environment can also impact other balance sheet positions which are accounted at fair value. These current conditions, as well as any further easing of monetary conditions, could result in a significant impact on revenues relative to our current expectations. Actions to offset this rate impact, such as pricing changes or the introduction of additional fees, may not be sufficient to offset this impact.

Our liquidity, business activities and profitability may be adversely affected by an inability to access the debt capital markets or to sell assets during periods of market-wide or firm-specific liquidity constraints. Credit rating downgrades have contributed to an increase in our funding costs, and any future downgrade could materially adversely affect our funding costs, the willingness of counterparties to continue to do business with us and significant aspects of our business model.

We have a continuous demand for liquidity to fund our business activities. Our liquidity may be impaired by an inability to access secured and/or unsecured debt markets, an inability to access funds from our subsidiaries or otherwise allocate liquidity optimally across our businesses, an inability to sell assets or redeem our investments, or unforeseen outflows of cash or collateral. This situation may arise due to circumstances unrelated to our businesses and outside our control, such as disruptions in the financial markets, or circumstances specific to us, such as reluctance of our counterparties or the market to finance our operations due to perceptions about potential outflows resulting from litigation, regulatory and similar matters, actual or perceived weaknesses in our businesses, our business model or our strategy, as well as in our resilience to counter negative economic and market conditions. For example, we have experienced steep declines in the price of our shares and increases in the spread versus government bonds at which our debt trades in the secondary markets. Reflecting these conditions, our internal estimates of our available liquidity over the duration of a stressed scenario have at times been negatively impacted in recent periods. In addition, negative developments concerning other financial institutions perceived to be comparable to us and negative views about the financial services industry in general have also affected us in recent years. These perceptions have affected the prices at which we have accessed the capital markets to obtain the necessary funding to support our business activities; should these perceptions exist, continue or worsen, our ability to obtain this financing on acceptable terms may be adversely affected. Among other things, an inability to refinance assets on our balance sheet or maintain appropriate levels of capital to protect against deteriorations in their value could force us to liquidate assets we hold at depressed prices or on unfavorable terms, and could also force us to curtail business, such as the extension of new credit. This could have an adverse effect on our business, financial condition and results of operations.

In addition, we have benefited in recent years from a number of incremental measures by the ECB and other central banks to provide additional liquidity to financial institutions and the financial markets, particularly in the eurozone. To the extent these actions are curtailed or halted, our funding costs could increase, or our funding supply could decrease, which could in turn result in a reduction in our business activities. In particular, any decision by the ECB to discontinue or reduce quantitative easing or steps by the Federal Reserve to tighten its monetary policy or actions by central banks more generally to tighten their monetary policy will likely cause long-term interest rates to increase and accordingly impact the costs of our funding.

Rating agencies regularly review our credit ratings, which could be negatively affected by a number of factors that can change over time, including the credit rating agency's assessment of: our strategy and management's capability; our financial condition including in respect of profitability, asset quality, capital, funding and liquidity; the level of political support for the industries in which we operate; the implementation of structural reform; the legal and regulatory frameworks applicable to our legal structure; business activities and the rights of our creditors; changes in rating methodologies; changes in the relative size of the loss-absorbing buffers protecting bondholders and depositors; the competitive environment, political and economic conditions in our key markets (including the impact of Brexit); and market uncertainty. In addition, credit ratings agencies are increasingly taking into account environmental, social and governance factors, including climate risk, as part of the credit ratings analysis, as are investors in their investment decisions.

Any reductions in our credit ratings, including, in particular, downgrades below investment grade, or a deterioration in the capital markets' perception of our financial resilience could significantly affect our access to money markets, reduce the size of our deposit base and trigger additional collateral or other requirements in derivatives contracts and other secured funding arrangements or the need to amend such arrangements, which could adversely affect our cost of funding and our access to capital markets and could limit the range of counterparties willing to enter into transactions with us. This could in turn adversely impact our competitive position and threaten our prospects in the short to medium-term.

Since the start of the global financial crisis, the major credit rating agencies have lowered our credit ratings or placed them on review or negative watch on multiple occasions. These credit rating downgrades have contributed to an increase in our funding costs. Our credit spread levels (meaning the difference between the yields on our securities as compared to benchmark government bonds) are sensitive to further adverse developments and any future downgrade could bring our credit rating into the non-investment grade category. This could materially and adversely affect our funding costs and significant aspects of our business model. The effect would depend on a number of factors including whether a downgrade affects financial institutions across the industry or on a regional basis, or is intended to reflect circumstances specific to us, such as our potential settlement of regulatory, litigation and similar matters; any actions our senior management may take in advance of or in response to the downgrade; the willingness of counterparties to continue to do business with us; any impact of other market events and the state of the macroeconomic environment more generally.

Additionally, under many of the contracts governing derivative instruments to which we are a party, a downgrade could require us to post additional collateral, lead to terminations of contracts with accompanying payment obligations for us or give counterparties additional remedies. We take these effects into account in our liquidity stress testing analysis, as further described in "Management Report: Risk Report: Liquidity Risk: Stress Testing and Scenario Analysis" in the Annual Report 2019.

On July 7, 2019, we announced changes to our strategy and updates to our financial targets. If we are unable to implement our strategic plans successfully, we may be unable to achieve our financial objectives, or we may incur losses, including further impairments and provisions, or low profitability, and our financial condition, results of operations and share price may be materially and adversely affected.

On July 7, 2019 we announced a strategic transformation intended to reposition Deutsche Bank around its strengths as a leading German bank with strong European roots and a global network. Going forward, we will operate in four client-centric core businesses and separate Capital Release Unit (CRU). Our core bank reflects our strategic vision and comprises the new Corporate Bank, the refocused Investment Bank, the Private Bank and Asset Management, as well as Corporate & Other.

By establishing our new CRU, we plan to liberate capital currently consumed by low return assets, businesses with low profitability and businesses no longer deemed strategic. This includes substantially all of our Equities Sales & Trading business, lower yielding fixed income positions, particularly in Rates, our former CIB Non-Strategic portfolio as well as the exited businesses from our Private & Commercial Bank which include our retail operations in Portugal and Poland.

Our updated key financial targets, as updated in the announcement of our transformation, are:

- Post-tax Return on Average Tangible Equity of 8 % for the Group by 2022
- Adjusted costs of € 17 billion in 2022
- Cost Income Ratio of 70 % by 2022
- Common Equity Tier 1 capital ratio of at least 12.5 %
- Leverage Ratio (fully loaded) of ~5 % from 2022

Our strategic goals are subject to various internal and external factors and to market, regulatory, economic and political uncertainties, and to limitations relating to our operating model. These could negatively impact or prevent the implementation of our strategic goals or the realization of their anticipated benefits. Economic uncertainties such as the impact of the COVID 19 pandemic; the recurrence of extreme turbulence in the markets; potential weakness in global, regional and national economic conditions; the continuation of a market environment characterized by low interest rates and low volatility; increased competition for business; and political instability, especially in Europe, may impact our ability to achieve our strategic goals. Regulatory changes could also adversely impact our ability to achieve our strategic aims. In particular, regulators could demand changes to our business model or organization that could reduce our profitability, or we may be forced to make changes that reduce our profitability in an effort to remain compliant with law and regulation.

We are also involved in numerous litigation, arbitration and regulatory proceedings and investigations in Germany and in a number of jurisdictions outside of Germany, especially in the United States. Such matters are subject to many uncertainties. We expect the litigation environment to continue to be challenging. If litigation and regulatory matters occur at the same or higher rate and magnitude than they have in some recent years or if we are subject to sustained market speculation about our potential exposure to such matters, we may not be able to achieve our strategic aspirations.

Our strategic objectives are also subject to the following assumptions and risks:

- The base case scenario for our financial and capital plan includes revenue growth estimates which are dependent on positive macroeconomic developments. Stagnation or a downturn in the macroeconomic environment could significantly impact our ability to generate the revenue growth necessary to achieve these strategic financial and capital targets. This scenario also includes assumptions regarding our ability to reduce costs in future periods.
- The current COVID 19 pandemic and its potential impact on the global economy may affect our ability to meet our financial targets. While it is too early for us to predict the impacts on our business or our financial targets that the expanding pandemic, and the governmental responses to it, may have, we may be materially adversely affected by a protracted downturn in local, regional or global economic conditions. In that situation, we would need to take action to ensure we meet our minimum capital objectives. These actions or measures may result in adverse effects on our business, results of operations or strategic plans and targets, and the prices of our securities.
- We expect that we will be able to overcome significant challenges arising from our business model. We continue to rely on our trading and markets businesses as a significant source of profit. However, these businesses, in particular our fixed income securities franchise, have continued to face an extremely challenging environment, caused by uncertainty about the duration of the market environment characterized by low interest rates, negative perceptions about our business and central bank intervention in markets and the gradual cessation thereof.
- Asset and client levels have been impacted by the negative market perceptions of Deutsche Bank from time to time. A continued or renewed negative market focus on Deutsche Bank could result in new client and asset outflows.
- We currently operate a highly complex infrastructure, which can compromise the quality of the overall control environment. Establishing a more efficient bank with a strong control environment depends on successfully streamlining and simplifying our IT landscape as well as cultural change.
- A robust and effective internal control environment is necessary to ensure that we conduct our business in compliance with the laws and regulations applicable to us. We may be unable to complete our initiatives to enhance the efficacy of our internal control environment as quickly as we intend or as our regulators demand, and our efforts may be insufficient to prevent all future deficiencies in our control environment or to result in fewer litigations or regulatory and enforcement investigations and proceedings in the future. Furthermore, implementation of enhanced controls may result in higher than expected costs of regulatory compliance that could offset efficiency gains.
- We expect that de-leveraging of CRU will continue. BNP Paribas and Deutsche Bank have signed a master transaction agreement to provide continuity of service to Deutsche Bank's Prime Finance and Electronic Equities clients. Under the agreement Deutsche Bank will continue to operate the platform until clients can be migrated to BNP Paribas. For the remainder of the CRU assets, we will take opportunities to accelerate the wind down, where it is economically rational. In the event that the CRU is not able to de-leverage as planned, or if issues arise that interfere with our agreement with BNP Paribas, our objectives could be jeopardized.

If we fail to implement our strategic initiatives in whole or in part or should the initiatives that are implemented fail to produce the anticipated benefits, or should the costs we incur to implement our initiatives exceed the amounts anticipated, or should we fail to achieve the publicly communicated targets we have set for implementation of these initiatives, we may fail to achieve our financial objectives, or incur losses or low profitability or erosions of our capital base, and our financial condition, results of operations and share price may be materially and adversely affected.

[We may have difficulties selling companies, businesses or assets at favorable prices or at all and may experience material losses from these assets and other investments irrespective of market developments.](#)

We seek to sell or otherwise reduce our exposure to assets that are not part of our core business or as part of our strategy to simplify and focus our business and to meet or exceed capital and leverage requirements, as well as to help us meet our return on tangible equity target. This may prove difficult in the current and future market environment as many of our competitors are also seeking to dispose of assets to improve their capital and leverage ratios and returns on equity. We have already sold a substantial portion of our non-core assets, and our remaining non-core assets may be particularly difficult for us to sell as quickly as we have expected at prices we deem acceptable. Where we sell companies or businesses, we may remain exposed to certain of their losses or risks under the terms of the sale contracts, and the process of separating and selling such companies or businesses may give rise to operating risks or other losses. Unfavorable business or market conditions may make it difficult for us to sell companies, businesses or assets at favorable prices, or may preclude a sale altogether. If we cannot reduce our assets according to plan, we may not be able to achieve the capital targets set out under our strategy.

We may have difficulty in identifying and executing business combinations, and both engaging in combinations and avoiding them could materially harm our results of operations and our share price.

We consider business combinations from time to time. Were we to announce or complete a significant business combination transaction, our share price or the share price of the combined entity could decline significantly if investors viewed the transaction as too costly, dilutive to existing shareholders or unlikely to improve our competitive position. It is generally not feasible for our reviews of any business with which we might engage in a combination to be complete in all respects. As a result, a combination may not perform as well as expected. In addition, we may fail to integrate our operations successfully with any entity with which we participate in a business combination. Failure to complete announced business combinations or failure to achieve the expected benefits of any such combination could materially and adversely affect our profitability. Such failures could also affect investors' perception of our business prospects and management, and thus cause our share price to fall. They could also lead to departures of key employees, or lead to increased costs and reduced profitability if we felt compelled to offer them financial incentives to remain.

If we avoid entering into business combination transactions or if announced or expected transactions fail to materialize, market participants may perceive us negatively. We may also be unable to expand our businesses, especially into new business areas, as quickly or successfully as our competitors if we do so through organic growth alone. These perceptions and limitations could cost us business and harm our reputation, which could have material adverse effects on our financial condition, results of operations and liquidity.

Intense competition, in our home market of Germany as well as in international markets, has and could continue to materially adversely impact our revenues and profitability.

Competition is intense in all of our primary business areas, in Germany as well as in international markets. If we are unable to respond to the competitive environment in these markets with attractive product and service offerings that are profitable for us, we may lose market share in important areas of our business or incur losses on some or all of our activities. In addition, downturns in the economies of these markets could add to the competitive pressure, through, for example, increased price pressure and lower business volumes for us.

There has been substantial consolidation and convergence among financial services companies. This trend has significantly increased the capital base and geographic reach of some of our competitors and has hastened the globalization of the securities and other financial services markets. As a result, we must compete with financial institutions that may be larger and better capitalized than we are and that may have a stronger position in local markets.

In addition to our traditional competitors such as other universal banks and financial services firms, an emerging group of future competitors in the form of start-ups and technology firms, including those providing "fintech" services, are showing an increasing interest in banking services and products. These new competitors could increase competition in both core products, e.g., payments, basic accounts and loans and investment advisory, as well as in new products, e.g., peer to peer lending and equity crowd funding.

Risks Relating to Regulation and Supervision

Regulatory reforms enacted and proposed in response to weaknesses in the financial sector, together with increased regulatory scrutiny more generally, have had and continue to have a significant impact on us and may adversely affect our business and ability to execute our strategic plans. Competent regulators may prohibit us from making dividend payments or payments on our regulatory capital instruments or take other actions if we fail to comply with regulatory requirements.

In response to the global financial crisis and the European sovereign debt crisis, governments and regulatory authorities have worked to enhance the resilience of the financial services industry against future crises through changes to the regulatory framework. The pace of change of new proposals has slowed as the focus turns more to implementation of the various elements of the regulatory reform agenda outlined by the Basel Committee on Banking Supervision (“Basel Committee”) and other standard-setting bodies. As a result, there continues to be uncertainty for us and the financial industry in general, though the level of uncertainty is reduced from prior periods. The range of new laws and regulations or current proposals includes, among other things:

- provisions for more stringent regulatory capital, leverage and liquidity standards,
- restrictions on compensation practices,
- restrictions on proprietary trading and other investment services;
- special bank levies and financial transaction taxes,
- recovery and resolution powers to intervene in a crisis including the “bail-in” of creditors;
- tightened large exposure limits;
- the creation of a single supervisory authority and a single resolution authority within the eurozone and any other participating member states,
- separation of certain businesses from deposit taking,
- stress testing and capital planning regimes,
- heightened reporting requirements, and
- reforms of derivatives, other financial instruments, investment products and market infrastructures.

As a core element of the reform of the regulatory framework, in December 2010, the Basel Committee on Banking Supervision (“Basel Committee”) published a set of comprehensive changes to minimum capital adequacy and liquidity standards, known as Basel 3, which have been implemented into European and national (in our case, German) law beginning in 2014, with the European legislative package also referred to as “CRR/CRD 4” and the Bank Recovery and Resolution Directive (or “BRRD”).

In addition, regulatory scrutiny of compliance with existing laws and regulations has become more intense and supervisory expectations remain significant. The specific effects of a number of new laws and regulations remain uncertain because the drafting and implementation of these laws and regulations are still on-going and supervisory expectations continue to develop.

On June 27, 2019, a comprehensive package of reforms (referred to in the following as the “banking reform package”) to further strengthen the resilience of European Union banks entered into force. The banking reform package includes amendments to the existing regulation on prudential requirements for credit institutions and investment firms, also referred to as the Capital Requirements Regulation (“CRR”), the directive on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, also referred to as the Capital Requirements Directive (“CRD”), the European Union’s Regulation establishing Uniform Rules and a Uniform Procedure for the Resolution of Credit Institutions and certain Investment Firms in the Framework of a Single Resolution Mechanism and a Single Resolution Fund (the “SRM Regulation”), and the BRRD.

The adopted changes incorporate various remaining elements of the regulatory framework agreed within the Basel Committee and the Financial Stability Board (“FSB”) to refine and supplement the global regulatory framework established by the Basel Committee, the so-called Basel Accords (Basel 1, 2 and 3). This includes more risk-sensitive capital requirements, in particular in the area of counterparty credit risk and for exposures to central counterparties, methodologies that reflect more accurately the actual risks to which banks may be exposed, a binding leverage ratio, a binding net stable funding ratio, tighter regulation of large exposures, new reporting requirements for market risk that may be supplemented at a later stage by own funds requirements, and a requirement for global systemically important institutions (“G-SIIs”), such as Deutsche Bank, to hold certain minimum levels of capital and other instruments which are capable of bearing losses in resolution (“Total Loss-Absorbing Capacity” or “TLAC”). Other measures are aimed at improving banks’ lending capacity to support the European Union economy and at further facilitating the role of banks in achieving deeper and more liquid European Union capital markets. While many provisions will not apply until 2021, certain parts, including the TLAC requirements, already apply since June 27, 2019.

At the international level, in December 2017, the Basel Committee published its final agreement (“December 2017 Agreement”) on further revisions to the Basel 3 framework that aim to increase consistency in risk weighted asset calculations and improve the comparability of banks’ capital ratios. The December 2017 Agreement includes, among other things, changes to the standardized and internal ratings-based approaches for determining credit risk, revisions to the operational risk framework, and an “output floor”, set at 72.5 %. The “output floor” limits the amount of capital benefit a bank can obtain from its use of internal models relative to using the standardized approach. This package of reforms is intended to finalize the Basel 3 framework and would reduce the ability of banks to apply internal models, while making the standardized approaches more risk-sensitive and granular. In addition, the December 2017 Agreement introduces a leverage ratio buffer for global systemically important banks (“G-SIBs”), such as Deutsche Bank, to be met with Tier 1 capital and sets it at 50 % of the applicable risk-based G-SIB buffer requirement, which was included in the adopted banking reform package. The Basel Committee also reached agreement on an implementation date for changes in the December 2017 Agreement of January 1, 2022, with a phase-in period of five years through January 1, 2027 for the output floor.

In addition, on January 14, 2019 the Basel Committee also reached an agreement (“January 2019 Agreement”) on reforms to the market risk framework, known as the Fundamental Review of the Trading Book (“FRTB”). The main features of the final standard include an internal models approach to determine the risk weight of exposures that relies on the use of expected shortfall models. The standard sets out separate capital requirements for risks that are deemed non-modellable and includes a more risk-sensitive standardized approach as a fallback to the internal models approach. CRR II (as part of the banking reform package) has introduced specific reporting requirements for market risk based on the revised framework as the first step in the application of the FRTB by EU institutions, and empowers the Commission to propose further regulations to establish own funds requirements for market risk based on the FRTB.

Draft legislative proposals to implement the December 2017 Agreement and the January 2019 Agreement are expected for the second or third quarter of 2020.

The banking reform package will likely affect our business by raising our regulatory capital and liquidity requirements and by leading to increased costs. The December 2017 Agreement and the January 2019 Agreement could also affect our business by imposing higher capital charges when adopted into law.

These requirements may be in addition to regulatory capital buffers that may also be increased or be in addition to those already imposed on us and could themselves materially increase our capital requirements.

Regulatory authorities have substantial discretion in how to regulate banks, and this discretion, and the means available to the regulators, have been steadily increasing during recent years. Regulation may be imposed on an ad hoc basis by governments and regulators in response to ongoing or future crises, and may especially affect financial institutions such as Deutsche Bank that are deemed to be systemically important.

In particular, the regulators with jurisdiction over us, including the ECB under the Single Supervisory Mechanism (also referred to as the “SSM”), may, in connection with the supervisory review and evaluation process (“SREP”) or otherwise, conduct stress tests and have discretion to impose capital surcharges on financial institutions for risks, including for litigation, regulatory and similar matters, that are not otherwise recognized in risk weighted assets or other surcharges depending on the individual situation of the bank and take or require other measures, such as restrictions on or changes to our business. In this context, the ECB may impose, and has imposed, on us individual capital requirements resulting from the SREP which are referred to as “Pillar 2” requirements. “Pillar 2” requirements must be fulfilled with Common Equity Tier 1 capital in addition to the statutory minimum capital and buffer requirements and any non-compliance may have immediate legal consequences such as restrictions on dividend payments.

Also following the SREP, the ECB may communicate to individual banks, and has communicated to us, an expectation to hold a further “Pillar 2” Common Equity Tier 1 capital add-on, the so-called “Pillar 2” guidance. Although the “Pillar 2” guidance is not legally binding and failure to meet the “Pillar 2” guidance does not automatically trigger legal action, the ECB has stated that it expects banks to meet the “Pillar 2” guidance.

Also, more generally, competent regulators may, if we fail to comply with regulatory requirements, in particular with statutory minimum capital requirements, “Pillar 2” requirements or buffer requirements, or if there are shortcomings in our governance and risk management processes, prohibit us from making dividend payments to shareholders or distributions to holders of our other regulatory capital instruments. This could occur, for example, if we fail to make sufficient profits due to declining revenues, or as a result of substantial outflows due to litigation, regulatory and similar matters. Generally, a failure to comply with the quantitative and qualitative regulatory requirements could have a material adverse effect on our business, financial condition and results of operations, including our ability to pay out dividends to shareholders or distributions on our other regulatory capital instruments or, in certain circumstances, conduct business which we currently conduct or plan to conduct in the future.

Regulatory and legislative changes require us to maintain increased capital and bail-inable debt (debt that can be bailed in in resolution) and abide by tightened liquidity requirements. These requirements may significantly affect our business model, financial condition and results of operations as well as the competitive environment generally. Any perceptions in the market that we may be unable to meet our capital or liquidity requirements with an adequate buffer, or that we should maintain capital or liquidity in excess of these requirements or another failure to meet these requirements could intensify the effect of these factors on our business and results.

The implementation of the CRR/CRD 4 legislative package resulted, among other things, in increased capital and tightened liquidity requirements, including additional capital buffer requirements which were gradually phased in through January 1, 2019. Further revisions, such as stricter rules on the measurement of risks and the changes introduced by the banking reform package, the December 2017 Agreement and the January 2019 Agreement, increased risk weighted assets and the corresponding capital demand for banks, as well as tightened liquidity requirements (such as the introduction of a binding net stable funding ratio). In addition, the introduction of a binding leverage ratio (including a leverage ratio buffer when implemented into German law) by the banking reform package may affect our business model, financial conditions and results of operations.

Furthermore, under the SRM Regulation, the BRRD and the German Recovery and Resolution Act (Sanierungs- und Abwicklungsgesetz), we are required to meet at all times a robust minimum requirement for own funds and eligible liabilities ("MREL") which is determined on a case-by-case basis by the competent resolution authority. In addition, the banking reform package implemented the FSB's TLAC standard for G-SIBs (such as us) by introducing a new Pillar 1 MREL requirement for G-SIBs (the European equivalent term for G-SIBs). This new requirement is based on both risk-based and non-risk-based denominators and will be set at the higher of 18 % of total risk exposure and 6.75 % of the leverage ratio exposure measure following a transition period (until December 31, 2021, 16 % of total risk exposure and 6 % of the leverage ratio exposure measure). It can be met with Tier 1 or Tier 2 capital instruments or debt that meets specific eligibility criteria. Deduction rules apply for holdings by G-SIBs of TLAC instruments of other G-SIBs. In addition, the competent authorities have the ability to impose on G-SIBs individual MREL requirements that exceed the statutory minimum requirements.

Both the TLAC (or Pillar 1 MREL) and MREL requirements are specifically designed to require banks to maintain a sufficient amount of instruments which are eligible to absorb losses in resolution with the aim of ensuring that failing banks can be resolved without recourse to taxpayers' money. To that end, in order to facilitate the meeting of TLAC requirements by German banks, obligations of German banks under certain specifically defined senior unsecured debt instruments issued by them (such as bonds that are not structured debt instruments) rank, since 2017, junior to all other outstanding unsecured unsubordinated obligations of such bank (such as deposits, derivatives, money market instruments and certain structured debt instruments), but continue to rank in priority to contractually subordinated debt instruments (such as Tier 2 instruments).

As part of the harmonization of national rules on the priority of claims of banks' creditors in the European Union, the BRRD now allows banks to issue "senior non-preferred" debt instruments ranking according to their terms (and not only statutorily) junior to the bank's other unsubordinated debt instruments (including bonds that are not treated as "senior non-preferred" debt instruments), but in priority to the bank's contractually subordinated liabilities (such as Tier 2 instruments). Any such "senior non-preferred" debt instruments issued by Deutsche Bank AG under such rules rank on parity with its then outstanding "senior non-preferred" debt instruments under the prior rules. This BRRD amendment was finalized and implemented into German law as of July 21, 2018.

The need to comply with these requirements may affect our business, financial condition and results of operation and in particular may increase our financing costs.

We may not have sufficient capital or other loss-absorbing liabilities to meet these increasing regulatory requirements. This could occur due to regulatory changes and other factors, such as the gradual phase out of our hybrid capital instruments qualifying as Additional Tier 1 (or AT1) capital or our inability to issue new securities which are recognized as regulatory capital or loss-absorbing liabilities under the new standards, due to an increase of risk weighted assets based on more stringent rules for the measurement of risks or as a result of a future decline in the value of the euro as compared to other currencies, due to stricter requirements for the compliance with the non-risk based leverage ratio, due to any substantial losses we may incur, which would reduce our retained earnings, a component of Common Equity Tier 1 capital, or due to a combination of these or other factors.

If we are unable to maintain sufficient capital to meet the applicable minimum capital ratios, the buffer requirements, any specific "Pillar 2" capital requirements, leverage ratio requirements, or TLAC or MREL requirements, we may become subject to enforcement actions and/or restrictions on the pay-out of dividends, share buybacks, payments on our other regulatory capital instruments, and discretionary compensation payments. In addition, any requirement to increase risk-based capital ratios or the leverage ratio could lead us to adopt a strategy focusing on capital preservation and creation over revenue generation and profit growth, including the reduction of higher margin risk weighted assets. If we are unable to increase our capital ratios to the regulatory minimum in such a case or by raising new capital through the capital markets, through the reduction of risk weighted assets or through other means, we may be required to activate our group recovery plan. If these actions or other private or supervisory actions do not restore capital ratios to the required levels, and we are deemed to be failing or likely to fail, competent authorities may apply resolution powers under the Single Resolution Mechanism ("SRM") and applicable rules and regulations, which could lead to a significant dilution of our shareholders' or even the total loss of our shareholders' or creditors' investment.

The CRR introduced a new liquidity coverage requirement intended to ensure that banks have an adequate stock of unencumbered high quality liquid assets that can be easily and quickly converted into cash to meet their liquidity needs for a 30 calendar day liquidity stress scenario. The required liquidity coverage ratio ("LCR") is calculated as the ratio of a bank's liquidity buffer to its net liquidity outflows. Also, banks must regularly report the composition of the liquid assets in their liquidity buffer to their competent authorities.

In addition, the banking reform package introduced a net stable funding ratio ("NSFR") to reduce medium- to long-term funding risks by requiring banks to fund their activities with sufficiently stable sources of funding over a one-year period. The NSFR, which will apply from June 28, 2021 onwards, is defined as the ratio of a bank's available stable funding relative to the amount of required stable funding over a one-year period. Banks must maintain an NSFR of at least 100 %. The ECB may impose on individual banks liquidity requirements which are more stringent than the general statutory requirements if the bank's continuous liquidity would otherwise not be ensured. The NSFR will apply to both the Group as a whole and to individual SSM regulated entities, including the parent entity Deutsche Bank AG. Upon the introduction of the ratio as a binding minimum requirement, we expect both the Group and its subsidiaries for which it applies to be above the regulatory minimum. To achieve this for Deutsche Bank AG, the company is actively working on a number of structural initiatives to improve the standalone NSFR position. In the event these initiatives are not successfully completed by June 2021, Deutsche Bank AG may incur additional costs.

If we fail to meet liquidity requirements, we may become subject to enforcement actions. In addition, any requirement to maintain or increase liquidity could lead us to reduce activities that pursue revenue generation and profit growth.

On January 31, 2020, the European Banking Authority and the ECB launched the 2020 EU-wide stress test, designed to provide supervisors, banks and other market participants with a common analytical framework to compare and assess the resilience of EU banks to economic shocks, releasing at the same time the macroeconomic scenarios for the test. The results of the exercise will feed into the ECB's ongoing supervisory assessments of banks, including the SREP. However, the outcome of the stress test will not affect supervisory capital and liquidity requirements in a mechanical way.

In some cases, we are required to hold and calculate capital and to comply with rules on liquidity and risk management separately for our local operations in different jurisdictions, in particular in the United States.

We are required to hold and calculate capital and to comply with rules on liquidity and risk management separately for our local operations in different jurisdictions. In the United States, the Federal Reserve Board has adopted rules that impose enhanced prudential standards on our U.S. operations. In February 2014, the Federal Reserve Board adopted rules that set forth how the U.S. operations of certain foreign banking organizations (“FBOs”), such as Deutsche Bank, are required to be structured in the United States, as well as the enhanced prudential standards that apply to our U.S. operations. Under these rules, as of July 1, 2016, a large FBO with U.S.\$ 50 billion or more in U.S. non-branch assets, such as Deutsche Bank, was required to establish or designate a separately capitalized top-tier U.S. intermediate holding company (an “IHC”) that would hold substantially all of the FBO’s ownership interests in its U.S. subsidiaries. The Federal Reserve Board may permit an FBO subject to the U.S. IHC requirement to establish or designate multiple U.S. IHCs upon written request. On July 1, 2016, we designated DB USA Corporation as our IHC. In March 2018, we completed the partial initial public offering of our Asset Management division, to form DWS Group GmbH & Co. KGaA (“DWS”), in which we retain approximately 80 % of the shares. In April 2018, DWS USA Corporation was formed as a subsidiary of DWS, and, following receipt of Federal Reserve Board approval, we designated it as our second IHC, through which our U.S. asset management subsidiaries are held. As of the date of designation or formation of each of these IHCs, they each became subject, on a consolidated basis, to the risk-based and leverage capital requirements under the U.S. Basel 3 capital framework, capital planning and stress testing requirements (on a phased-in basis), U.S. liquidity buffer requirements and other enhanced prudential standards comparable to those applicable to top-tier U.S. bank holding companies of a similar size as DB USA Corporation. Supplementary leverage ratio requirements applicable to DB USA Corporation took effect beginning in January 2018 and were applicable to DWS USA Corporation upon its formation. The Federal Reserve Board has the authority to examine an IHC, such as DB USA Corporation and DWS USA Corporation, and its subsidiaries, as well as U.S. branches and agencies of FBOs, such as our New York branch.

On October 10, 2019, the Federal Reserve Board finalized rules to categorize the U.S. operations of large FBOs based on size, complexity and risk for purposes of tailoring the application of the U.S. enhanced prudential standards (the “Tailoring Rules”). The Tailoring Rules do not significantly change the capital requirements that apply to DB USA Corporation or DWS USA Corporation although they provide the option to comply with certain simplifications to the capital requirements. However, the Tailoring Rules provide modest relief for our U.S. IHCs with respect to applicable liquidity requirements so long as our IHCs’ combined weighted short term wholesale funding remains below \$75 billion.

As a bank holding company with assets of U.S.\$ 250 billion or more, Deutsche Bank AG is required under Title I of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, as amended (the “Dodd-Frank Act”), and the implementing regulations thereunder to prepare and submit periodically to the Federal Reserve Board and the Federal Deposit Insurance Corporation (“FDIC”) a plan for the orderly resolution of its subsidiaries and operations in the event of future material financial distress or failure (the “U.S. Resolution Plan”). For foreign-based companies subject to these resolution planning requirements such as Deutsche Bank AG, the U.S. Resolution Plan relates only to subsidiaries, branches, agencies and businesses that are domiciled in or whose activities are carried out in whole or in material part in the United States. Deutsche Bank AG filed its most recent U.S. Resolution Plan in June 2018 and received written regulatory feedback in December 2018. The Federal Reserve Board and FDIC found that Deutsche Bank’s U.S. Resolution Plan had no deficiencies but identified one shortcoming in the plan, associated with governance mechanisms and related escalation triggers. Deutsche Bank submitted a response to its December 2018 feedback letter on April 1, 2019. Deutsche Bank’s response discussed its proposed remediation of the shortcoming as well as enhancements of its resolution capabilities. Deutsche Bank is required to make a submission to the Federal Reserve Board and FDIC by July 1, 2020 explaining how it remediated the shortcoming and providing an update on the enhancement of its resolutions capabilities. Following this submission, Deutsche Bank’s next targeted U.S. Resolution Plan is due on or before July 1, 2021. If the Federal Reserve Board and the FDIC were to jointly deem our U.S. Resolution Plan not credible and we failed to remedy any deficiencies in the required timeframe, we could be required to restructure or reorganize businesses, legal entities, operational systems and/or intra-company transactions in ways that may negatively impact our operations and strategy, or could be subject to restrictions on growth. We could also eventually be subjected to more stringent capital, leverage or liquidity requirements, or be required to divest certain assets or operations.

Both DB USA Corporation and DWS USA Corporation were subject to the Federal Reserve Board’s Comprehensive Capital Analysis and Review (“CCAR”) for 2019. On June 27, 2019, the Federal Reserve Board publicly indicated that it did not object to the 2019 capital plans submitted by DB USA Corporation and DWS USA Corporation. DB USA Corporation and DWS USA Corporation will make their next capital plan submissions to the Federal Reserve Board in April 2020. If the Federal Reserve Board were to object to these capital plans we could be required to increase capital or restructure businesses in ways that may negatively impact our operations and strategy or could be subject to restrictions on growth in the United States. On March 4, 2020, the Federal Reserve Board issued a rule to amend its CCAR process to combine the CCAR quantitative assessment and the buffer requirements in the Federal Reserve Board’s capital rules to create an integrated capital buffer requirement.

The U.S. federal bank regulators in 2013 issued final rules implementing elements of the Basel 3 capital adequacy framework that are applicable to U.S. banking organizations.

In September 2014, the Federal Reserve Board and other U.S. regulators approved a final rule implementing liquidity coverage ratio ("LCR") requirements for large U.S. banking holding companies and certain of their subsidiary depository institutions that are generally consistent with the Basel Committee's revised Basel 3 liquidity standards. DB USA Corporation and our principal U.S. bank subsidiary, Deutsche Bank Trust Company Americas ("DBTCA"), became subject to the full LCR requirements on April 1, 2017 and DWS USA Corporation became subject to LCR requirements on a phased-in basis upon its formation in April 2018. The Tailoring Rules reduced the LCR requirements applicable to DB USA Corporation, DWS USA Corporation and DBTCA from 100 to 85 percent beginning on January 1, 2020.

On June 1, 2016, the Federal Reserve Board and other U.S. regulators proposed rules implementing the second element of the Basel 3 liquidity framework, the net stable funding ratio ("NSFR"), which measures whether an institution maintains sufficiently stable amounts of longer-term funding. Under the Tailoring Rules, DB USA Corporation, DWS USA Corporation and DBTCA would be subject to an 85 percent NSFR so long as our IHCs' combined weighted short term wholesale funding remains below \$ 75 billion; however, the NSFR proposal has yet to be finalized and, accordingly, such entities are not currently subject to the proposed requirements.

On December 15, 2016, the Federal Reserve Board adopted final rules that implement the FSB's TLAC standard in the United States. The final rules require, among other things, U.S. IHCs of non-U.S. G-SIBs, including our IHCs, DB USA Corporation and DWS USA Corporation, to maintain a minimum amount of TLAC, and separately require them to maintain a minimum amount of long-term debt meeting certain requirements.

U.S. rules and interpretations, including those described above, could cause us to reduce assets held in the United States, inject capital and/or liquidity into or otherwise change the structure of our U.S. operations, and could also restrict the ability of our U.S. subsidiaries to pay dividends to us or the amount of such dividends. To the extent that we are required to reduce operations in the United States or deploy capital or liquidity in the United States that could be deployed more profitably elsewhere, these requirements could have an adverse effect on our business, financial condition and results of operations.

Any increased capital or liquidity requirements, including those described above, could have adverse effects on our business, financial condition and results of operations, as well as on perceptions in the market of our stability, particularly if any such proposal becomes effective and results in our having to raise capital at a time when we or the financial markets are distressed, or take other measures to increase liquidity in certain jurisdictions due to local requirements. These measures we might be required or find necessary to take in response to these shifting local requirements may be inconsistent with, and hinder the achievement of our strategic goals. In addition, if these regulatory requirements must be implemented more quickly than currently foreseen, we may decide that the quickest and most reliable path to compliance is to reduce the level of assets on our balance sheet, dispose of assets or otherwise segregate certain activities or reduce or close down certain business lines. The effects on our capital raising efforts in such a case could be amplified due to the expectation that our competitors, at least those subject to the same or similar capital requirements, would likely also be required to raise capital at the same time. Moreover, some of our competitors, particularly those outside the European Union, may not face the same or similar regulations, which could put us at a competitive disadvantage.

In addition to these regulatory initiatives, market sentiment may encourage financial institutions such as Deutsche Bank to maintain significantly more capital, liquidity and loss-absorbing capital instruments than regulatory-mandated minima, which could exacerbate the effects on us described above or, if we do not increase our capital to the encouraged levels, could lead to the perception in the market that we are undercapitalized relative to our peers generally.

It is unclear whether the U.S. capital and other requirements described above, as well as similar developments in other jurisdictions could lead to a fragmentation of supervision of global banks that could adversely affect our reliance on regulatory waivers allowing us to meet capital adequacy requirements, large exposure limits and certain organizational requirements on a consolidated basis only rather than on both a consolidated and non-consolidated basis. Should we no longer be entitled to rely on these waivers, we would have to adapt and take the steps necessary in order to meet regulatory capital requirements and other requirements on a consolidated as well as a non-consolidated basis, which could result also in significantly higher costs and potential adverse effects on our profitability and dividend paying ability.

Our regulatory capital and liquidity ratios and our funds available for distributions on our shares or regulatory capital instruments will be affected by our business decisions and, in making such decisions, our interests and those of the holders of such instruments may not be aligned, and we may make decisions in accordance with applicable law and the terms of the relevant instruments that result in no or lower payments being made on our shares or regulatory capital instruments.

Our regulatory capital and liquidity ratios are affected by a number of factors, including decisions we make relating to our businesses and operations as well as the management of our capital position, of our risk weighted assets and of our balance sheet in general, and external factors, such as regulations regarding the risk weightings we are permitted to allocate to our assets, commercial and market risks or the costs of our legal or regulatory proceedings. While we and our management are required to take into account a broad range of considerations in our and their managerial decisions, including the interests of the Bank as a regulated institution and those of our shareholders and creditors, particularly in times of weak earnings and increasing capital requirements, the regulatory requirements to build capital and liquidity may become paramount. Accordingly, in making decisions in respect of our capital and liquidity management, we are not required to adhere to the interests of the holders of instruments we have issued that qualify for inclusion in our regulatory capital, such as our shares or Additional Tier 1 capital instruments. We may decide to refrain from taking certain actions, including increasing our capital at a time when it is feasible to do so (through securities issuances or otherwise), even if our failure to take such actions would result in a non-payment or a write-down or other recovery- or resolution-related measure in respect of any of our regulatory capital instruments. Our decisions could cause the holders of such regulatory capital instruments to lose all or part of the value of their investments in these instruments due to their effect on our regulatory capital ratios, and such holders will not have any claim against us relating to such decisions, even if they result in a non-payment or a write-down or other recovery- or resolution-related measure in respect of such instruments they hold.

In addition, our annual profit and distributable reserves form an important part of the funds available for us to pay dividends on our shares and make payments on our other regulatory capital instruments, as determined in the case of each such instrument by its terms or by operation of law, and any adverse change in our financial prospects, financial position or profitability, or our distributable reserves, each as calculated on an unconsolidated basis, may have a material adverse effect on our ability to make dividend or other payments on these instruments. In addition, as part of the implementation of our strategy, we may record impairments that reduce the carrying value of subsidiaries on our unconsolidated balance sheet and reduce profits and distributable reserves. Future impairments or other events that reduce our profit or distributable reserves on an unconsolidated basis could lead us to be unable to make such payments in respect of future years in part or at all. In particular, the direct costs of our potential settlements of litigation, enforcement and similar matters, especially to the extent in excess of provisions we have established for them, and their related business impacts, if they occur, could impact such distributable amounts.

In addition, German law places limits on the extent to which annual profits and otherwise-distributable reserves, as calculated on an unconsolidated basis, may be distributed to our shareholders or the holders of our other regulatory capital instruments, such as our Additional Tier 1 capital instruments. Our management also has, subject to applicable law, broad discretion under the applicable accounting principles to influence all amounts relevant for calculating funds available for distribution. Such decisions may impact our ability to make dividend or other payments under the terms of our regulatory capital instruments.

European and German legislation regarding the recovery and resolution of banks and investment firms could, if steps were taken to ensure our resolvability or resolution measures were imposed on us, significantly affect our business operations, and lead to losses for our shareholders and creditors.

Germany participates in the SRM, which centralizes at a European level the key competences and resources for managing the failure of any bank in member states of the European Union participating in the banking union. The SRM is based on the SRM Regulation and the BRRD, which was implemented in Germany through the German Recovery and Resolution Act. In addition, the German Resolution Mechanism Act (Abwicklungsmechanismusgesetz) adapted German bank resolution laws to the SRM.

The SRM Regulation and the German Recovery and Resolution Act require the preparation of recovery and resolution plans for banks and grant broad powers to public authorities to intervene in a bank which is failing or likely to fail. For a bank directly supervised by the ECB, such as Deutsche Bank, the Single Resolution Board (referred to as the “SRB”) assesses its resolvability and may require legal and operational changes to the bank’s structure to ensure its resolvability. In the event that such bank is deemed by the ECB or the SRB as failing or likely to fail and certain other conditions are met, the SRB is responsible for adopting a resolution scheme for resolving the bank pursuant to the SRM Regulation. The European Commission and, to a lesser extent, the Council of the European Union, have a role in endorsing or objecting to the resolution scheme proposed by the SRB. The resolution scheme would be addressed to and implemented by the competent national resolution authorities (in Germany, the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, “BaFin”)) in line with the national laws implementing the BRRD. Resolution measures that could be imposed upon a bank in resolution may include the transfer of shares, assets or liabilities of the bank to another legal entity, the reduction, including to zero, of the nominal value of shares, the dilution of shareholders or the cancellation of shares outright, or the amendment, modification or variation of the terms of the bank’s outstanding debt instruments, for example by way of a deferral of payments or a reduction of the applicable interest rate. Furthermore, certain eligible unsecured liabilities, in particular certain senior “non-preferred” debt instruments specified by the German Banking Act, may be written down, including to zero, or converted into equity (commonly referred to as “bail-in”) if the bank becomes subject to resolution.

The SRM is intended to eliminate, or reduce, the need for public support of troubled banks. Therefore, financial public support for such banks, if any, would be used only as a last resort after having assessed and exploited, to the maximum extent practicable, the resolution powers, including a bail-in. The taking of actions to ensure our resolvability or the exercise of resolution powers by the competent resolution authority could materially affect our business operations and lead to a significant dilution of our shareholders or even the total loss of our shareholders’ or creditors’ investment.

[Other regulatory reforms adopted or proposed in the wake of the financial crisis – for example, extensive new regulations governing our derivatives activities, compensation, bank levies, deposit protection, data protection or a possible financial transaction tax – may materially increase our operating costs and negatively impact our business model.](#)

Beyond capital requirements and the other requirements discussed above, we are affected, or expect to be affected, by various additional regulatory reforms, including, among other things, regulations governing our derivatives activities, compensation, bank levies, deposit protection, data protection or a possible financial transaction tax.

On August 16, 2012, the EU Regulation on over-the-counter (“OTC”) derivatives, central counterparties and trade repositories, referred to as European Market Infrastructure Regulation (“EMIR”), entered into force. EMIR introduced a number of requirements, including clearing obligations for certain classes of OTC derivatives and various reporting and disclosure obligations. EMIR implementation has led and may lead to changes that may negatively impact our profit margins. The revised Markets in Financial Instruments Directive (“MiFID 2”) and the corresponding Regulation (“MiFIR”) became applicable to us on January 3, 2018 and provide for, among other things, a trading obligation for those OTC derivatives which are subject to mandatory clearing and which are sufficiently standardized.

In the United States, the Dodd-Frank Act has numerous provisions that affect or may affect our operations. Pursuant to regulations implementing provisions of the Dodd-Frank Act, we provisionally registered as a swap dealer with the U.S. Commodity Futures Trading Commission (“CFTC”) and became subject to the CFTC’s extensive oversight. Regulation of swap dealers by the CFTC imposes numerous corporate governance, business conduct, capital, margin, reporting, clearing, execution and other regulatory requirements on us. It also requires us to comply with certain U.S. rules in some circumstances with respect to transactions conducted outside of the United States or with non-U.S. persons. Although the coverage of EMIR and CFTC regulations implementing the Dodd-Frank Act is in many ways similar, certain swaps may be subject to both regulatory regimes to a significant extent. However, pursuant to the CFTC’s guidance on cross-border swaps regulation, there may be instances where we can comply with the requirements of EMIR and MiFID in lieu of complying with the CFTC’s requirements. The requirements under the Dodd-Frank Act may adversely affect our derivatives business and make us less competitive, especially as compared to competitors not subject to such regulation.

Additionally, under the Dodd-Frank Act, security-based swaps are subject to a standalone regulatory regime under the jurisdiction of the U.S. Securities and Exchange Commission (“SEC”). The SEC has recently adopted supplemental guidance and rule amendments addressing the cross-border application of certain rules regulating security-based swaps. This rulemaking will establish a firm timeline for security-based swap dealer registration. The compliance date for Deutsche Bank to register with the SEC is no earlier than October 6, 2021. This will impose further regulation of our derivatives business.

In addition, the CRR/CRD 4 legislative package provides for executive compensation reforms including caps on bonuses that may be awarded to “material risk takers” and other employees as defined therein and in the German Banking Act and other applicable rules and regulations such as the Remuneration Regulation for Institutions (Institutsvergütungsverordnung). Such restrictions on compensation, including any guidelines issued by the European Banking Authority to further implement them, could put us at a disadvantage to our competitors in attracting and retaining talented employees, especially compared to those outside the European Union that are not subject to these caps and other constraints.

Following the financial crisis, bank levies have been introduced in some countries including, among others, Germany and the United Kingdom. We accrued €622 million for bank levies in 2019, €690 million in 2018 and €596 million in 2017. Also, we are required to contribute substantially to the Single Resolution Fund under the SRM (which is intended to reach a target level of 1 % of insured deposits of all banks in member states participating in the SRM by the end of 2023) and the statutory deposit guarantee and investor compensation schemes under the recast European Union directive on deposit guarantee schemes (“DGS Directive”) and the European Union directive on investor compensation schemes. The DGS Directive defines a 0.8 % target level of prefunding by 2024 (similar to resolution funds), which has significantly increased the costs of the statutory deposit protection scheme. In addition, in this context, on November 24, 2015, the European Commission proposed a regulation to establish a European Deposit Insurance Scheme, or “EDIS”, for bank deposits of all credit institutions that are members of any of the current national statutory deposit guarantee schemes of member states participating in the banking union. While the total impact of these future levies cannot currently be quantified, they may have a material adverse effect on our business, financial condition and results of operations in future periods.

We are subject to the General Data Protection Regulation (“GDPR”) which has increased our regulatory obligations in connection with the processing of personal data, including requiring compliance with the GDPR’s data protection principles, the increased number of data subject rights and strict data breach notification requirements. The GDPR grants broad enforcement powers to supervisory authorities, including the potential to levy significant fines for non-compliance and provides for a private right of action for individuals who are affected by a violation of the GDPR. Compliance with the GDPR requires investment in appropriate technical and organizational measures and we may be required to devote significant resources to data protection on an ongoing basis. In the event that we are found to have not met the standards required by the GDPR we may incur damage to our reputation, the imposition by data protection supervisory authorities of significant fines or restrictions on our ability to process personal data, and we may be required to defend claims for compensation brought by affected individuals, all of which could have a material adverse effect on us.

Since the Council of the European Union adopted a decision in January 2013 authorizing EU member states to proceed with the introduction of a financial transaction tax under the European Union’s “enhanced cooperation procedure”, the EU member states Austria, Belgium, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia and Spain have been discussing the introduction of a European financial transaction tax. To date, Italy and France have introduced a national tax on listed share transactions. With the recently issued new legislative draft on the basis of renewed political commitment from the German Finance Minister, a risk that a European financial transaction tax may be introduced remains, though there is no timetable. If such a financial transaction tax is ultimately adopted, depending on its final details, it could result in compliance costs.

Risks Relating to Our Internal Control Environment

A robust and effective internal control environment and adequate infrastructure (comprising people, policies and procedures, controls testing and IT systems) are necessary to ensure that we conduct our business in compliance with the laws, regulations and associated supervisory expectations applicable to us. We have identified the need to strengthen our internal control environment and infrastructure and have embarked on initiatives to accomplish this. If these initiatives are not successful or are delayed, our reputation, regulatory position and financial condition may be materially adversely affected, and our ability to achieve our strategic ambitions may be impaired.

Our businesses are highly dependent on our ability to maintain a robust and effective internal control environment. This is needed for the Bank to process and monitor, on a daily basis, a wide variety of transactions, many of which are highly complex and occur at high speeds, volumes and frequencies, and across numerous and diverse markets and currencies. Such a robust and effective control environment is in turn dependent on the sufficiency of our infrastructure to support that environment. This infrastructure consists broadly of internal policies and procedures, testing protocols, and the IT systems and employees needed to enforce and enable them. An effective control environment is dependent on infrastructure systems and procedures that cover the processing and settling of transactions; the valuation of assets; the identification, monitoring, aggregation, measurement and reporting of risks and positions against various metrics; the evaluation of counterparties and customers for legal, regulatory and compliance purposes; the escalation of reviews; and the taking of mitigating and remedial actions where necessary. They are also critical for regulatory reporting and other data processing and compliance activities.

Both our internal control environment and the infrastructure that underlies it fall short in a number of areas of our standards for completeness and comprehensiveness and are not well integrated across the Bank. Our IT infrastructure, in particular, is fragmented, with numerous distinct platforms, many of which need significant upgrades, in operation across the Bank. Our business processes and the related control systems often require manual procedures and actions that increase the risks of human error and other operational problems that can lead to delays in reporting information to management and to the need for more adjustments and revisions than would be the case with more seamlessly integrated and automated systems and processes. As a result, it is often difficult and labor-intensive for us to obtain or provide information of a consistently high quality and on a timely basis to comply with regulatory reporting and other compliance requirements or to meet regulatory expectations on a consistent basis and, in certain cases, to manage our risk comprehensively. Furthermore, it often takes intensive efforts to identify, when possible, inappropriate behavior by our staff and attempts by third parties to misuse our services as a conduit for prohibited activities, including those relating to anti-financial crime laws and regulation.

In addition, we may not always have the personnel with the appropriate experience, seniority and skill levels to compensate for shortcomings in our processes and infrastructure, or to identify, manage or control risks, and it often has been difficult to attract and retain the requisite talent. This has impacted our ability to remediate existing weaknesses and manage the risks inherent in our activity.

Against this backdrop, our regulators, our Management Board and our Group Audit function have increasingly and more intensively focused on our internal controls and infrastructure through numerous formal reviews and audits of our operations. These reviews and audits have identified various areas for improvement relating to a number of elements of our control environment and infrastructure. These include the infrastructure relating to transaction capturing and recognition, classification of assets, asset valuation frameworks, models, data and process consistency, risk identification, measurement and management and other processes required by laws, regulations, and supervisory expectations. They also include regulatory reporting, anti-money laundering (AML), “know your customer” (KYC), sanctions and embargoes, market conduct and other internal processes that are aimed at preventing use of our products and services for the purpose of committing or concealing financial crime.

Our principal regulators, including the BaFin, the ECB and the Federal Reserve Board, have also conducted numerous reviews focused on our internal controls and the related infrastructure. These regulators have required us formally to commit to remediate our AML and other weaknesses, including the fragmented and manual nature of our infrastructure. For example, on September 21, 2018, the BaFin issued an order requiring us to implement measures on specified timelines over the coming months and years to improve our control and compliance infrastructure relating to AML and, in particular, the know-your-client (KYC) processes in certain of our businesses. Local regulators in other countries in which we do business also review the sufficiency of our control environment and infrastructure with respect to their jurisdictions. While the overall goals of the various prudential regulators having authority over us in the many places in which we do business are broadly consistent, and the general themes of our deficiencies in internal controls and the supporting infrastructure are similar, the regulatory frameworks applicable to us in the area of internal controls are generally applicable at a national or EU-wide level and are not always consistent across the jurisdictions in which we operate around the world. This adds complexity and cost to our efforts to reduce fragmentation and put in place automated systems that communicate seamlessly and quickly with one another.

In order to improve in the areas discussed above, we are undertaking several major initiatives to enhance the efficacy of the transaction processing environment, strengthen our controls and infrastructure, manage non-financial risks and enhance the skill set of our personnel. We believe that these initiatives will better enable us to avoid the circumstances that have resulted in many of the litigations and regulatory and enforcement investigations and proceedings to which we have recently been subject, and will improve our ability to comply with laws and regulations and meet supervisory expectations. In particular, we are making efforts to reduce the complexity of our business and to integrate and automate processes and business and second-line controls. We have also exited certain businesses and high-risk countries, selectively off-boarded a number of clients, worked to strengthen our compliance culture and control functions. However, we may be unable to complete these initiatives as quickly as we intend or as our regulators demand, and our efforts may be insufficient to remediate existing deficiencies and prevent future deficiencies or to result in fewer litigations or regulatory and enforcement investigations, proceedings and criticism in the future. We may also, when faced with the considerable expense of these initiatives, fail to provide sufficient resources for them quickly enough or at all, especially during periods when our operating performance and profitability are challenged or when we focus on our cost-savings efforts. If we are unable to significantly improve our infrastructure and control environment in a timely manner, we may determine to or some of our regulators may require us to reduce our exposure to or terminate certain kinds of products or businesses, counterparties or regions, which could, depending on the extent of such requirement, significantly challenge our ability to operate profitably under our current business model.

Regulators can also impose capital surcharges, requiring capital buffers in addition to those directly required under the regulatory capital rules applicable to us, to reflect the additional risks posed by deficiencies in our control environment. In extreme cases, regulators can suspend our permission to operate in the businesses and regions within their jurisdictions or require extensive and costly remedial actions. Furthermore, implementation of enhanced infrastructure and controls may result in higher-than-expected costs of regulatory compliance that could offset or exceed efficiency gains or significantly affect our profitability. Any of these factors could affect our ability to implement our strategy in a timely manner or at all.

The BaFin has ordered us to improve our control and compliance infrastructure relating to our anti-money laundering and know-your-client processes, and appointed a special representative to monitor these measures' implementation. Our results of operations, financial condition and reputation could be materially and adversely affected if we are unable to significantly improve our infrastructure and control environment by the set deadline.

On September 21, 2018, the BaFin issued an order requiring us to implement measures on specified timelines over the coming months and years to improve our control and compliance infrastructure relating to AML and, in particular, the KYC processes in certain of our businesses. The BaFin also appointed KPMG as special representative, reporting to the BaFin on a quarterly basis on certain aspects of our compliance and progress with the implementation of these measures. In February 2019, the BaFin extended the special representative's mandate to cover our internal controls in the correspondent banking business. Our AML and KYC processes, as well as our other internal processes that are aimed at preventing use of our products and services for the purpose of committing or concealing financial crime and our personnel responsible for our efforts in these areas, continue to be the subject of regulatory scrutiny in a number of jurisdictions. If we are unable to significantly improve our infrastructure and control environment by the set deadline, our results of operations, financial condition and reputation could be materially and adversely affected. For example, some of our regulators, such as BaFin, would likely impose fines or require us to reduce our exposure to or terminate certain kinds of products or businesses or relationships with counterparties or regions, which could, depending on the extent of such requirement, significantly challenge our ability to operate profitably under our current business model.

Risks Relating to Litigation, Regulatory Enforcement Matters and Investigations

We operate in a highly and increasingly regulated and litigious environment, potentially exposing us to liability and other costs, the amounts of which may be substantial and difficult to estimate, as well as to legal and regulatory sanctions and reputational harm.

The financial services industry is among the most highly regulated industries. Our operations throughout the world are regulated and supervised by the central banks and regulatory authorities in the jurisdictions in which we operate. In recent years, regulation and supervision in a number of areas has increased, and regulators, law enforcement authorities, governmental bodies and others have sought to subject financial services providers to increasing oversight and scrutiny, which in turn has led to additional regulatory investigations or enforcement actions. This trend has accelerated markedly as a result of the global financial crisis and the European sovereign debt crisis. There has been a steep escalation in the severity of the terms which regulators and law enforcement authorities have required to settle legal and regulatory proceedings against financial institutions, with settlements in recent years including unprecedented monetary penalties as well as criminal sanctions. As a result, we may continue to be subject to increasing levels of liability and regulatory sanctions, and may be required to make greater expenditures and devote additional resources to addressing these liabilities and sanctions. Regulatory sanctions may include status changes to local licenses or orders to discontinue certain business practices.

We and our subsidiaries are involved in various litigation proceedings, including civil class action lawsuits, arbitration proceedings and other disputes with third parties, as well as regulatory proceedings and investigations by both civil and criminal authorities in jurisdictions around the world. We expect that the costs to us arising from the resolution of litigation, enforcement and similar matters pending against us to continue to be significant in the near to medium term and to adversely affect our business, financial condition and results of operations. Litigation and regulatory matters are subject to many uncertainties, and the outcome of individual matters is not predictable with assurance. We may settle litigation or regulatory proceedings prior to a final judgment or determination of liability. We may do so for a number of reasons, including to avoid the cost, management efforts or negative business, regulatory or reputational consequences of continuing to contest liability, even when we believe we have valid defenses to liability. We may also do so when the potential consequences of failing to prevail would be disproportionate to the costs of settlement. Furthermore, we may, for similar reasons, reimburse counterparties for their losses even in situations where we do not believe that we are legally compelled to do so. The financial impact of legal risks might be considerable but may be difficult or impossible to estimate and to quantify, so that amounts eventually paid may exceed the amount of provisions made or contingent liabilities assessed for such risks.

Actions currently pending against us or our current or former employees may not only result in judgments, settlements, fines or penalties, but may also cause substantial reputational harm to us. The risk of damage to our reputation arising from such proceedings is also difficult or impossible to quantify.

Regulators have increasingly sought admissions of wrongdoing in connection with settlement of matters brought by them. This could lead to increased exposure in subsequent civil litigation or in consequences under so-called "bad actor" laws, in which persons or entities determined to have committed offenses under some laws can be subject to limitations on business activities under other laws, as well as adverse reputational consequences. In addition, the U.S. Department of Justice ("DOJ") conditions the granting of cooperation credit in civil and criminal investigations of corporate wrongdoing on the company involved having provided to investigators all relevant facts relating to the individuals responsible for the alleged misconduct. This policy may result in increased fines and penalties if the DOJ determines that we have not provided sufficient information about applicable individuals in connection with an investigation. Other governmental authorities could adopt similar policies.

In addition, the financial impact of legal risks arising out of matters similar to some of those we face have been very large for a number of participants in the financial services industry, with fines and settlement payments greatly exceeding what market participants may have expected and, as noted above, escalating steeply in recent years to unprecedented levels. The experience of others, including settlement terms, in similar cases is among the factors we take into consideration in determining the level of provisions we maintain in respect of these legal risks. Developments in cases involving other financial institutions in recent years have led to greater uncertainty as to the predictability of outcomes and could lead us to add to our provisions. Moreover, the costs of our investigations and defenses relating to these matters are themselves substantial. Further uncertainty may arise as a result of a lack of coordination among regulators from different jurisdictions or among regulators with varying competencies in a single jurisdiction, which may make it difficult for us to reach concurrent settlements with each regulator. Should we be subject to financial impacts arising out of litigation and regulatory matters to which we are subject in excess of those we have calculated in accordance with our expectations and the relevant accounting rules, our provisions in respect of such risks may prove to be materially insufficient to cover these impacts. This could have a material adverse effect on our results of operations, financial condition or reputation as well as on our ability to maintain capital, leverage and liquidity ratios at levels expected by market participants and our regulators. In such an event, we could find it necessary to reduce our risk weighted assets (including on terms disadvantageous to us) or substantially cut costs to improve these ratios, in an amount corresponding to the adverse effects of the provisioning shortfall.

We are currently the subject of industry-wide investigations by regulatory and law enforcement agencies relating to interbank and dealer offered rates, as well as civil actions. Due to a number of uncertainties, including those related to the high profile of the matters and other banks' settlement negotiations, the eventual outcome of these matters is unpredictable, and may materially and adversely affect our results of operations, financial condition and reputation.

We have responded to requests for information from, and cooperated with, various regulatory and law enforcement agencies in connection with industry-wide investigations concerning the setting of the London Interbank Offered Rate (LIBOR), Euro Interbank Offered Rate (EURIBOR), Tokyo Interbank Offered Rate (TIBOR) and other interbank and dealer offered rates. The investigations underway have the potential to result in the imposition of significant financial penalties and other consequences for the Bank.

As previously reported, we paid €725 million to the European Commission pursuant to a settlement agreement dated December 4, 2013 in relation to anticompetitive conduct in the trading of interest rate derivatives. Also as previously reported, on April 23, 2015, we reached settlements with the DOJ, the CFTC, FCA, and the New York State Department of Financial Services ("DFS") to resolve investigations into misconduct concerning the setting of LIBOR, EURIBOR, and TIBOR. Under the terms of these agreements, we paid penalties of U.S.\$ 2.175 billion to the DOJ, CFTC and DFS and GBP 226.8 million to the FCA. As part of the resolution with the DOJ, DB Group Services (UK) Limited. (an indirectly-held, wholly-owned subsidiary of ours) pled guilty to one count of wire fraud in the U.S. District Court for the District of Connecticut and we entered into a Deferred Prosecution Agreement with a three year term, which expired in 2018. On October 25, 2017, we entered into a settlement with a working group of U.S. state attorneys general resolving their interbank offered rate investigation. Among other conditions, we made a settlement payment of U.S.\$ 220 million. The factual admissions we have made in connection with these settlements could make it difficult for us to defend against pending and future claims. Other investigations of us concerning the setting of various interbank offered rates remain ongoing.

In addition, we are party to 42 U.S. civil actions concerning alleged manipulation relating to the setting of various interbank and/or dealer offered rates, as well as single actions pending in each of the UK, Israel and Argentina. Most of the civil actions, including putative class actions, are pending in the U.S. District Court for the Southern District of New York (SDNY), against us and numerous other defendants. All but three of the U.S. civil actions were filed on behalf of parties who allege losses as a result of manipulation relating to the setting of U.S. dollar LIBOR. The three civil actions pending against us that do not relate to U.S. dollar LIBOR were also filed in the SDNY, and include one consolidated action concerning Pound Sterling (GBP) LIBOR, one action concerning Swiss franc (CHF) LIBOR, and one action concerning two Singapore Dollar (SGD) benchmark rates, the Singapore Interbank Offered Rate (SIBOR) and the Swap Offer Rate (SOR).

We cannot predict the effect on us of the interbank and dealer offered rates matters, which could include fines levied by government bodies, damages from private litigation for which we may be liable, legal and regulatory sanctions (including possible criminal sanctions) and other consequences.

Regulators and law enforcement authorities are investigating, among other things, our compliance with the U.S. Foreign Corrupt Practices Act and other laws with respect to our engagement of finders and consultants.

Certain regulators and law enforcement authorities in various jurisdictions, including the SEC and the DOJ, are investigating, among other things, our compliance with the U.S. Foreign Corrupt Practices Act and other laws with respect to our engagement of finders and consultants. We are responding to and continuing to cooperate with these investigations. Certain regulators in other jurisdictions have also been briefed on these investigations. In the event that any violations of law or regulation are found to have occurred or are alleged to have occurred, and an enforcement action is filed, legal and regulatory sanctions in respect thereof may materially and adversely affect our results of operations, financial condition and reputation.

We are currently involved in civil proceedings in connection with our voluntary takeover offer for the acquisition of all shares of Postbank. The extent of our financial exposure to this matter could be material, and our reputation may be harmed.

In September 2010, we announced a voluntary takeover offer for the acquisition of all shares in Deutsche Postbank AG (Postbank), and we published the official offer document in October 2010. In our takeover offer, we offered Postbank shareholders consideration of €25 for each Postbank share. This offer was accepted for a total of approximately 48.2 million Postbank shares.

In November 2010, a former shareholder of Postbank, Effecten-Spiegel AG, which had accepted the takeover offer, brought a claim against us alleging that the offer price was too low and was not determined in accordance with the applicable German law. The plaintiff alleges that we had been obliged to make a mandatory takeover offer for all shares in Postbank, at the latest, in 2009. The plaintiff avers that, at the latest in 2009, the voting rights of Deutsche Post AG in Postbank had to be attributed to us pursuant to Section 30 of the German Takeover Act. Based thereon, the plaintiff alleges that the consideration offered by us in the 2010 voluntary takeover offer needed to be raised to €57.25 per share.

The Regional Court Cologne (*Landgericht*) dismissed the claim in 2011 and the Cologne appellate court dismissed the appeal in 2012. The Federal Court set aside the Cologne appellate court's judgment and referred the case back to the appellate court. In its judgment, the Federal Court stated that the appellate court had not sufficiently considered the plaintiff's allegation that we and Deutsche Post AG "acted in concert" in 2009.

Starting in 2014, additional former shareholders of Postbank, who accepted the 2010 tender offer, brought similar claims as Effecten-Spiegel AG against us which are pending with the Regional Court Cologne and the Higher Regional Court of Cologne, respectively. On October 20, 2017, the Regional Court Cologne handed down a decision granting the claims in a total of 14 cases which were combined in one proceeding. The Regional Court Cologne took the view that we were obliged to make a mandatory takeover offer already in 2008 so that the appropriate consideration to be offered in the takeover offer should have been €57.25 per share. Taking the consideration paid into account, the additional consideration per share owed to shareholders which have accepted the takeover offer would thus amount to €32.25. We appealed this decision and the appeal has been assigned to the 13th Senate of the Higher Regional Court of Cologne, which also is hearing the appeal of Effecten-Spiegel AG.

On November 8, 2017, a hearing took place before the Higher Regional Court of Cologne in the Effecten-Spiegel case. In that hearing, the Higher Regional Court indicated that it disagreed with the conclusions of the Regional Court Cologne and took the preliminary view that we were not obliged to make a mandatory takeover offer in 2008 or 2009. The Higher Regional Court informed the parties by notice dated February 19, 2019 that it still has doubts that an acting in concert can be based on the contractual clauses which the Regional Court Cologne found to be sufficient to assume an acting in concert (and to grant the plaintiffs' claims in October 2017). Against this background, the Higher Regional Court resolved to take further evidence and to call a number of witnesses in both cases who were heard in several hearings from October 30, 2019 onwards. The individuals to be heard include current and former board members of Deutsche Bank, Deutsche Post AG and Postbank as well as other persons involved in the Postbank transaction. In addition, the court ordered the production of relevant transaction documents.

We have been served with a large number of additional lawsuits filed against us shortly before the end of 2017, almost all of which are now pending with the Regional Court Cologne. Some of the new plaintiffs allege that the consideration offered by us for the shares in Postbank in the 2010 voluntary takeover should be raised to €64.25 per share.

The claims for payment against us in relation to these matters total almost €700 million (excluding interest).

In September 2015, former shareholders of Postbank filed in the Regional Court Cologne shareholder actions against Postbank to set aside the squeeze-out resolution taken in the shareholders meeting of Postbank in August 2015. Among other things, the plaintiffs allege that we were subject to a suspension of voting rights with respect to our shares in Postbank based on the allegation that we failed to make a mandatory takeover offer at a higher price in 2009. The squeeze out is final and the proceeding itself has no reversal effect, but may result in damage payments. The claimants in this proceeding refer to legal arguments similar to those asserted in the Effecten-Spiegel proceeding described above. In a decision on October 20, 2017, the Regional Court Cologne declared the squeeze-out resolution to be void. The court, however, did not rely on a suspension of voting rights due to an alleged failure by us to make a mandatory takeover offer, but argued that Postbank violated information rights of Postbank shareholders in Postbank's shareholders meeting in August 2015. Postbank has appealed this decision. The Higher Regional Court of Cologne scheduled an oral hearing for May 7, 2020.

The legal question of whether we had been obliged to make a mandatory takeover offer for all Postbank shares prior to our 2010 voluntary takeover may also impact two pending appraisal proceedings (*Spruchverfahren*). These proceedings were initiated by former Postbank shareholders with the aim to increase the cash compensation offered in connection with the squeeze-out of Postbank shareholders in 2015 and the cash compensation offered and annual guaranteed dividend paid in connection with the execution of a domination and profit and loss transfer agreement (*Beherrschungs- und Gewinnabführungsvertrag*) between DB Finanz-Holding AG (now DB Beteiligungs-Holding GmbH) and Postbank in 2012.

The applicants in the appraisal proceedings claim that a potential obligation of ours to make a mandatory takeover offer for Postbank at an offer price of €57.25 should be decisive when determining the adequate cash compensation in the appraisal proceedings. The Regional Court Cologne had originally followed this legal opinion of the applicants in two resolutions. In a decision dated June 2019, the Regional Court of Cologne expressly deviated from this legal resolution in the appraisal proceedings in connection with execution of a domination and profit and loss transfer agreement. According to this decision, the question whether we were obliged to make a mandatory offer for all Postbank shares prior to our voluntary takeover offer in 2010 shall not be relevant for determining the appropriate cash compensation. It is likely that the Regional Court Cologne will take the same legal position in the appraisal proceedings in connection with the squeeze-out.

The extent of our financial exposure to this matter could be material, and our reputation may be harmed.

[We have investigated the circumstances around equity trades entered into by certain clients in Moscow and London and have advised regulators and law enforcement authorities in several jurisdictions about those trades. In the event that violations of law or regulation are found to have occurred, any resulting penalties against us may materially and adversely affect our results of operations, financial condition and reputation.](#)

We have investigated the circumstances around equity trades entered into by certain clients with us in Moscow and London that offset one another. The total volume of transactions reviewed is significant. Our internal investigation of potential violations of law, regulation and policy and into the related internal control environment has concluded, and we have assessed the findings identified during the investigation; to date we have identified certain violations of our policies and deficiencies in our control environment. We have advised regulators and law enforcement authorities in several jurisdictions (including Germany, Russia, the UK and the United States) of this investigation and have taken disciplinary measures with regards to certain individuals in this matter.

On January 30 and 31, 2017, the DFS and FCA announced settlements with the Bank related to their investigations into this matter. The settlements conclude the DFS and the FCA's investigations into the bank's AML control function in its investment banking division, including in relation to the equity trading described above. Under the terms of the settlement agreement with the DFS, Deutsche Bank entered into a consent order, and agreed to pay civil monetary penalties of U.S.\$ 425 million and to engage an independent monitor to conduct a comprehensive review of its existing AML compliance programs that pertain to or affect activities conducted by or through our U.S. bank subsidiary DBTCA and our New York branch for a term of up to two years. Under the terms of the settlement agreement with the FCA, we agreed to pay civil monetary penalties of approximately GBP 163 million. On May 30, 2017, the Federal Reserve announced its settlement with us resolving this matter as well as additional AML issues identified by the Federal Reserve. We paid a penalty of U.S.\$ 41 million. We also agreed to retain independent third parties to assess our Bank Secrecy Act/AML program and review certain foreign correspondent banking activity of DBTCA. We are also required to submit written remediation plans and programs.

We continue to cooperate with regulators and law enforcement authorities, including the DOJ which has its own ongoing investigation into these securities trades. In the event that violations of law or regulation are found to have occurred, legal and regulatory sanctions in respect thereof may materially and adversely affect our results of operations, financial condition and reputation.

We are currently the subject of industry-wide inquiries and investigations by regulatory and law enforcement authorities relating to transactions of clients in German shares around the dividend record dates for the purpose of obtaining German tax credits or refunds in relation to withholding tax levied on dividend payments (so-called cum-ex transactions). In addition, we are exposed to potential tax liabilities and to the assertion of potential civil law claims by third parties, e.g. former counterparties, custodian banks, investors and other market participants, including as a consequence of criminal judgements in criminal proceedings in which we are not directly involved. Due to a number of uncertainties, including the development of investigations, court proceedings, administrative actions by authorities and the assertion of claims by third parties, the eventual outcome of these matters is unpredictable, and may materially and adversely affect our results of operations, financial condition and reputation.

The Public Prosecutor in Cologne (Staatsanwaltschaft Köln, "CPP") has been conducting a criminal investigation since August 2017 concerning two former employees of Deutsche Bank in relation to cum-ex transactions of certain former clients of the Bank. At the end of May and beginning of June 2019, the CPP broadened the investigation proceedings against further current and former employees and former board members of the Bank. It is difficult to predict how the proceeding will further develop. Deutsche Bank is a potential secondary participant in these proceedings and the proceedings could result in a disgorgement of profits and fines. There is a risk that the proceedings lead to a formal indictment and criminal prosecution of accused individuals and Deutsche Bank. Increased media attention surrounding the cum-ex topic as well as any future criminal judgement that is unfavourable to the Bank can create reputational risks. The imposition of fines and the disgorgement of profits could have a material adverse effect on our financial condition or results of operations.

We are further exposed to the assertion of potential tax and civil law recourse and compensation claims by German tax authorities and third parties.

Deutsche Bank acted as participant in and filed withholding tax refund claims through the electronic refund procedure (elektronisches Datenträgerverfahren) on behalf of, inter alia, two former custody clients in connection with their cum-ex transactions. In February 2018, Deutsche Bank received from the German Federal Tax Office (Bundeszentralamt für Steuern, "FTO") a demand of approximately €49 million for tax refunds paid to one former custody client. In December 2019, Deutsche Bank received a liability notice from the FTO in the amount of €2.1 million in connection with tax refund claims Deutsche Bank had submitted on behalf of another former custody client. Deutsche Bank made the requested payment and filed an objection. In the event that the FTO issues the liability notice announced in February 2018 or further liability notices and to the extent Deutsche Bank is eventually liable under the liability notices, this would expose the Bank to potential financial losses and could have a material adverse effect on our results of operations.

As regards civil law claims, The Bank of New York Mellon SA/NV ("BNY") – as a parent of two companies acting as depot bank and fund administrator which Deutsche Bank acquired in 2010 and sold to BNY later in 2010 – has informed Deutsche Bank of its intention to assert indemnification claims under a contractual tax indemnity provision for potential cum-ex related tax liabilities incurred by these companies. BNY estimates the potential tax liability to amount to up to €120 million (excluding interest of 6 per cent p.a.). On August 19, 2019, one of the companies, BHF Asset Servicing GmbH ("BAS"), obtained the status of a third party subject to confiscation in a trial that commenced before the Regional Court Bonn on September 4, 2019. In December 2019, Deutsche Bank was informed of two hearing letters issued by the FTO to BAS in which the FTO stated that a potential liability of BAS exists and that BAS should expect a liability notice.

On February 6, 2019, Deutsche Bank was served by the Regional Court Frankfurt am Main with a claim by M.M.Warburg & CO Gruppe GmbH and M.M.Warburg & CO (AG & Co.) KGaA (together "Warburg") in connection with cum-ex transactions of Warburg with a custody client of Deutsche Bank during 2007 to 2011. Warburg claims indemnification against German taxes in relation to transactions conducted in 2010 and 2011, compensation of unspecified damages relating to these transactions as well as declaratory relief that Deutsche Bank will have to indemnify Warburg against any potential future tax assessments for cum-ex transactions conducted in the years 2007 to 2009. The claims against us amount to approximately €198 million. The proceeding is ongoing and the next hearing date is scheduled for April 20, 2020.

The risks arising from the cum-ex topic are difficult to quantify and the likelihood of these risks materializing is hard to predict. In the event that Deutsche Bank is eventually liable under the civil law claims already asserted or under claims that will potentially be asserted by third parties in the future, this may materially and adversely affect our financial condition or results of operations.

We are under continuous examination by tax authorities in the jurisdictions in which we operate. Tax laws are increasingly complex and are evolving. The cost to us arising from the resolution of routine tax examinations, tax litigation and other forms of tax proceedings or tax disputes may increase and may adversely affect our business, financial condition and results of operation.

We are under continuous examination by tax authorities in the jurisdictions in which we operate. Tax laws are increasingly complex. In the current political and regulatory environment, tax administrations' and courts' interpretation of tax laws and regulations and their application are evolving, and scrutiny by tax authorities has become increasingly intense. Wide ranging and continuous changes in the principles of international taxation emanating from the OECD's Base Erosion and Profit Shifting agenda are generating significant uncertainties for us and our subsidiaries and may result in an increase in instances of tax disputes or instances of double taxation going forward, as member states may take different approaches in transposing these requirements into national law or may choose to implement unilateral measures. A recent example is the EU directive requiring disclosure of arrangements with specific tax features that will take full effect in 2020. Tax administrations have also been focusing on the eligibility of taxpayers for reduced withholding taxes on dividends in connection with certain cross-border lending or derivative transactions. In addition, while a significant amount of guidance has been issued since the enactment of the U.S. tax reform at the end of 2017 which included the Base Erosion Anti-Abuse Tax provisions, uncertainties remain and further interpretative guidance may be necessary over the coming years. As a result, the cost to us arising from the resolution of routine tax examinations, tax litigation and other forms of tax proceedings or tax disputes, as well as from rapidly changing and increasingly complex and uncertain tax laws and principles, may increase and may adversely affect our business, financial condition and results of operation.

We are currently involved in a legal dispute with the German tax authorities in relation to the tax treatment of certain income received with respect to our pension plan assets. The proceeding is pending in front of the German supreme fiscal court (Bundesfinanzhof). Should the courts ultimately rule in favor of the German tax authorities, the outcome could have a material effect on our comprehensive income and financial condition.

We sponsor a number of post-employment benefit plans on behalf of our employees. In Germany, the pension assets that fund the obligations under these pension plans are held by Benefit Trust GmbH. The German tax authorities are challenging the tax treatment of certain income received by Benefit Trust GmbH in the years 2010 to 2013 with respect to its pension plan assets. For the year 2010 Benefit Trust GmbH paid the amount of tax and interest assessed of €160 million to the tax authorities and is seeking a refund of the amounts paid in litigation with the relevant lower fiscal court. For 2011 to 2013 the matter is stayed pending the outcome of the 2010 tax litigation. The amount of tax and interest under dispute for years 2011 to 2013, which also has been paid to the tax authorities, amounts to €456 million. In March 2017, the lower fiscal court ruled in favor of Benefit Trust GmbH and in September 2017 the tax authorities appealed the decision to the German supreme fiscal court (Bundesfinanzhof). A decision by the supreme fiscal court is not expected for a number of years. An ultimate decision by the courts that is unfavorable to us could materially and adversely affect our comprehensive income and financial condition.

U.S. Congressional committees and other U.S. governmental entities have sought and may seek information from us concerning potential dealings between us and the U.S. executive branch, the President, his family and other close associates, exposing us in particular to risk to our reputation and potential loss of business as a result of extensive media attention.

A number of media entities have reported that U.S. Congressional committees and other U.S. governmental entities are seeking or may seek information from us concerning, among other things, potential dealings between the Bank and certain members of the Executive branch of the U.S. government, the President, his family, and other close associates. Attention surrounding such actual or potential requests and inquiries and our responses can create reputational and other risks that could have a material adverse effect on us. Our policy is to cooperate with all authorized government inquiries.

We have received requests for information from regulatory and law enforcement agencies concerning our correspondent banking relationship with Danske Bank, exposing us in particular to risk to our reputation and potential loss of business as a result of extensive media attention.

We have received requests for information from regulatory and law enforcement agencies concerning our correspondent banking relationship with Danske Bank, including our historical processing of correspondent banking transactions on behalf of customers of Danske Bank's Estonia branch prior to cessation of the correspondent banking relationship with that branch in 2015. We are providing information to and otherwise cooperating with the investigating agencies. We have also completed an internal investigation into these matters, including of whether any violations of law, regulation or policy occurred and the effectiveness of the related internal control environment. Additionally, on September 23 and 24, 2019, based on a search warrant issued by the Local Court (Amtsgericht) in Frankfurt, the Frankfurt public prosecutor's office conducted investigations into Deutsche Bank. The investigations are in connection with suspicious activity reports relating to money laundering at Danske Bank. The Bank is cooperating in the investigation. Media and market attention surrounding these requests can create reputational risks in particular, even if our investigations and those of our regulators and the authorities do not result in evidence of wrongdoing. We could in particular suffer diminished volumes of business as a result, which could have a material adverse effect on our financial condition and results of operations.

We have received requests for information from regulatory and law enforcement agencies concerning our anti-financial crime controls, including in the United States. Should any of the investigations result in a finding that the Bank failed to comply with applicable law, the Bank could be exposed to material fines, limitations on business, remedial undertakings and/or criminal prosecution, as well as risk to our reputation and potential loss of business as a result of extensive media attention.

We have received requests for information from regulatory and law enforcement agencies concerning our anti-financial crime controls over the past several years, both generally and in connection with specific clients, counterparties or incidents, including in the United States. Among the areas within the scope of these inquiries are client onboarding and KYC processes, transaction monitoring systems and procedures, processes concerning the decision to file or not to file a suspicious activity report, escalation procedures, and other related processes and procedures. The Bank is cooperating in these investigations. Should any of the investigations result in a finding that the Bank failed to comply with applicable law, the Bank could be exposed to material fines, limitations on business, remedial undertakings and/or criminal prosecution. Media and market attention surrounding these inquiries can create reputational risks in particular, even if our investigations and those of our regulators and the authorities do not result in evidence of wrongdoing. We could in particular suffer diminished volumes of business as a result, which could have a material adverse effect on our financial condition and results of operations.

Guilty pleas by or convictions of us or our affiliates in criminal proceedings may have consequences that have adverse effects on certain of our businesses.

We and our affiliates have been and are subjects of criminal proceedings or investigations. In particular, as part of the resolution of the investigation of the DOJ into misconduct relating to London interbank offered rates, our subsidiary DB Group Services (UK) Limited entered into a plea agreement with the DOJ, pursuant to which the company pled guilty to one count of wire fraud, and, subsequently, a judgment of conviction was issued against the company. Also, in connection with the KOSPI Index unwind matters, our subsidiary Deutsche Securities Korea Co. was convicted of vicarious corporate criminal liability in respect of spot/futures linked market manipulation by one of its employees; though the criminal trial verdict has been overturned on appeal, the Korean prosecutor's office has appealed the decision. We and our subsidiaries are also subjects of other criminal proceedings or investigations.

Guilty pleas or convictions against us or our affiliates could lead to our ineligibility to use an important trading exemption under ERISA. In particular, such guilty pleas or convictions could cause our asset management affiliates to no longer qualify as “qualified professional asset managers” (“QPAMs”) under the QPAM Prohibited Transaction Exemption, which exemption is relied on to provide asset management services to certain pension plans in connection with certain asset management strategies. While there are a number of statutory exemptions and numerous other administrative exemptions that our asset management affiliates may use to trade on behalf of ERISA plans, and in many instances they may do so in lieu of relying on the QPAM exemption, loss of QPAM status could cause customers who rely on such status (whether because they are legally required to do so or because we have agreed contractually with them to maintain such status) to cease to do business or refrain from doing business with us and could negatively impact our reputation more generally. For example, clients may mistakenly see the loss as a signal that our asset management affiliates are somehow no longer approved as asset managers generally by the U.S. Department of Labor (“DOL”), the agency responsible for ERISA, and cease to do business or refrain from doing business with us for that reason. This could have a material adverse effect on our results of operations, particularly those of our asset management business in the United States. On December 29, 2017, the DOL published an individual exemption permitting certain of our affiliates to retain their QPAM status despite both the conviction of DB Group Services (UK) Limited and the conviction of Deutsche Securities Korea Co. The exemption applies through April 17, 2021 but may terminate earlier if, among other things, we or our affiliates are convicted of crimes in other matters. The disqualification period arising from these convictions extends until April 17, 2027, so we will need to obtain a further exemption by April 18, 2021 to avoid a loss of QPAM status at that time, with the potential for the adverse effects described above if such further exemption is not granted.

Other Risks

In addition to our traditional banking businesses of deposit-taking and lending, we also engage in nontraditional credit businesses in which credit is extended in transactions that include, for example, our holding of securities of third parties or our engaging in complex derivative transactions. These nontraditional credit businesses materially increase our exposure to credit risk.

As a bank and provider of financial services, we are exposed to the risk that third parties who owe us money, securities or other assets will not perform their obligations. Many of the businesses we engage in beyond the traditional banking businesses of deposit-taking and lending also expose us to credit risk.

In particular, much of the business we conduct through our Investment Bank corporate division entails credit transactions, frequently ancillary to other transactions. Nontraditional sources of credit risk can arise, for example, from holding securities of third parties; entering into swap or other derivative contracts under which counterparties have obligations to make payments to us; executing securities, futures, currency or commodity trades that fail to settle at the required time due to nondelivery by the counterparty or systems failure by clearing agents, exchanges, clearing houses or other financial intermediaries; and extending credit through other arrangements. Parties to these transactions, such as trading counterparties, may default on their obligations to us due to bankruptcy, political and economic events, lack of liquidity, operational failure or other reasons.

Many of our derivative transactions are individually negotiated and non-standardized, which can make exiting, transferring or settling the position difficult. Certain credit derivatives require that we deliver to the counterparty the underlying security, loan or other obligation in order to receive payment. In a number of cases, we do not hold, and may not be able to obtain, the underlying security, loan or other obligation. This could cause us to forfeit the payments otherwise due to us or result in settlement delays, which could damage our reputation and ability to transact future business, as well as impose increased costs on us. Legislation in the European Union (EMIR) and the United States (the Dodd-Frank Act) has introduced requirements for the standardization, margining, central clearing and transaction reporting of certain over-the-counter derivatives. While such requirements are aimed at reducing the risk posed to counterparties and the financial system by such derivatives, they may reduce the volume and profitability of the transactions in which we engage, and compliance with such provisions may impose substantial costs on us.

The exceptionally difficult market conditions experienced during the global financial crisis severely adversely affected certain areas in which we do business that entail nontraditional credit risks, including the leveraged finance and structured credit markets, and similar market conditions, should they occur, may do so in the future.

A substantial proportion of our assets and liabilities comprise financial instruments that we carry at fair value, with changes in fair value recognized in our income statement. As a result of such changes, we have incurred losses in the past, and may incur further losses in the future.

A substantial proportion of the assets and liabilities on our balance sheet comprise financial instruments that we carry at fair value, with changes in fair value recognized in the income statement. Fair value is defined as the price at which an asset or liability could be exchanged in an arm's length transaction between knowledgeable, willing parties, other than in a forced or liquidation sale. If the value of an asset carried at fair value declines (or the value of a liability carried at fair value increases) a corresponding unfavorable change in fair value is recognized in the income statement. These changes have been and could in the future be significant.

Observable prices or inputs are not available for certain classes of financial instruments. Fair value is determined in these cases using valuation techniques we believe to be appropriate for the particular instrument. The application of valuation techniques to determine fair value involves estimation and management judgment, the extent of which will vary with the degree of complexity of the instrument and liquidity in the market. Management judgment is required in the selection and application of the appropriate parameters, assumptions and modeling techniques. If any of the assumptions change due to negative market conditions or for other reasons, subsequent valuations may result in significant changes in the fair values of our financial instruments, requiring us to record losses.

Our exposure and related changes in fair value are reported net of any fair value gains we may record in connection with hedging transactions related to the underlying assets. However, we may never realize these gains, and the fair value of the hedges may change in future periods for a number of reasons, including as a result of deterioration in the credit of our hedging counterparties. Such declines may be independent of the fair values of the underlying hedged assets or liabilities and may result in future losses.

Pursuant to accounting rules, we must periodically test the value of the goodwill of our businesses and the value of our other intangible assets for impairment. In the event such test determines that criteria for impairment exists, we are required under accounting rules to write down the value of such asset. Impairments of goodwill and other intangible assets have had and may have a material adverse effect on our profitability results of operations.

Goodwill arises on the acquisition of subsidiaries and associates and represents the excess of the aggregate of the cost of an acquisition and any noncontrolling interests in the acquiree over the fair value of the identifiable net assets acquired at the date of the acquisition. Goodwill on the acquisition of subsidiaries is capitalized and reviewed for impairment annually or more frequently if there are indications that impairment may have occurred. Intangible assets are recognized separately from goodwill when they are separable or arise from contractual or other legal rights and their fair value can be measured reliably. These assets are tested for impairment and their useful lives reaffirmed at least annually. The determination of the recoverable amount in the impairment assessment of non-financial assets requires estimates based on quoted market prices, prices of comparable businesses, present value or other valuation techniques, or a combination thereof, necessitating management to make subjective judgments and assumptions. These estimates and assumptions could result in significant differences to the amounts reported if underlying circumstances were to change.

Impairments of goodwill and other intangible assets have had and may have a material adverse effect on our profitability and results of operations. Impairment of goodwill and other intangible assets was € 1.0 billion in 2019. The announcement of the strategic transformation in July 2019 triggered the impairment review of Deutsche Bank's goodwill. A worsening macro-economic outlook, including interest rate curves, industry-specific market growth corrections, as well as the impact related to the implementation of the transformation strategy resulted in the full impairment of the Wealth Management goodwill of € 545 million in the Private Bank and the Global Transaction Banking and Corporate Finance goodwill of € 492 million in the Corporate Bank in the second quarter of 2019.

Pursuant to accounting rules, we must review our deferred tax assets at the end of each reporting period. To the extent that it is no longer probable that sufficient taxable income will be available to allow the benefit of part or all of deferred tax assets to be utilized, we have to reduce the carrying amounts. These reductions have had and may in the future have material adverse effects on our profitability, equity and financial condition.

We recognize deferred tax assets for future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases, unused tax losses and unused tax credits. Deferred tax assets are recognized only to the extent that it is probable that sufficient taxable profit will be available against which those unused tax losses, unused tax credits and deductible temporary differences can be utilized. As of December 31, 2019 and December 31, 2018, we recognized deferred tax assets of €3.2 billion and €6.5 billion, respectively in entities which have suffered a loss in either the current or preceding period.

In determining the amount of deferred tax assets, we use historical tax capacity and profitability information and, if relevant, forecasted operating results based upon approved business plans, including a review of the eligible carry-forward periods, available tax planning opportunities and other relevant considerations. The analysis of historical tax capacity includes the determination as to whether a history of recent losses exists at the reporting date, and is generally based on the pre-tax results adjusted for permanent differences for the current and the two preceding financial years. Each quarter, we re-evaluate our estimate related to deferred tax assets, including our assumptions about future profitability. The accounting estimate related to the deferred tax assets depends upon underlying assumptions about the historical tax capacity and profitability information, as well as forecasted operating results based upon approved business plans, that can change from period to period and requires significant management judgment. For example, tax law changes or variances in future projected operating performance could result in an adjustment to the deferred tax assets that would be charged to income tax expense or directly to equity in the period such determination was made.

These adjustments have had and may in the future have material adverse effects on our profitability or equity. In updating the strategic plan in connection with our current transformation, we adjusted the value of our deferred tax assets in affected jurisdictions. This resulted in total valuation adjustments of €2.8 billion for the financial year ended December 31, 2019 that primarily relate to the U.S. and UK.

We are exposed to pension risks which can materially impact the measurement of our pension obligations, including interest rate, inflation and longevity risks that can materially impact our earnings.

We sponsor a number of post-employment benefit plans on behalf of our employees, including defined benefit plans. Our plans are accounted for based on the nature and substance of the plan. Generally, for defined benefit plans the value of a participant's accrued benefit is based on each employee's remuneration and length of service. We maintain various external pension trusts to fund the majority of our defined benefit plan obligations. Our funding principle is to maintain funding of the defined benefit obligation by plan assets within a range of 90 % to 100 % of the obligation, subject to meeting any local statutory requirements. We have also determined that certain plans should remain unfunded, although their funding approach is subject to periodic review, e.g. when local regulations or practices change. Obligations for our unfunded plans are accrued on the balance sheet. For most of the externally funded defined benefit plans there are local minimum funding requirements. We can decide on any additional plan contributions, with reference to our funding principle. There are some locations, e.g. the United Kingdom, where the trustees and the Bank jointly agree contribution levels. We also sponsor retirement and termination indemnity plans in several countries, as well as some post-employment medical plans for a number of current and retired employees, mainly in the United States. The post-employment medical plans typically pay fixed percentages of medical expenses of eligible retirees after a set deductible has been met.

We develop and maintain guidelines for governance and risk management, including funding, asset allocation and actuarial assumption setting. In this regard, risk management means the management and control of risks for us related to market developments (e.g., interest rate, credit spread, price inflation), asset investment, regulatory or legislative requirements, as well as monitoring demographic changes (e.g., longevity). To the extent that pension plans are funded, the assets held mitigate some of the liability risks, but introduce investment risk. In our key pension countries, our largest post-employment benefit plan risk exposures relate to potential changes in credit spreads, interest rates, price inflation and longevity, although these have been partially mitigated through the investment strategy adopted. Overall, we seek to minimize the impact of pensions on our financial position from market movements, subject to balancing the trade-offs involved in financing post-employment benefits, regulatory capital and constraints from local funding or accounting requirements.

All plans are valued annually by independent qualified actuaries using the projected unit credit method, with inputs including the discount rate, inflation rate, rate of increase in future compensation and for pensions in payment and longevity expectations. In 2019, we decided to apply Deutsche Bank-specific mortality assumptions used to determine the defined benefit obligation for our defined benefit pension plans in Germany. In this context – based on actuarial calculations for the Deutsche Bank-specific population – we adjusted the mortality expectations from the so-far used “Richttafeln Heubeck 2018G” to the Deutsche Bank-specific mortality experience of employees and pensioners. This change in actuarial assumptions led to an actuarial loss of € 125 million before taxes for the year ended December 31, 2019 and is reported in the consolidated statement of comprehensive income in the line item re-measurement gains (losses).

Our investment objective in funding the plans and our obligations in respect of them is to protect ourselves from adverse impacts of our defined benefit pension plans on key financial metrics. We seek to allocate plan assets closely to the market risk factor exposures of the pension liability to interest rates, credit spreads and inflation and, thereby, plan assets broadly reflect the underlying risk profile and currency of the pension obligations.

To the extent that the factors that drive our pension liabilities move in a manner adverse to us, or that our assumptions regarding key variables prove incorrect, or that our funding of our pension liabilities does not sufficiently hedge those liabilities, we could be required to make additional contributions or be exposed to actuarial or accounting losses in respect of our pension plans. More detailed information regarding our employee benefit plans is provided in Note 33, “Employee Benefits” of the consolidated financial statements.

Our risk management policies, procedures and methods leave us exposed to unidentified or unanticipated risks, which could lead to material losses.

We have devoted significant resources to developing our risk management policies, procedures and assessment methods and intend to continue to do so in the future. Nonetheless, the risk management techniques and strategies have not been and may in the future not be fully effective in mitigating our risk exposure in all economic market environments or against all types of risk, including risks that we fail to identify or anticipate. Some of our quantitative tools and metrics for managing risk are based upon our use of observed historical market behavior. We apply statistical and other tools to these observations to arrive at quantifications of our risk exposures. During the financial crisis, the financial markets experienced unprecedented levels of volatility (rapid changes in price direction) and the breakdown of historically observed correlations (the extent to which prices move in tandem) across asset classes, compounded by extremely limited liquidity. In this volatile market environment, our risk management tools and metrics failed to predict some of the losses we have experienced, and they may in the future fail to predict important risk exposures. In addition, our quantitative modeling does not take all risks into account and makes numerous assumptions regarding the overall environment, which may not be borne out by events. As a result, risk exposures have arisen and could continue to arise from factors we did not anticipate or correctly evaluate in our statistical models. This has limited and could continue to limit our ability to manage our risks especially in light of geopolitical developments, many of the outcomes of which are currently unforeseeable. Our losses thus have been and may in the future be significantly greater than the historical measures indicate.

In addition, our more qualitative approach to managing those risks not taken into account by our quantitative methods could also prove insufficient, exposing us to material unanticipated losses. Also, if existing or potential customers or counterparties believe our risk management is inadequate, they could take their business elsewhere or seek to limit their transactions with us. This could harm our reputation as well as our revenues and profits. See “Management Report: Risk Report” in the Annual Report 2019 for a more detailed discussion of the policies, procedures and methods we use to identify, monitor and manage our risks.

Operational risks, which may arise from errors in the performance of our processes, the conduct of our employees, instability, malfunction or outage of our IT system and infrastructure, or loss of business continuity, or comparable issues with respect to our vendors, may disrupt our businesses and lead to material losses.

We face operational risk arising from errors, inadvertent or intentional, made in the execution, confirmation or settlement of transactions or from transactions not being properly recorded, evaluated or accounted for. An example of this risk concerns our derivative contracts, which are not always confirmed with the counterparties on a timely basis. For so long as the transaction remains unconfirmed, we are subject to heightened credit and operational risk and in the event of a default may find it more difficult to enforce the contract.

In addition, our businesses are highly dependent on our ability to process manually or through our systems a large number of transactions on a daily basis, across numerous and diverse markets in many currencies. Some of the transactions have become increasingly complex. Moreover, management relies heavily on its financial, accounting and other data processing systems that include manual processing components. If any of these processes or systems do not operate properly, or are disabled, or subject to intentional or inadvertent human error, we could suffer financial loss, a disruption of our businesses, liability to clients, regulatory intervention or reputational damage.

We are also dependent on our employees to conduct our business in accordance with applicable laws, regulations and generally accepted business standards. If our employees do not conduct our business in this manner, we may be exposed to material losses. Furthermore, if an employee's misconduct reflects fraudulent intent, we could also be exposed to reputational damage. We categorize these risks as conduct risk, which comprises inappropriate business practices, including selling products that are not suitable for a particular customer, fraud, unauthorized trading and failure to comply with applicable regulations, laws and internal policies.

We in particular face the risk of loss events due to the instability, malfunction or outage of our IT system and IT infrastructure. Such losses could materially affect our ability to perform business processes and may, for example, arise from the erroneous or delayed execution of processes as either a result of system outages or degraded services in systems and IT applications. A delay in processing a transaction, for example, could result in an operational loss if market conditions worsen during the period after the error. IT-related errors may also result in the mishandling of confidential information, damage to our computer systems, financial losses, additional costs for repairing systems, reputational damage, customer dissatisfaction or potential regulatory or litigation exposure (including under data protection laws such as the GDPR).

Business continuity risk is the risk of incurring losses resulting from the interruption of normal business activities. We operate in many geographic locations and are frequently subject to the occurrence of events outside of our control. Despite the contingency plans we have in place, our ability to conduct business in any of these locations may be adversely impacted by a disruption to the infrastructure that supports our business, whether as a result of, for example, events that affect our third party vendors or the community or public infrastructure in which we operate. Any number of events could cause such a disruption including deliberate acts such as sabotage, terrorist activities, bomb threats, strikes, riots and assaults on the bank's staff; natural calamities such as hurricanes, snow storms, floods, disease pandemics (such as the current COVID 19 pandemic) and earthquakes; or other unforeseen incidents such as accidents, fires, explosions, utility outages and political unrest. Any such disruption could have a material adverse effect on our business and financial position.

We utilize a variety of vendors in support of our business and operations. Services provided by vendors pose risks to us comparable to those we bear when we perform the services ourselves, and we remain ultimately responsible for the services our vendors provide. Furthermore, if a vendor does not conduct business in accordance with applicable standards or our expectations, we could be exposed to material losses or regulatory action or litigation or fail to achieve the benefits we sought from the relationship.

We utilize a variety of vendors in support of our business and operations. We do so in order to focus on our core competencies and to seek improvements in costs, efficiency and effectiveness in our operations, for instance in connection with our IT modernization efforts. Services provided by vendors pose risks to us comparable to those we bear when we perform the services ourselves, and we remain ultimately responsible for the services our vendors provide. We depend on our vendors to conduct their delivery of services in compliance with applicable laws, regulations and generally accepted business standards and in accordance with the contractual terms and service levels they have agreed with us. If our vendors do not conduct business in accordance with these standards, we may be exposed to material losses and could be subject to regulatory action or litigation as well as be exposed to reputational damage. More generally, if a vendor relationship does not meet our expectations, we could be exposed to financial risks, such as the costs and expenses associated with migration of the services to another vendor and business and operational risks related to the transition, and we could fail to achieve the benefits we sought from the relationship.

Our operational systems are subject to an increasing risk of cyber-attacks and other internet crime, which could result in material losses of client or customer information, damage our reputation and lead to regulatory penalties and financial losses.

Among the operational risks we face is the risk of breaches of the security of our or our vendors' computer systems due to unauthorized access to networks or resources, the introduction of computer viruses or malware, or other forms of cybersecurity attacks or incidents. Such breaches could threaten the confidentiality of our or our clients' data and the integrity of our systems. We devote significant resources toward the protection of our computer systems against such breaches and toward ensuring that our vendors employ appropriate cybersecurity safeguards. To address the evolving cyber threat risk, we have expended significant resources to modify and enhance our protective measures and to investigate and remediate any information security vulnerabilities. These measures, however, may not be effective against the many security threats we face.

The increasing frequency and sophistication of recent cyber-attacks has resulted in an elevated risk profile for many organizations around the world, and significant attention by our management has been paid to the overall level of preparedness against such attacks. Cybersecurity is growing in importance due to factors such as the continued and increasing reliance on our technology environment. We and other financial institutions have experienced attacks on computer systems, including attacks aimed at obtaining unauthorized access to confidential company or customer information or damaging or interfering with company data, resources or business activities, or otherwise exploiting vulnerabilities in our infrastructure. We expect to continue to be the target of such attacks in the future. Although we have to date not experienced any material business impact from these attacks, we may not be able to effectively anticipate and prevent more material attacks from occurring in the future. A successful attack could have a significant negative impact on us, including as a result of disclosure or misappropriation of client or proprietary information, damage to computer systems, financial losses, remediation costs (such as for investigation and re-establishing services), increased cybersecurity costs (such as for additional personnel, technology, or third-party vendors), reputational damage, customer dissatisfaction and potential regulatory or litigation exposure.

The size of our clearing operations exposes us to a heightened risk of material losses should these operations fail to function properly.

We have large clearing and settlement businesses and an increasingly complex and interconnected information technology (IT) landscape. These give rise to the risk that we, our customers or other third parties could lose substantial sums if our systems fail to operate properly for even short periods. This will be the case even where the reason for the interruption is external to us. In such a case, we might suffer harm to our reputation even if no material amounts of money are lost. This could cause customers to take their business elsewhere, which could materially harm our revenues and profits.

Ongoing global benchmark reform efforts initiated by the FSB, specifically the transition from interbank offered rates to alternative reference rates, including so-called "risk-free-rates", that are under development, introduce a number of inherent risks to our business and the financial industry. These risks, should they materialize, may have adverse effects on our business, results of operations and profitability.

Regulators and central banks have set the goal of improving the robustness of financial benchmarks, especially interest rate benchmarks. As a result of this initiative, the ongoing availability of, among other benchmarks, the London Interbank Offered Rate ("LIBOR") and the Euro Overnight Index Average rate ("EONIA" and, together with LIBOR, and other interbank benchmark rates, "IBORs") is uncertain. In the UK, the FCA has asserted that they will not compel LIBOR submissions beyond 2021, thereby jeopardising its continued availability, and has strongly urged market participants to transition to alternative risk-free rates ("RFRs"), as has the CFTC and other regulators in the US. As a result, LIBOR may be modified or discontinued after 2021. As of October 2, 2019, the administrator of EONIA has changed the way it calculates EONIA, so that it is now redefined as the "€STR" euro short-term rate, plus a spread of 8.5 basis points; nonetheless, EONIA is scheduled to cease to exist as of January 3, 2022. There are efforts under way to extend the transition period of the EU financial benchmarks regulation through 2021 for critical and third country benchmarks, which would allow these rates to remain available through 2021. In 2019, EURIBOR was reformed to comply with the EU financial benchmarks regulation, and continues to be available.

We and other market participants are actively engaged in industry working groups to identify and recommend RFRs and processes through which parties can transition to such rates, and a number of sub-working groups have been set up to address open questions and issues surrounding these changes.

In addition, there are ongoing initiatives of benchmark administrators and their respective regulators to revise existing benchmark methodologies with the aim of improving the robustness of such benchmarks. As a contributing bank to a range of interest rate benchmarks, including LIBOR, we are closely involved with such initiatives.

A material portion of our assets and liabilities, including financial instruments we trade and other transactions and services we are involved in, have interest rates that are linked to IBORs that may be subject to potential discontinuation, requiring us to prepare for such discontinuation and for a potential transition to RFRs. Although we are actively engaged with customers and industry working groups to manage the risks relating to such exposure, and are exploring ways to utilise RFRs to the extent possible, the legal mechanisms to effect transition cannot be confirmed, and the impact cannot be determined nor any associated costs accounted for, until such time that RFRs are utilised exclusively and there is market acceptance on the form of alternative RFRs for different products, and certain IBOR obligations may not be changed. The transition and uncertainties around the timing and manner of transition to RFRs represent a number of risks for us, our customers and the financial services industry more widely. The discontinuation of these IBORs and the transition to RFRs pose a variety of risks to us, including the following:

- Legal and compliance risk (including conduct risk) may arise due to possible disputes regarding disclosures to clients or provisions in financial contracts with counterparties. Many financial instruments linked to IBORs contain provisions for the use of a successor interest rate in the event of the discontinuation of such IBORs, while others do not. In connection with such a discontinuation and transition, the counterparty to the financial instrument may challenge the rate determined for such instrument, particularly if we are the obligor under such financial instrument or are otherwise involved in the determination or setting of the successor rate, whether in respect of the particular financial instrument or in respect of the applicable benchmarks generally. Such disputes could result in claims of market abuse and mistreatment of customers, litigation or regulatory action.
- Liquidity risk may arise due to slow acceptance, take-up, and development of liquidity in RFR-related products, leading to market dislocation or fragmentation. Additionally, bid/offer spreads may widen impacting funding and collateral postings. Also, replacement of IBORs with a new benchmark rate could adversely impact the value of and return on existing instruments and contracts and the market for securities and other instruments whose returns are linked to IBOR benchmarks.
- Market risk may arise due to interest rate “basis” risks – the risks posed by different interest rate provisions applying to assets than to liabilities – across tenors and currencies, driven by differing fallback methodologies and timings. Different timings of adoption of fallback protocols will create new basis and potentially make hedging more costly or less effective, and losses may result from value transfer in the fallback methodology adopted. In the event of discontinuation of IBORs and a transition to a successor interest rate, we may incur losses in respect of our assets and liabilities linked to IBORs if the successor interest rate is not economically equivalent to the discontinued IBORs.
- Introduction of new RFRs will require us to develop new pricing and risk models related to new RFR-linked products. The models we develop may require approval by competent regulators if they differ significantly from existing models, which may introduce delays.
- Finance and tax risk may arise due to the discontinuation of IBORs and transition to RFRs, which could cause hedge accounting items to be derecognized, adversely impacting our profitability or causing us to incur losses. Discontinuation and transition could also pose difficulties for the independent price verification of financial instruments, where market data is unavailable for the new or modified financial instrument. Tax uncertainties could arise if a discontinuation or transition is viewed as a significant modification of a financial instrument that results in a profit or loss recognition event for tax purposes.
- Technology and operational risk may arise as a result of the complexity of transition processes, which will require collaboration with our regulators and central banks as well as a wide range of market participants. Also, significant change efforts – relating to RFR product development, re-documentation of client contracts and infrastructure change, including to systems, processes and models across the business and our Finance, Risk and Treasury functions –, will be required. Successful transition processes are, to some extent, dependent on achieving industry and client consensus on standards and conventions, timing and sequencing of transition steps, creation of term versions of the RFRs and the timely re-documenting of client contracts.

It is therefore currently difficult to determine to what extent the changes will affect us, or the costs of implementing any relevant remedial action. Uncertainty as to the nature and extent to such potential changes, alternative reference rates or other reforms including the potential continuation of the publication of IBORs may adversely affect financial instruments using IBORs as benchmarks. The implementation of any alternative RFRs may be impossible or impracticable under the existing terms of such financial instruments and could have an adverse effect on the value of, return on the trading market for certain financial instruments and on our profitability. There is also the risk of an adverse effect to reported performance arising from the transition rules established by accounting bodies, as certain rules (as proposed by the IASB) are still to be finalized.

Initiatives to reform existing benchmarks and our participation in them potentially give risk to similar legal and other risks.

The necessity and potential timing of the discontinuation of IBORs, the prospects for transition to RFRs in the various markets in which they would be required, and industry, market and regulatory response, remain highly uncertain. Also, as mentioned, there are external factors, such as required actions of regulators or counterparties, which create risks that an individual institution, or the industry as a whole, would find difficult to address. Depending how such contingencies develop, and the adequacy of the response of the industry, the market, regulators and us to them, the discontinuation of IBORs and transition to RFRs could have adverse effects on our business, results of operations and profitability.

[We are subject to laws and other requirements relating to financial and trade sanctions and embargoes. If we breach such laws and requirements, we can be subject, and have in the past been subject, to material regulatory enforcement actions and penalties.](#)

We are required to monitor, evaluate, and observe laws and other requirements relating to financial and trade sanctions and embargoes set by the EU, the Deutsche Bundesbank, Germany's Federal Office for Economic Affairs and Export Control, and other authorities, such as the U.S. Treasury Department's Office of Foreign Assets Control (OFAC) and the UK Treasury Department. If we breach such laws and requirements, we can be subject, and have in the past been subject, to material regulatory enforcement actions and penalties.

[Transactions with counterparties in countries designated by the U.S. State Department as state sponsors of terrorism or persons targeted by U.S. economic sanctions may lead potential customers and investors to avoid doing business with us or investing in our securities, harm our reputation or result in regulatory or enforcement action which could materially and adversely affect our business.](#)

We engage or have engaged in a limited amount of business with counterparties, including government-owned or -controlled counterparties, in certain countries or territories that are subject to comprehensive U.S. sanctions, including Iran and Cuba (referred to as "Sanctioned Countries"), or with persons targeted by U.S. economic sanctions (referred to as "Sanctioned Persons"). U.S. law generally prohibits U.S. persons or any other persons acting within U.S. jurisdiction from doing business with Sanctioned Countries or Sanctioned Persons. Additionally, U.S. indirect or "secondary" sanctions threaten retaliation against certain activities, including categories of transactions with certain entities and countries, by non-U.S. persons entirely outside of U.S. jurisdiction. Thus, U.S. regulations may extend to activities in other geographic areas and by non-U.S. persons depending on the circumstances. Our U.S. subsidiaries, branch offices, and employees are, and our non-U.S. subsidiaries, branch offices, and employees may become, subject to those prohibitions and other regulations.

We are a German bank and our activities with respect to Sanctioned Countries and Sanctioned Persons have been subject to policies and procedures designed to avoid the involvement of persons acting under U.S. jurisdiction in any managerial or operational role and to ensure compliance with United Nations, European Union and German sanctions and embargoes; in reflection of legal developments in recent years, we have further developed our policies and procedures with the aim of ensuring – to the extent legally permitted – compliance with regulatory requirements extending to other geographic areas regardless of jurisdiction. However, should our policies prove to be, or have been, ineffective, we may be subject to regulatory or enforcement action that could materially and adversely affect our reputation, financial condition, or business. We have taken action to reduce the risk of compliance violations. In 2007, our Management Board decided that we will not engage in new business with counterparties in countries such as Iran, Syria, Sudan and North Korea and to exit existing business to the extent legally possible. It also decided to limit our business with counterparties in Cuba. Iran, North Korea Sudan and Syria are currently designated as state sponsors of terrorism by the U.S. State Department.

We had a representative office in Tehran, Iran, which we discontinued on December 31, 2007. Our remaining business with Iranian counterparties consisted mostly of participations as lender and/or agent in a few large trade finance facilities arranged before 2007 to finance the export contracts of exporters in Europe and Asia. As of December 31, 2018, those loans were fully paid back, subsequently the majority of the remaining Iranian business consists of legacy contractual obligations related to guarantees. We do not believe our business activities with Iranian counterparties are or had been material to our overall business, with the aforementioned guarantees having notional amounts of substantially less than 0.01 % of our total assets over recent years. As of December 31, 2019, the revenues from such activities represented substantially less than 0.01 % of our total revenues for the year ended December 31, 2019.

As required by Section 219 of the Iran Threat Reduction and Syria Human Rights Act of 2012 (Section 13(r) of the Securities Exchange Act of 1934, as amended) we have disclosed certain information regarding our activities or transactions with persons subject to U.S. sanctions against Iran and other persons subject to such provision. Such disclosure is set forth in the section of this document entitled “Disclosures Under Iran Threat Reduction and Syria Human Rights Act of 2012”, which follows “Item 16H: Mine Safety Disclosure”.

We are also engaged in a limited amount of business with counterparties domiciled in Cuba, which is not subject to any United Nations, European Union or German embargoes. The business consists of a limited number of letters of credit and of cash payments, each without a U.S. nexus, and it represented substantially less than 0.01 % of our assets as of December 31, 2019. The letters of credit served to finance commercial products such as machinery as well as medical products.

We have set up appropriate processes and procedures aimed at complying with other substantial changes in U.S. economic sanctions that have occurred since 2017. In August 2017, the United States enacted the “Countering America’s Adversaries Through Sanctions Act” (referred to as “CAATSA”), which codifies existing U.S. sanctions against Russia (including designation of Russian entities under U.S. sanctions), expands U.S. secondary sanctions against Russia, tightens existing sectoral sanctions (targeting specific sectors of the Russian economy), and permits the imposition of sectoral sanctions against additional sectors of the Russian economy. In particular, expanded U.S. secondary sanctions under CAATSA allow for the imposition of U.S. sanctions on non-U.S. entities who engage in “significant” transactions with Russian SDNs or specific entities in the Russian defense and intelligence sectors. We do not believe we have engaged or are currently engaged in any transactions with Russian entities that violate, or are sanctionable under, U.S. sanctions. However, given the broad discretion U.S. authorities have in interpreting and enforcing U.S. sanctions, there can be no assurances that U.S. authorities will not bring enforcement actions against us, or impose secondary sanctions on us for our ongoing activities. Any such actions could have a material impact on our business and harm our reputation. It is also possible that the United States could impose broader sanctions on Russia or Russian entities in the future and that such sanctions could have a material impact on our business activities.

Additionally, since 2017, the U.S. Administration has imposed a number of sanctions against the Government of Venezuela and Venezuelan officials. These sanctions prohibit (beginning on August 5, 2019) virtually all unlicensed transactions involving the Government of Venezuela, including state owned or state controlled companies, and also threaten to impose regulations on (non-U.S.) persons having materially assisted such transactions or dealings. We have taken appropriate steps and established appropriate processes and procedures aimed at complying with these U.S. sanctions against the Government of Venezuela. In response to these U.S. sanctions, we have wound down several client relationships. With respect to entities of the Government of Venezuela, we are currently only engaged in legacy transactions. We do not believe that any of our remaining activities related to the Government of Venezuela violate U.S. sanctions. However, given the broad discretion U.S. authorities have in interpreting and enforcing U.S. sanctions, there can be no assurances that U.S. authorities do not allege that our ongoing activities violate U.S. sanctions.

We are aware, through press reports and other means, of initiatives by governmental and non-governmental entities in the United States and elsewhere to adopt laws, regulations or policies prohibiting transactions with or investment in, or requiring divestment from, entities doing business with Sanctioned Countries, particularly Iran and Russia. Such initiatives may result in our being unable to gain or retain entities subject to such prohibitions as customers or as investors in our securities. In addition, our reputation may suffer due to our association with such countries. Such a result could have significant adverse effects on our business or the price of our securities. It is also possible that new direct or indirect secondary sanctions could be imposed by the United States or other jurisdictions without warning as a result of geopolitical developments.

Item 4: Information on the Company

History and Development of the Company

The legal and commercial name of our company is Deutsche Bank Aktiengesellschaft. It is a stock corporation organized under the laws of Germany.

Deutsche Bank Aktiengesellschaft originated from the reunification of Norddeutsche Bank Aktiengesellschaft, Hamburg, Rheinisch-Westfälische Bank Aktiengesellschaft, Düsseldorf, and Süddeutsche Bank Aktiengesellschaft, Munich. Pursuant to the Law on the Regional Scope of Credit Institutions, these were discontinued in 1952 from Deutsche Bank, which had been founded in 1870. The merger and the name were entered in the Commercial Register of the District Court Frankfurt am Main on May 2, 1957.

We are registered under registration number HRB 30 000. Our registered address is Taunusanlage 12, 60325 Frankfurt am Main, Germany, and our telephone number is +49-69-910-00. Our agent in the United States is: DB USA Corporation, c/o Office of the Secretary, 60 Wall Street, Mail Stop NYC60-4099, New York, NY 10005.

For information on significant capital expenditures and divestitures, please see “Management Report: Operating and Financial Review: Deutsche Bank Group: Significant Capital Expenditures and Divestitures” in the Annual Report 2019.

The Securities and Exchange Commission (“SEC”) maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, such as Deutsche Bank Aktiengesellschaft, with the address <http://www.sec.gov>. Our filings are available on the SEC’s Internet site under File Number 001-15242. Our Internet address is <http://www.db.com>.

Business Overview

Our Organization

Please see “Management Report: Operating and Financial Review: Deutsche Bank Group: Our Organization” in the Annual Report 2019. For information on net revenues by geographic area and by corporate division please see Note 4 “Business Segments and Related Information: Entity-Wide Disclosures” to the consolidated financial statements and “Management Report: Operating and Financial Review: Results of Operations: Segment Results of Operations” in the Annual Report 2019.

Management Structure

Please see “Management Report: Operating and Financial Review: Deutsche Bank Group: Management Structure” in the Annual Report 2019.

Our Business Strategy

In July 2019, we announced a radical transformation strategy for Deutsche Bank. Our goal is to change Deutsche Bank fundamentally in a manner which significantly improves returns to shareholders. This strategy is underpinned by four specific objectives. First, to refocus Deutsche Bank around four core businesses, focusing on key areas of strength and on more predictable revenue sources while exiting business areas unlikely to produce adequate returns. Second, to reduce our adjusted costs and improve the efficiency and effectiveness of our infrastructure. Third, to reinvigorate the leadership and spirit of the bank by enabling faster decision-making, increasing discipline in execution and unleashing Deutsche Bank’s entrepreneurial culture. Finally, to free up capital for return to shareholders by reducing our assets through a newly-created Capital Release Unit.

For 2019, we reported that our performance was in-line with or slightly ahead of our near-term objectives and financial targets regarding cost reductions as well as capital and leverage ratios.

As part of the profound transformation and restructuring of our business, we want to embed sustainability across all our businesses and to become a strategic partner of choice for our clients to support their transition and the overall transformation towards sustainable economic growth.

Stabilizing and building momentum in the Core Bank

As part of our strategic transformation, we created a Core Bank and a separate Capital Release Unit.

The Core Bank which represents our strategic vision comprises four operating divisions: Corporate Bank, Investment Bank, Private Bank and Asset Management, together with Corporate & Other. Our primary objective in the Core Bank was to stabilize revenues and position them for growth. In 2019, we delivered on this goal. Core Bank revenues, adjusted for specific items, were essentially stable versus 2018. In the second half of 2019, the first six months of our transformation strategy, Core Bank revenues excluding specific items were up slightly over the same period of 2018, despite headwinds which included an even tougher interest rate environment, a slowing global economy, and substantial restructuring efforts.

Despite the challenges we faced in 2019, operating-level profitability in the Core Bank was encouraging. On a reported basis, profit before tax was €543 million in 2019, significantly lower than in the prior year, driven by transformation-related effects. However, adjusted for specific revenue items, transformation charges, impairments of goodwill and other intangibles as well as restructuring and severance expenses, the Core Bank would have reported a pre-tax profit of €2.8 billion, an increase of 7 % versus 2018 on an equivalent basis. Our progress in 2019 should provide a solid basis for future growth as the impact of strategy execution is increasingly reflected in our financial results.

The Capital Release Unit includes business areas which no longer form a core part of our strategy or products with insufficient returns. These included Equities Trading businesses, lower-yielding fixed income positions, particularly in Rates, our former CIB Non-Strategic portfolio and our retail operations in Portugal and Poland. Our objective is to exit the assets and business areas in the Capital Release Unit as efficiently as possible.

Continuing to deliver on cost reduction targets

Cost reduction is an essential element of our transformation strategy. We aim to reduce our adjusted costs to €17 billion in 2022 while continuing to invest in technology and strong controls.

In 2019, our cost reduction efforts remained on track. We reduced adjusted costs to €21.5 billion, in line with our published target, excluding transformation charges and fourth quarter expenses associated with the transfer of our Prime Finance platform to BNP Paribas. This progress reflects eight successive quarters of year-on-year reductions in adjusted costs excluding transformation-related effects and bank levies. Our noninterest expenses for the year 2019 were €25.1 billion. On a full-time equivalent (FTE) basis, we reduced the number of internal employees to below 88,000 at year-end 2019, achieving our target of below 90,000 and down by over 4,100 FTEs during the year.

Strict cost discipline will remain critical to achieve our near-term objectives and we are committed to maintaining the momentum of our cost reduction efforts in 2020 and beyond. In 2020, we aim to reduce adjusted costs excluding transformation charges and reimbursable expenses associated with our Prime Finance platform being transferred to BNP Paribas to €19.5 billion, with a substantial contribution from measures already implemented in 2019.

Conservative balance sheet management: an essential element of our strategy

We remain committed to managing our balance sheet conservatively as we execute on strategic transformation, and we delivered on this commitment in 2019. A strong capital ratio is core to this objective. At the end of 2019, our CET 1 ratio was 13.6 %, stable versus the end of 2018. We were able to offset the negative impact of transformation-related effects upon capital by reductions in risk weighted assets, in large measure thanks to delivery by the Capital Release Unit. These efforts also contributed to a fully-loaded leverage ratio of 4.2 % at year-end, versus a target of 4 %. The phase-in leverage ratio was 4.3%.

The loan-to-deposit ratio for the Group was 76 % at year-end 2019, reflecting a strong and stable funding base supporting our growing loan portfolio. Our funding base benefited from structural improvements in our balance sheet, and 83 % of total funding is now from the most stable sources. Provisions for credit losses, although higher than in 2018, remained relatively low at 17 basis points of loans, reflecting the bank's conservative underwriting standards, strong risk management and low-risk portfolios. We maintained a liquidity coverage ratio of 141 % as at year-end 2019, comfortably above regulatory requirements and broadly in line with year-end 2018.

Our objective is to maintain a CET 1 ratio of at least 12.5 % in 2020 and at all times during the execution of our transformation strategy, by further reducing RWA from asset disposals in the Capital Release Unit while allocating additional capital to growing our core businesses. We further aim to increase our leverage ratio to 4.5 % on a fully-loaded basis by the end of 2020, and to around 5 % in 2022.

Balance sheet reduction in the Capital Release Unit is on track

By establishing our dedicated Capital Release Unit, we aim to liberate capital currently consumed by low return assets, businesses with insufficient returns or activities no longer core to our strategy. Asset reductions support our Common Equity Tier 1 (CET 1) ratio objective and enable us to finance the cost of transformation from within existing capital resources.

The Capital Release Unit delivered on or ahead of target during 2019. The CRU reduced leverage exposure to € 127 billion by year-end, ahead of its target of € 140 billion and a significant reduction versus the year-end 2018 figure of € 281 billion. Risk weighted assets were reduced to € 46 billion, versus a target of € 52 billion, and versus € 72 billion at the end of the prior year. Adjusted costs in the Unit, at around € 2.6 billion excluding transformation-related effects, were in line with expectations.

Our progress included signing a master transaction agreement with BNP Paribas to provide continuity of service to Deutsche Bank's Prime Finance and Electronic Equities clients. Under this agreement Deutsche Bank will continue to operate the platform until clients can be migrated to BNP Paribas, which is expected to occur by end of 2021.

The Capital Release Unit will continue to execute on its asset reduction program in 2020, disposing of assets while seeking to reduce the costs associated with exited positions. Further expense management initiatives will be focused on reduction of business-aligned infrastructure spending in 2020 and future years.

Our Financial Targets

Our key financial targets are:

Near-term objectives for 2020

- Adjusted costs excluding transformation-related effects and reimbursable expenses associated with our Prime Finance platform being transferred to BNP Paribas of € 19.5 billion
- Common Equity Tier 1 capital ratio of at least 12.5 %
- Leverage ratio (fully loaded) of 4.5 % excluding balances associated with our Prime Finance platform we hold for BNP Paribas

Financial Targets for 2022

- Adjusted costs of € 17 billion
- Common Equity Tier 1 capital ratio of at least 12.5 %
- Leverage ratio (fully loaded) of ~5 %
- Post-tax Return on Average Tangible Equity of 8 % for the Group
- Post-tax Return on Average Tangible Equity of more than 9 % for the Core Bank
- Cost income ratio of 70 %

The current COVID 19 pandemic and its potential impact on the global economy may affect our ability to meet our financial targets. While it is too early for us to predict the impacts on our business or our financial targets that the expanding pandemic, and the governmental responses to it, may have, we may be materially adversely affected by a protracted downturn in local, regional or global economic conditions.

Adjusted costs, Adjusted costs excluding transformation charges, Adjusted costs excluding transformation charges and the impact of the Global Prime Finance transfer to BNP Paribas, Adjusted profit (loss) before tax and Post-tax Return on Average Tangible Equity are non-GAAP financial measures. Please refer to "Supplementary Information (Unaudited): Non-GAAP Financial Measures" of this report for the definitions of such measures and reconciliations to the IFRS measures on which they are based.

Our Businesses

This section should be read in conjunction with the section Deutsche Bank: Our Organization in the Operating and Financial Review in this report.

Corporate Bank

Following the announcement of our strategic transformation in July 2019, Corporate Bank (CB) successfully integrated the various client-facing coverage and service units into one consistent, global business division. We took decisive steps towards the integration of the division and positioned ourselves for future growth. We defined a global corporate client coverage strategy, including measures to focus on growing our multinational clients business in APAC, EMEA and the U.S., and increasing the product usage of our clients. In Germany, we defined three client target segments with distinct client strategies per segment to ensure we cover our clients' needs while aligning our coverage efforts. In APAC, we invested in people and technology over the last year to drive growth.

The Corporate Bank operates in attractive markets with high barriers to entry and continued growth opportunities, especially in Asia. At the same time, some parts of corporate banking, especially payments, are experiencing a high degree of innovation and disruption driven by high-paced technology developments and the emergence of new competitors. However, we believe our core competencies position us well to benefit in this environment in 2020 and beyond.

First, our capabilities in Cash Management, Trade Finance and Foreign Exchange, the latter delivered in close collaboration with the Investment Bank, enable us to serve core needs of our corporate clients. Second, we act as a highly specialized provider of services to Financial Institutions, safeguarding assets as well as offering Correspondent Banking and Trust and Agency services. Third, with payments as our anchor product, our Cash Management franchise provides holistic workflow solutions to clients in high growth segments, such as tech and platform, on a global scale. Fourth, we are the leading bank serving German corporates domestically and abroad as we cater to around 900,000 commercial clients in Germany – ranging from large multinationals to the German Mittelstand to small commercial clients.

We have defined a number of specific initiatives to capitalize on our core competencies and grow our revenues in these areas. These measures include re-pricing deposits to offset the impact of negative interest rates, and growing our business with platforms, FinTechs and eCommerce payment solutions.

We intend to capitalize on our ability to offer the full suite of risk solutions, financial advisory, investment solutions and financing for the corporate treasurer. In particular, we aim to take advantage of our leading Fixed Income and Currencies platform and increase Rates and FX revenues with our corporate clients.

Another driver for growth is further expanding our business in Asia. In Securities Services, we plan to drive growth in selected key geographies; in Trade Finance, our focus is on the Intra-Asian trade corridors on the one hand, but also leveraging existing client activity into Asia, e.g. from Germany and the U.S., on the other. In Cash Management, we expect to drive growth across the region, in particular in our engagement with the real-time payment scheme in India. Finally, even as we grow our business with clients globally, we intend to continue to apply sound risk management principles in order to maintain the high quality of our loan portfolio and strict lending standards.

Investment Bank

During the second half of 2019, focus in the Investment Bank (IB) was on stabilizing the franchise, taking action to turn around specific flow businesses within FIC and initiating actions to materially reduce the cost base. With the operational set up largely complete by the end of the third quarter, there were signs of a positive impact in the fourth quarter of 2019.

In 2020 and beyond, IB is focused on improving Return on Tangible Equity through a combination of controlled revenue growth, funding optimization and continued cost reduction. We aim to achieve this by focusing on key strengths and reshaping businesses currently operating below our Return on Tangible Equity targets.

Within FIC, we target retaining a top-five position globally and a top-three position in EMEA, as per the industry monitor Coalition. We intend to maintain a leading Credit Financing and Trading franchise, with continued investment in Asset Based Financing and Commercial Real Estate. Flow Credit intends to operate in close partnership with Origination to provide secondary market liquidity to issuances led by the bank, while we plan to expand our product suite offered to clients globally and grow revenues from our institutional client base by increasing coverage intensity on focus accounts. In Rates, we plan to enhance the automation of the flow business, look to grow our corporate client base in partnership with the Corporate Bank, and expect to achieve further cost reductions via technology and process simplification. In Foreign Exchange, we plan to continue to develop technology to maintain our competitive edge and build out our FX partnership with the Corporate Bank. Finally, we plan to complete the creation of a new Global Emerging Markets business, combining our current EM Debt and Asia local markets platforms. This should provide our clients with an enhanced offerings and we will look to leverage the success of the electrification in Asia to the CEEMEA and LatAM regions in partnership with the Corporate Bank.

In Origination & Advisory we intend to increase market share in Debt Origination in 2020, by intensifying our focus on investment grade issuances and developing our risk distribution and resource optimization to support growth. In Advisory, we are focusing on industries with growth potential and where the bank has a competitive edge and by targeting selected hires in key sectors. In Equity Origination we plan to continue to provide a competitive primary underwriting issuance and distribution offering to clients across products, and will look to leverage our expertise in targeted industry segments.

Regionally, we plan to maintain a global footprint in line with serving the needs of Investment Bank clients. We intend to emphasize growth with corporate clients through partnership with the Corporate Bank across a number of businesses, while focusing on deepening existing relationships for both institutional and corporate clients. We expect to continue to reduce costs by further increasing the expense management discipline in client-facing areas and focusing on technology and infrastructure efficiencies.

We continue to see a clear opportunity for IB to occupy an attractive position as one of the handful of globally relevant European participants in the Global IB market.

Private Bank

Private Bank (PB) was formed following the announcement of our strategic transformation in July 2019. Private Bank Germany is Germany's leading retail bank with two highly complementary brands, Deutsche Bank and Postbank, serving approximately 19 million clients. We target clients who are seeking advisory solutions with the Deutsche Bank offerings and those looking for convenience through the Postbank offerings. In cooperation with Deutsche Post DHL AG, we also offer postal and parcel services in the Postbank branches.

We believe that with 19 million clients Private Bank Germany benefits from unique competitive advantages. The division continues to invest in technology in order to develop a powerful digital offering. This allow customers to interact online or offline. In addition, with our "Deutsche Bank" brand we are focused on servicing affluent clients with highly qualified advisors and intend to complement our offerings by closely collaborating with experts in the Investment Bank and in Asset Management to offer tailor-made solutions to our clients, especially relevant in the current interest rate environment.

Within Private Bank Germany, the integration of Postbank is well on track. In 2019, we finalized the balance of interest negotiations with the works council for both a single head office and the operations unit for Deutsche Bank and Postbank brands which enable us to implement the targeted efficiency measures. We continued optimizing our retail branch and sales footprint and executed growth as well as re-pricing initiatives. Following the strategy announcement in July 2019, we operationalized the carve-out of the commercial clients business in Germany into the newly-formed Corporate Bank to enable increased focus in the Private Bank on our retail client base. In the last quarter of 2019, we began to merge the former Postbank IT-systems into Deutsche Bank's IT platform as a first step to building a modern and flexible retail IT platform. In addition, we are making progress on the preparations for the legal entity merger of Deutsche Bank PFK AG into Deutsche Bank AG. This legal entity merger is expected to create further cost savings.

In our Private and Commercial Business International, we provide advisory banking services to predominantly affluent private clients and export-oriented small and medium-sized companies in major Eurozone markets including Italy, Spain and Belgium, as well as in India. Our franchise is complemented by a consumer finance retail business in Italy. In 2019, we successfully closed the sale of our local retail business in Portugal. In our continuing business, we made significant progress in refining our country business models, including the streamlining of our branch networks and central functions. We have also launched a cross-divisional initiative, together with Wealth Management, Corporate Bank and Investment Bank, to grow in our SME and Entrepreneur's proposition by enhancing our coverage model and product offering, starting in Italy and Spain. Furthermore, we have introduced new digital advisory tools and remote advisory models and have been investing in our core banking platforms in Italy and India to create a robust technology environment for future growth.

Going forward, investments in Italy are expected to normalize as we intend to implement a new core banking platform in the second quarter of 2020. Further cost reductions should result from continued optimization of our branch network and country head office structures as we enhance our digital capabilities, and from increased use of automation and agile IT solutions. Supported by our combination of local delivery and global strength as well as our digital investments, we aim to grow our revenues, especially with investment products, business banking products and consumer finance.

In Wealth Management, where we combine local heritage and global reach, we also offer expert advice in conjunction with an extensive range of services from standardized to highly tailored solutions. Our focus is on serving high-net-worth (HNW) and ultra-high-net-worth (UHNW) individuals, their families and businesses, as well as professional clients such as Family Offices, providing them access to a full product suite and connecting them to the bank's wider capabilities. We plan to monetize the investments we have made in hiring front office staff and to continue to digitally enhance our client experience. In addition to our growth strategy, we constantly aim to make our global Wealth Management business more focused and efficient.

In 2019, we made further progress in our strategic agenda to protect, transform and grow the franchise. We further invested into our control framework, pursued continued investments in our platform and client facing solutions, and harvested savings from optimization and simplification measures. In 2019, we made significant progress on hiring senior and highly experienced client-facing relationship and investment managers at competitive market rates and now aim to focus on monetizing these investments while continuing to invest in strategic markets.

Asset Management

The asset management industry is evolving, with greater competition, continued margin pressure, and technological disruption. In response, Asset Management (AM) has implemented a number of strategic initiatives to support our medium-term targets by 2021 and continue delivering shareholder value through net flows, cost discipline and dividend distributions. We believe our diverse range of well-performing products and investment solutions give us a strong basis for growing assets and profitability regardless of the market in which we operate.

We seek to make Environmental, Social and Governance (ESG) and sustainability a key strategic focus of both our fiduciary and corporate activities. We expect sustainability and sustainable investments to become the driving force behind successful asset management over the coming years. As demand for ESG investment products has risen significantly, we have responded to this demand by launching new innovative products and offering ESG-versions of existing funds. Our aim is to become a leading ESG-integrated asset manager, which requires ESG to be embedded in everything we do.

Cost control continues to be fundamental to execute on our business strategy and to ensure high shareholder value creation. Over the next two years, we are aiming to achieve an additional € 150 million of gross cost savings through enhancing our workforce efficiency, reducing our vendor landscape and rationalizing our real estate footprint. Our plan for the future is to shift away from our complex legacy IT infrastructure platform towards a state-of-the-art IT infrastructure that is efficient and fit-for-purpose for asset management needs.

A key strategic focus is to seek to deliver consistent investment performance across strategies which align with the needs of our increasingly sophisticated clients. We are evolving our innovation process to match our solutions to client demand. We plan to continue to improve our capabilities by combining and leveraging our portfolio management platforms, including the alignment of Systematic & Quantitative Investments (SQI) with Passive, and combining Multi-Asset and Solutions, to help strengthen our advisory capabilities. Across the investment platform we plan to align our product offering to strategic client needs, resulting in a less complex and more innovative product framework. Additionally, we have consolidated our internal research capabilities into our "Research House" to improve performance and reduce external research costs.

Our strategy targets growth in specific product lines and regions, especially Asia. As part of our regional strategy optimization, we are focusing on developing and nurturing strategic alliances. In Asia, we are continuing to work closely with our partners Nippon Life and Harvest Fund Management to explore new business opportunities in the region. We plan to continue to invest in digital capabilities to accelerate our readiness to compete in a rapidly evolving industry. Our growth commitment into digitization and technology is further underlined by our ongoing strategic alliances.

Our Corporate Divisions

Please see "Management Report: Operating and Financial Review: Deutsche Bank Group: Corporate Divisions" in the Annual Report 2019.

The Competitive Environment

2019 The Global Economy

In 2019, the global economy slowed markedly due to the adverse effects of trade-related and geopolitical uncertainties. Global manufacturing output experienced a slowdown thereby depressing investment in machinery and equipment. Trade tensions between the U.S. and China as well as between the U.S. and Europe weighed significantly on global trade. But towards the end of 2019, the most important downside risks had moderated somewhat. The announcement to seek a phased trade agreement between the U.S. and China led to more favorable financial conditions and improved growth prospects. Constructive developments regarding Brexit have added to this positive drift. Overall, global economic growth slowed to 3.1 % in 2019, after 3.8 % in 2018. Global inflation is expected at 3.0 % in 2019. In the industrialized countries, GDP grew by 1.7 % and consumer prices rose by 1.4 % while GDP of emerging market economies increased by 4.0 % and inflation reached 4.0 %.

The euro area economy was adversely affected by the slowing of international trade as well as by the fear of a hard Brexit and temporary effects in some member states. In particular, manufacturing output of export-oriented economies declined, while the more domestic oriented services sectors held up well. Growth was supported by domestic demand underpinned by solid income growth and easy financial conditions. Monetary policy remained accommodative as the ECB reinitiated its net asset purchase program (APP) at a monthly pace of €20 billion by November 2019. Overall, the euro area economy expanded by 1.2 % and consumer prices rose by 1.2 % in 2019. Due to the industrial recession caused by the external headwinds, German economic growth more than halved to 0.6 %. The services and construction sectors continued to support growth, as well as private consumption, driven by a tight labor market and solid wage growth.

The U.S. economy showed a solid performance in 2019. Driven by fiscal spending as well as supportive financial conditions and consumer spending, backed by wage growth and a tight labor market, U.S. GDP grew by 2.3 % in 2019. Nevertheless, trade uncertainty weighed on manufacturing output and thus reduced capex investments. The inflation rate reached 1.8 % in 2019. The U.S. central bank's monetary policy supported economic activity by cutting its policy rate three times in 2019.

Japan's GDP grew by 0.7 % in 2019, following 0.3 % for 2018. Activity in the manufacturing industry had weakened due to the slowdown in overseas economies. Slower employment growth, cuts in overtime work hours and the consumption tax have weighed on consumption growth. Against this backdrop, the inflation rate fell to 0.5 % in 2019, after 1.0 % in 2018.

In 2019, emerging markets GDP grew by 4.0 %. Emerging Asia economies expanded by 5.3 % as they were heavily affected by the slowdown of global trade. This is particularly true for the smaller, more open economies. In China, GDP grew by 6.1 %. Economic activity slowed due to adverse impacts of U.S. tariffs and a weaker world trade in general, but tax cuts and infrastructure spending supported economic. Chinese inflation edged higher to 2.9 % in 2019.

2020 Outlook

Global economic activity is set to markedly lose momentum in the first half of 2020 due to the spread COVID 19 and the related uncertainties regarding the prospect of a successful containment. We expect global GDP to grow by 2.4 %. The moderation in global trade tensions, higher monetary and fiscal stimulus should help to regain growth momentum in the second half of the year. Beyond COVID 19, important trade negotiations will continue to take center-stage in 2020, with the U.S.-China trade talks moving on to their second phase. The global inflation rate is forecast to rise gradually to 3.1 % from 3.0 % in 2019. For industrialized countries, we expect GDP growth to slow to 0.5 % and consumer prices to increase by 1.1 % in 2020. Economic growth in emerging markets is projected to slow to 3.6 % in 2020 while inflation is expected to rise to 4.4 % from 4.0 % in 2019.

In the Euro area, GDP in 2020 is expected to weaken to (0.1) % due to negative growth in the first two quarters of 2020. With the COVID 19 outbreak economic uncertainty that impacted 2019 is expected to persist in 2020. The European Central Bank (ECB) is expected to implement further targeted easing measures. In 2020, Eurozone inflation is expected to fall to 0.4 %. Following a GDP growth of 0.6 % in 2019, we expect the German economy to shrink to (0.2) % in 2020, driven by negative spillovers of the global spread of COVID 19 and the associated uncertainties. Private consumption and the construction sector should still provide a positive impetus to growth.

We expect U.S. economic growth to decelerate slightly to 1.4 % in 2020. Due to the COVID 19 spread economic growth should be negatively impacted, while private consumption still provides positive impulses, Capital investments should also be constrained by a transition from trade policy to election uncertainties. The Federal Reserve is expected to cut its policy rate to 0.625 % in 2020. We expect inflation to decrease modestly to 1.6 % in 2020.

With a GDP growth of (1.5) % the Japanese economy is expected to shrink markedly in 2020. Beyond the negative COVID 19 fallout, growth will likely to be negatively impacted by the October 2019 consumption tax hike and adverse effects from a depleting pool of labor as well as by external headwinds in the first half of 2020. We expect the inflation to be at 0.4 % in 2020.

Due to negative economic impact of COVID 19 economic growth in emerging markets is projected to decelerate to 3.6 % in 2020, and in Asia to 4.2 %. Inflation in emerging markets is expected to rise to 4.4 %, from 4.0 % in 2019.

In 2020 growth of the Chinese economy is forecast at 4.6 %, assuming that the economic disruptions caused by the COVID 19 outbreak are almost entirely limited to the first quarter. After recovery in the second quarter, economic activity should be supported by consumption and exports. Economic policy could shift very rapidly towards boosting economic activities once the COVID 19 outbreak is contained. The easing of trade disputes following the 'Phase One' trade agreement and possibly constructive further negotiations should lead to a recovery in industrial production and global trade overall by removing uncertainty. We expect the Peoples Bank of China to be further supportive 2020 by cutting its medium term lending facility. Chinese inflation is forecasted to increase to 3.6 % in 2020.

There are a number of risks to our global economic outlook. Challenges in containing the COVID 19 or a significant global spread could considerably dampen economic momentum. Despite the signing of the 'Phase One' trade agreement between the U.S. and China in January 2020, further trade conflicts including upcoming trade negotiations between the U.S. and the European Union (EU) could negatively impact the global economic outlook. The introduction of car duties on EU exports to the U.S. would have a negative impact on the EU industrial production, especially in Germany. Following Brexit, the UK has entered into a transition period with the EU that is expected to expire at the end of 2020. During 2020, the focus will be on the UK's future trading relationship with the EU with the risk that both parties are unable to reach a trade deal before the end of the transition period. In the Eurozone, the government debt burden in some countries, especially in Italy, is a risk due to the fragile political situation. We expect fiscal stimulus proposals from the upcoming U.S. elections, the extent of which, however, will depend on the Congressional composition. Additionally, rising geopolitical tensions, particularly in the Middle East could create further uncertainty.

Competitor Landscape

Against this backdrop, Deutsche Bank competes in the financial services sector with a spectrum of competitors, who include other universal banks, commercial banks, savings banks and other public sector banks, broker dealers, investment banking firms, asset management firms, private banks, investment advisors, payments services providers, financial technology firms and insurance companies. Some of the competitors are global like Deutsche Bank, while others have a regional, product or niche client footprint. Deutsche Bank competes on a number of factors, including the quality of client relationships, transaction execution, products and services, innovation, reputation and price.

The European banking industry's performance was roughly stable in 2019. Revenues and costs were both flat compared to the prior year, despite slower economic growth which contributed to a minor increase in loan loss provisions. The negative interest rate environment continues to keep the net interest margin under pressure, yet loan growth with non-financial companies reached its highest level since the financial crisis in the course of the year, before slowing towards year-end. Total assets increased substantially; net income fell moderately, but from a robust level in the previous year. In corporate finance, European banks lost further market share to U.S. competitors.

The European banking sector in 2020 may face a rough operating environment and lower profitability. Major economies will probably fall into recession in the first half of the year due to the impact of the coronavirus, before recovering in the second half. This could lead to a substantial increase in loan loss provisions, though from low levels, and a slowdown in asset growth as loan demand declines and banks tighten credit standards. This may reduce net interest income, together with renewed expansionary monetary policy which will be a drag on interest margins. In the payments business, transaction volumes might suffer. In asset management, lower assets under management, lower performance fees, a shift towards lower-risk asset classes and lower transaction volumes all could potentially reduce revenues.

In addition to the repercussions of the coronavirus, which at this point in time are hard to predict and quantify though, geopolitical risk including tension in the Middle East, trade conflicts and the end of Brexit transition period remains pronounced. In terms of regulation, the European Commission's proposal for the implementation of the final Basel 3/Basel 4 rules in EU law and subsequent investor reaction will be of crucial importance.

In our home market, Germany, the retail banking market remains fragmented and our competitive environment is influenced by the three pillar system of private banks, public banks and cooperative banks. Competitive intensity has increased in recent years following some consolidation activity, particularly among public regional banks (Landesbanken) and private banks, and increased activity levels from foreign players.

Looking at the wider banking ecosystem, the evolution of financial technology firms remains as much an opportunity as a challenge for banks. While we see the risk of banking disruption primarily through big technology companies and in select product areas, particularly the unregulated segments, there is also the opportunity to selectively partner with smaller, startup financial technology firms and leverage their solutions to become more efficient and/or develop differentiated delivery channels for the end clients.

Regulatory Environment

The uncertainty around the outcome and timing of key regulations has declined with the finalization of the Basel 3 package at the end of 2017 and the adoption of the related European banking reform package described below as well as the implementation date of the revised directive on markets in financial instruments, referred to as MiFID 2, and the related regulation on markets in financial instruments (MiFIR) in early 2018. As the flow of new legislative proposals under the post-crisis global regulatory reform agenda has slowed, the focus of regulators has turned to implementation and supervision.

While a number of regulatory reforms impacting Deutsche Bank are already in force, others continue to be developed on an international level and implemented regionally. Where primary legislation has been agreed on by lawmakers, regulators have yet to develop detailed rules, or determine their cross-border application, which might lead to a fragmented and inconsistent landscape. Moreover, certain post-crisis reforms which have already been implemented are or have been subject to reviews that might lead to additional changes in legislation in the coming years. The impact of the implementation of such final or revised standards on specific institutions remains uncertain. In some instances there remains a lack of clarity around the final rules and the impact that they might have on banks in different regions.

During 2019, a number of international developments in the area of banking regulation and supervision have been implemented and will continue to be further refined, in particular with a view to strengthening international standards to create financially resilient institutions and ensuring resolvability of banks.

Capital, liquidity and leverage requirements – On June 27, 2019, a comprehensive package of reforms (referred to in the following as the “banking reform package”) to further strengthen the resilience of European Union banks entered into force. The banking reform package includes various remaining elements of the regulatory framework agreed within the Basel Committee on Banking Supervision (“Basel Committee”) and the Financial Stability Board (“FSB”) to refine and supplement the global regulatory framework established by the Basel Committee, the so-called Basel Accords (Basel 1, 2 and 3). While many provisions will not apply until 2021, certain parts, including the requirement for global systemically important institutions (“G-SIIs”), such as Deutsche Bank, to hold certain minimum levels of capital and other instruments which are capable of bearing losses in resolution (“Total Loss-Absorbing Capacity” or “TLAC”), already apply since June 27, 2019.

On October 3, 2019, the Federal Reserve and other U.S. regulators adopted final rules that tailor the prudential standards applicable to large U.S. and foreign banking organizations based on their risk profiles. The final rules, which took effect December 31, 2019, implement section 401 of the Economic Growth, Regulatory Relief and Consumer Protection Act (EGRRCPA) of 2018. The rule will tailor Enhanced Prudential Standards and U.S. Basel 3 capital and liquidity standards for banking organizations with U.S.\$ 100 billion or more in total consolidated assets.

At the international level, in December 2017, the Basel Committee published its final agreement (“December 2017 Agreement”) on further revisions to the Basel 3 framework that aim to increase consistency in risk-weighted asset calculations and improve the comparability of banks’ capital ratios. The December 2017 Agreement includes, among other things, changes to the standardized and internal ratings-based approaches for determining credit risk, revisions to the operational risk framework, and an “output floor”, set at 72.5 %. The “output floor” limits the amount of capital benefit a bank can obtain from its use of internal models relative to using the standardized approach. This package of reforms is intended to finalize the Basel 3 framework and would reduce the ability of banks to apply internal models, while making the standardized approaches more risk-sensitive and granular. In addition, the December 2017 Agreement introduces a leverage ratio buffer for global systemically important banks (“G-SIBs”), such as Deutsche Bank, to be met with Tier 1 capital and sets it at 50 % of the applicable risk-based G-SIB buffer requirement, which was included in the adopted banking reform package. The Basel Committee also reached agreement on an implementation date for the changes in the December 2017 Agreement of January 1, 2022, with a phase-in period of five years through January 1, 2027 for the output floor.

In addition, on January 14, 2019 the Basel Committee also reached an agreement (“January 2019 Agreement”) on reforms to the market risk framework, known as the Fundamental Review of the Trading Book (FRTB). The main features of the final standard include an internal models approach to determine the risk weight of exposures that relies on the use of expected shortfall models. The standard sets out separate capital requirements for risks that are deemed non-modellable and includes a more risk-sensitive standardized approach as a fallback to the internal models approach. CRR II (as part of the banking reform package) has introduced specific reporting requirements for market risk based on the revised framework as the first step in the application of the FRTB by EU institutions, and empowers the Commission to propose further regulations to establish own funds requirements for market risk based on the FRTB.

The banking reform package will likely affect our business by raising our regulatory capital and liquidity requirements and by leading to increased costs. The December 2017 Agreement could also affect our business by imposing higher capital charges when adopted into law.

Capital planning and stress testing – On January 31, 2020, the European Banking Authority (“EBA”) and the European Central Bank (“ECB”, our principal regulator) launched the 2020 EU-wide stress test. This test is designed to provide supervisors, banks and other market participants with a common analytical framework to compare and assess the resilience of EU banks to economic shocks, while at the same time releasing the macroeconomic scenarios for the test. The ‘baseline’ scenario for EU countries is based on the December 2019 projections from the national central. The hypothetical ‘adverse’ scenario assumes the materialization of the main financial stability risks to which the EU banking sector is exposed. It is related to a prolonged period of historically low interest rates coupled with a strong drop in confidence leading to a significant weakening of economic growth in EU countries, and amplified by trade tensions at the global level. The EBA published the stress test methodology, to be applied to the scenarios, in November 2019.

The stress test will be conducted on a sample of 51 EU banks, including Deutsche Bank. In line with the two previous exercises, this exercise does not include a pass-fail threshold as the results of the exercise are designed to serve as an input to the SREP (referred to below). The EBA expects to publish the results of the exercise by July 31, 2020. We are subject to a supervisory review and evaluation process (“SREP”) for an ongoing assessment of risks, governance arrangements and the capital and liquidity situation, which is a review of the arrangements, strategies, processes and mechanisms of supervised banks on a regular basis, in order to evaluate risks to which these banks are or might be exposed, risks they could pose to the financial system, and risks revealed by stress testing. The SREP can result in Pillar 2 capital requirements or guidance and liquidity requirements for the relevant institution.

Both DB USA Corporation and DWS USA Corporation, our U.S. intermediate holding companies, were subject to the Federal Reserve Board’s Comprehensive Capital Analysis and Review (“CCAR”) for 2019. On June 27, 2019, the Federal Reserve Board publicly indicated that it did not object to the 2019 capital plans submitted by DB USA Corporation and DWS USA Corporation. DB USA Corporation and DWS USA Corporation will make their next capital plan submissions to the Federal Reserve Board in April 2020. On March 4, 2020, the Federal Reserve Board issued a rule to amend its CCAR process to combine the CCAR quantitative assessment and the buffer requirements in the Federal Reserve Board’s capital rules to create an integrated capital buffer requirement.

Recovery and resolution – The major jurisdictions where we have significant group operations have now finalized the implementation of the FSB’s Key Attributes for Effective Resolution Regimes. Under the European Union’s Single Resolution Mechanism, to which we are subject, competent authorities have far-reaching powers to impose resolution measures upon banks that are deemed to be failing or likely to fail. Resolution measures, in particular, include the power to reduce, including to zero, the nominal value of shares, or to cancel shares outright, and to write down certain eligible subordinated and unsubordinated unsecured liabilities, including to zero, or convert them into equity (commonly referred to as “bail in”). To ensure sufficient availability of liabilities with loss-absorbing capacity that could be bailed in, banks in the European Union must meet, or will have to meet, certain minimum requirements such as TLAC or MREL (as further explained below).

For a bank directly supervised by the ECB, such as Deutsche Bank, the Single Resolution Board (“SRB”) draws up the resolution plan, assesses the bank’s resolvability and may require legal and operational changes to the bank’s structure to ensure its resolvability.

In the United States, Deutsche Bank AG is required under Title I of the Dodd-Frank Act, as amended, to prepare and submit periodically to U.S. regulators a plan for the orderly resolution of its U.S. subsidiaries and operations in the event of future material financial distress or failure (the “U.S. Resolution Plan”). Deutsche Bank AG filed its most recent U.S. Resolution Plan in June 2018 and received written regulatory feedback in December 2018. The Federal Reserve Board and FDIC found that Deutsche Bank’s U.S. Resolution Plan had no deficiencies but identified one shortcoming in the plan, associated with governance mechanisms and related escalation triggers. Deutsche Bank submitted a response to its December 2018 feedback letter on April 1, 2019. Deutsche Bank’s response discussed its proposed remediation of the shortcoming as well as enhancements of its resolution capabilities. Deutsche Bank is required to make a submission to the Federal Reserve Board and FDIC by July 1, 2020 explaining how it remediated the shortcoming and providing an update on the enhancement of its resolutions capabilities. Following this submission, Deutsche Bank’s next targeted U.S. Resolution Plan is due on or before July 1, 2021.

Loss-absorbing capacity – Following the FSB’s final term sheet on TLAC in November 2015, several jurisdictions have started to implement the TLAC standard in their regulatory frameworks. The TLAC standard is designed to ensure that G-SIBs, such as Deutsche Bank, maintain enough capital and long-term debt instruments that can be effectively bailed-in to absorb losses and recapitalize the bank. The banking reform package implemented the FSB’s TLAC standard for G-SIBs by introducing a new “Pillar 1” minimum requirement for eligible liabilities (or “MREL”) for G-SIBs (the European equivalent term for G-SIBs). This new requirement is based on both risk-based and non-risk-based denominators and is set at the higher of 18 % of total risk exposure and 6.75 % of the leverage ratio exposure measure following a transition period (until December 31, 2021, 16% of total risk exposure and 6% of the leverage ratio exposure measure). It can be met with Tier 1 or Tier 2 capital or debt that meets specific eligibility criteria. In addition, the competent authorities will have the ability to impose a TLAC add-on requirement on G-SIBs. We also are subject to TLAC requirements in other jurisdictions. For example, the Federal Reserve Board’s rules implementing the TLAC standard in the United States are effective as of January 2019, with TLAC requirements that apply to U.S. intermediate holding companies (such as ours) of non-U.S. G-SIBs. These rules include a minimum TLAC requirement and TLAC buffer, a minimum long-term debt requirement and clean holding company requirements.

Completion of the Banking Union and reduction of non-performing exposures – A European Deposit Insurance Scheme (EDIS) is intended to complete the Banking Union but the corresponding proposal is still under negotiation. Discussions have centered on the backstop to the Single Resolution Fund and EDIS. As some voices have requested more progress on risk reduction as a prerequisite for the implementation of any risk sharing arrangement, the recent focus has been to reduce non-performing exposures of banks in the European Union, and on April 26, 2019, a new regulation came into forth amending the CRR with respect to minimum loss coverage requirements for non-performing exposures

Development of the Capital Markets Union and related regulation – Before the backdrop of Brexit, financial markets in Europe are adapting to significant regulatory changes introduced by provisions included in MiFID 2 and MiFIR and other legal acts that have become effective in the recent past. The European Union aims to further strengthen the Capital Markets Union in future years. Related initiatives include a harmonized EU framework for covered bonds and a pan-European pension product. A European financial transaction tax is still under discussion.

Benchmarks – Following a number of conduct-related scandals involving financial benchmarks, regulatory initiatives by, among others, the International Organization of Securities Commissions (“IOSCO”) have resulted in changes to the way benchmarks are being used, authorized and regulated globally. Financial benchmarks comprise a wide range of interest rate, currency, securities, commodity and other indices and reference prices. In the European Union, the EU Benchmarks Regulation came into force in January 2018, although ‘critical’ and third country benchmark providers have been given until December 31, 2021 to comply. The FSB has set up the Official Sector Steering Group (OSSG) to coordinate international work to review and reform interest rate benchmarks and welcomes progress that has been made on the identification and development of overnight risk-free rates (“RFRs”). These RFRs are considered to be more robust and less susceptible to market manipulation due to their transaction based nature. The FSB recommends the transition from existing IBOR rates to RFRs where the long-term viability of an IBOR is in question, i.e. LIBOR. Other jurisdictions pursue a two-rate approach with reforms of existing benchmark rates while pursuing the identification of a RFR to devise robust fallbacks.

Digital Transformation – Digital transformation and the increased recognition of risks posed by new technologies as well as cyber risk and data protection are expected to be important areas of regulatory discussions, initiatives and action in 2020.

Climate change, environmental and social issues

The Sustainable Development Goals adopted by the United Nations member states in 2015 set ambitious goals for achieving a better and more sustainable future. In doing so, they address the most pressing economic, social and environmental challenges of our time, including those closely related to climate change. To effectively respond to climate change and achieve the SDGs, significant investment levels are required. The financial sector will have a critical role to play in closing existing investment gaps by mobilizing private capital to enable the transition of economies towards low-carbon and sustainable growth. In this context, the European Commission continued its efforts to drive its Action Plan on Sustainable Finance, which focuses on reorienting capital flows towards investments taking environmental, social and, governance considerations into account. The Commission also published its ‘European Green Deal’ in December 2019, which outlines its plans to strengthen the foundations for sustainable investment, manage climate and environmental risks and integrate them into the financial system, and present a renewed sustainable finance strategy in the latter part of 2020. Similar activity took place amongst regulators around the world, particularly in Asia.

Another enduring global trend is poverty. More than 700 million people around the world are struggling to meet basic needs and live of less than U.S.\$ 2 per day, and 265 million children and adolescents do not have the opportunity to enter or complete school. Many youngsters are disenfranchised, even in the Western world – but there, we also see a growing interest to get involved and influence the public agenda, be it around climate change, racial and gender equality or participation in democratic processes. Goal 17 of the United Nations’ 2030 agenda aims to revitalize the global partnership for sustainable development by promoting effective public-private and civil society cooperation to tackle worlds’ greatest challenges. Leveraging their corporate citizenship, global firms like Deutsche Bank have the opportunity to create a positive impact – especially when they join forces with others to promote targeted initiatives that create shared value.

As a corporate citizen, Deutsche Bank works to enable communities and economies around the world to prosper. Our initiatives have a strategic focus on education, social enterprise, and community, and we encourage our employees to underpin the bank’s citizenship activities. Our education projects seek to enable young people to reach their full potential and embrace their responsibility. We work with pioneering social enterprises to help drive positive change in society. And wherever Deutsche Bank does business, we seek to contribute to stronger and more inclusive communities. We do this together with like-minded partners and with our Plus You employee volunteering and giving community. Our Corporate Social Responsibility initiatives made a positive impact on the lives of [1.6] million people in 2019. In addition to making a difference on the ground, we seek to create large-scale change through advocacy and field leadership.

Regulation and Supervision

Our operations throughout the world are regulated and supervised by the relevant authorities in each of the jurisdictions where we conduct business. Such regulation relates to licensing, capital adequacy, liquidity, risk concentration, conduct of business as well as organizational and reporting requirements. It affects the type and scope of the business we conduct in a country and how we structure specific operations. In reaction to the 2008 financial crisis, the regulatory environment has undergone and is still undergoing significant changes.

Highlights

On June 27, 2019, a comprehensive package of reforms (referred to in the following as the “banking reform package”) to further strengthen the resilience of European Union banks entered into force. The banking reform package includes amendments to the existing regulation on prudential requirements for credit institutions and investment firms, also referred to as the Capital Requirements Regulation (“CRR”), the directive on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, also referred to as the Capital Requirements Directive (“CRD”), the European Union’s Regulation establishing Uniform Rules and a Uniform Procedure for the Resolution of Credit Institutions and certain Investment Firms in the Framework of a Single Resolution Mechanism and a Single Resolution Fund (the “SRM Regulation”), and the Bank Resolution and Recovery Directive (“BRRD”).

The adopted changes incorporate various remaining elements of the regulatory framework agreed within the Basel Committee on Banking Supervision (“Basel Committee”) and the Financial Stability Board (“FSB”) to refine and supplement the global regulatory framework established by the Basel Committee, the so-called Basel Accords (Basel 1, 2 and 3). This includes more risk-sensitive capital requirements, in particular in the area of counterparty credit risk and for exposures to central counterparties, methodologies that reflect more accurately the actual risks to which banks may be exposed, a binding leverage ratio, a binding net stable funding ratio, tighter regulation of large exposures, new reporting requirements for market risk that may be supplemented at a later stage by own funds requirements, and a requirement for global systemically important institutions (“G-SIIs”), such as Deutsche Bank, to hold certain minimum levels of capital and other instruments which are capable of bearing losses in resolution (“Total Loss-Absorbing Capacity” or “TLAC”). Other measures are aimed at improving banks’ lending capacity to support the European Union economy and at further facilitating the role of banks in achieving deeper and more liquid European Union capital markets. While many provisions will not apply until 2021, certain parts, including the TLAC requirements, already apply since June 27, 2019. The banking reform package will likely affect our business by raising our regulatory capital and liquidity requirements and by leading to increased costs.

Similarly, the implementation of the remaining outstanding proposals under Basel 3 as contained in the December 2017 Agreement and in the January 2019 Agreement (see “The Competitive Environment – Regulatory Environment” above) could also affect our business by imposing higher capital charges when adopted into law. Corresponding draft legislative proposals are expected for the second or third quarter of 2020.

Furthermore, a new regulation amending the CRR entered into force on April 26, 2019 relating to minimum loss coverage for non-performing exposures, creating a statutory prudential backstop against excessive future build-up of non-performing loans without sufficient loss coverage on banks’ balance sheets.

The United Kingdom left the European Union on January 31, 2020. Relationships with Member States of the European Union are subject to a transition period until December 31, 2020 under a withdrawal agreement. The withdrawal agreement allows us to operate our business in the United Kingdom during the transition period as if the United Kingdom were still a Member State. Also after the expiry of the transition period, Deutsche Bank AG is planning to continue to provide banking and other financial services on a cross-border basis into the United Kingdom as well as through its London branch, which it will retain. Deutsche Bank AG will then be subject to additional regulatory requirements in the United Kingdom, and its activities in the United Kingdom will be supervised and monitored by both the Prudential Regulatory Authority (“PRA”) and the Financial Conduct Authority (“FCA”). Deutsche Bank AG is already in the process of applying for authorization to provide banking and other financial services in the United Kingdom after the expiry of the transition period.

The following sections present a description of the regulation and supervision of our business in our home market Germany under the European Union framework of regulation and in the United States.

Regulation in Germany under the Regulatory Framework of the European Union

We are subject to comprehensive regulation under German law and regulations promulgated by the European Union which are directly applicable law in Germany.

The German Banking Act (Kreditwesengesetz) and the CRR are important sources of regulation for German banks with respect to prudential regulation, licensing requirements, and the business activities of financial institutions. In particular, the German Banking Act requires that an enterprise which engages in one or more of the activities categorized in the German Banking Act as “banking business” or “financial services” in Germany must be licensed as a credit institution (Kreditinstitut) or financial services institution (Finanzdienstleistungsinstitut), as the case may be. Deutsche Bank AG is licensed as a credit institution and is authorized to conduct banking business and to provide financial services.

Significant parts of the regulatory framework for banks in the European Union are governed by the CRR. The CRR includes requirements relating to regulatory capital, risk-based capital adequacy, monitoring and control of large exposures, consolidated supervision, leverage, liquidity and public disclosure, including Basel 3 standards.

Certain other requirements that apply to us, including those with respect to capital buffers, organizational and risk management requirements, are set forth in the German Banking Act and other German laws, partly implementing European Union directives such as the CRD.

Deutsche Bank AG, headquartered in Frankfurt am Main, Germany, is the parent institution of Deutsche Bank Group. Under the CRR, Deutsche Bank AG, as credit institution and parent company, is responsible for regulatory consolidation of all subsidiary credit institutions, financial institutions, asset management companies and ancillary service undertakings. Generally, the bank regulatory requirements under the CRR and the German Banking Act apply both on a stand-alone and a consolidated basis. However, banks forming part of a consolidated group may receive a waiver with respect to the application of specific regulatory requirements on an unconsolidated basis if certain conditions are met. As of December 31, 2019, Deutsche Bank AG benefited from such a waiver, according to which Deutsche Bank AG needs to apply the requirements relating to own funds, large exposures, exposures to transferred credit risks, leverage and disclosure by institutions, as well as certain risk management requirements, only on a consolidated basis.

Capital Adequacy Requirements

Minimum Capital Adequacy Requirements (Pillar 1)

The minimum capital adequacy requirements for banks are primarily set forth in the CRR. The CRR requires German banks to maintain an adequate level of regulatory capital in relation to the total of their risk positions, referred to as total exposure amount. Risk positions include credit risk positions, market risk positions and operational risk positions (including, among other things, risks related to certain external factors, as well as to technical errors and errors of employees). The most important type of capital for compliance with the capital requirements under the CRR is Common Equity Tier 1 capital. Common Equity Tier 1 capital primarily consists of share capital, retained earnings and other reserves, subject to certain regulatory adjustments. Another component of regulatory capital is Additional Tier 1 capital, which includes, for example, certain unsecured subordinated perpetual capital instruments and related share premium accounts. An important feature of Additional Tier 1 capital is that the principal amount of the instruments will be written down, or converted into Common Equity Tier 1 capital, when the Common Equity Tier 1 capital ratio of the financial institution falls below a minimum of 5.125 % (or such higher level as the issuing bank may determine). Regulators may require an earlier conversion, for example for stress-testing purposes. Common Equity Tier 1 capital and Additional Tier 1 capital together constitute Tier 1 capital. An additional type of regulatory capital is Tier 2 capital which generally consists of long-term subordinated debt instruments. Tier 1 capital and Tier 2 capital together constitute own funds. Pursuant to the CRR, hybrid capital instruments that qualified as Tier 1 or Tier 2 capital under what is known as Basel 2.5 cease to qualify as such and will be gradually phased out through the end of 2021.

Under the CRR, banks are required to maintain a minimum ratio of Tier 1 capital to total risk exposure amount of 6 % and a minimum ratio of Common Equity Tier 1 capital to total risk exposure of 4.5 %. The minimum total capital ratio of own funds to total risk exposure is 8 %.

Capital Buffers

The German Banking Act also requires banks to build up a mandatory capital conservation buffer (Common Equity Tier 1 capital amounting to 2.5 % of total risk exposure), and authorizes the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht (“BaFin”)) to set a domestic counter-cyclical capital buffer for Germany (Common Equity Tier 1 capital of generally 0 % to 2.5 % of total risk exposure, or more in particular circumstances) during periods of high credit growth. In order to comply with the countercyclical capital buffer requirement, banks must calculate their institution-specific countercyclical capital buffer as the weighted average of the countercyclical capital buffers that apply to them in the jurisdictions where their relevant credit exposures are located. Accordingly, the total countercyclical buffer requirement, if any, with which we need to comply also depends on the corresponding buffer requirements in other jurisdictions. In addition, the BaFin may require banks to build up a systemic risk buffer (Common Equity Tier 1 capital of between 1 % and 3 % of risk-weighted assets for all exposures and – in exceptional cases – up to 5 % for domestic and third-country exposures) to prevent and mitigate long term non-cyclical systemic or macro-prudential risks not otherwise covered by CRR/CRD. G-SIIs, such as Deutsche Bank, are subject to an additional capital buffer (Common Equity Tier 1 capital of between 1 % and 3.5 % of risk-weighted assets), which the BaFin determines for German banks based on a scoring system measuring the bank’s global systemic importance. The BaFin can also determine a capital buffer of Common Equity Tier 1 capital of up to 2 % of risk-weighted assets for other systemically important banks (so-called O-SIIs, such as Deutsche Bank) in Germany, based on criteria measuring, among others, the bank’s importance for the economy in Germany and the European Economic Area. Currently, the systemic risk buffer, the buffers for G-SIIs and the buffer for O-SIIs are generally not cumulative; only the highest of these buffers applies. If a bank fails to build up the required capital buffers, it will be subject to restrictions on the pay-out of dividends, share buybacks and discretionary compensation payments. Also, within the single supervisory mechanism (“SSM”), the European Central Bank (“ECB”) may require banks to maintain higher capital buffers than those required by the BaFin.

Upon implementation into national law of the relevant rules contained in the banking reform package, certain aspects of the capital buffers will change. In particular, the maximum O-SII buffer will no longer be capped at 2 %, but generally at 3 %, but can be set higher with the approval of the European Commission. Also, while the buffers for G-SIIs and O-SIIs will continue to be non-cumulative, the systemic risk buffer will become cumulative to the higher of such buffers. Where such total buffer would be higher than 3 % or 5 %, as the case may be, its determination would be subject to an approval process at the European level.

Leverage Ratio

The banking reform package (see “Highlights” above) also introduces a binding minimum leverage ratio requirement of 3 % of Tier 1 capital. The minimum leverage ratio requirement is calculated on a non-risk basis and complements the other risk-based capital requirements. Banks are currently only required to report and publish their leverage ratios and will become required to comply with the minimum leverage ratio requirement from June 28, 2021.

In addition to the minimum leverage ratio requirement, provides for a leverage ratio buffer requirement for G-SIIs (such as Deutsche Bank) to be applied from January 2022 onwards, which must be met with Tier 1 capital and is set at 50 % of the G-SII’s risk-weighted capital buffer rate. Certain aspects relating to the leverage ratio buffer requirement as contained in the CRD (such as restrictions on the pay out of dividends etc. if the requirements are not met) must be implemented in the laws of the individual member jurisdictions.

Pillar 2 Capital Requirements and Guidance

Furthermore, the ECB may impose capital requirements on individual significant credit institutions which are more stringent than the statutory minimum requirements set forth in the CRR, the German Banking Act or the related regulations. Upon completion of the supervisory review and evaluation process (“SREP”) discussed in greater detail below, the competent supervisory authority makes an SREP decision in relation to each relevant bank, which may include specific capital and liquidity requirements for each affected bank. Any such additional bank-specific capital requirements resulting from the SREP are referred to as “Pillar 2” requirements that must be met with Common Equity Tier 1 capital in addition to the statutory minimum capital and buffer requirements. In addition, the ECB may decide following the SREP to communicate to individual banks an expectation to hold a further Pillar 2 Common Equity Tier 1 capital add-on, the so-called Pillar 2 guidance. The ECB has stated that it expects banks to meet the Pillar 2 guidance although it is not legally binding and failure to meet the Pillar 2 guidance does not automatically have legal consequences. The competent supervisory authority may take a range of other measures based on the SREP outcome to address shortcomings in a bank’s governance and risk management processes or its capital or liquidity position, such as prohibiting dividend payments to shareholders or distributions to holders of regulatory capital instruments.

For details of Deutsche Bank’s regulatory capital, see “Management Report: Risk Report: Risk and Capital Performance” in our Annual Report 2019.

MREL Requirements

As discussed below under “Recovery and Resolution”, to ensure that European banks have a sufficient amount of liabilities with loss-absorbing capacity, they are required to meet minimum requirements for own funds and eligible liabilities (“MREL”) determined for each institution individually on a case-by-case basis. As part of the banking reform package (see “Highlights” above), the European Union implemented the FSB’s TLAC standard for G-SIBs (such as us) by introducing a new Pillar 1 MREL requirement for G-SIBs (the European equivalent term for G-SIBs). This new requirement is based on both risk-based and non-risk-based denominators and will be set at the higher of 18 % of total risk exposure and 6.75 % of the leverage ratio exposure measure following a transition period (until December 31, 2021, 16 % of total risk exposure and 6 % of the leverage ratio exposure measure). It can be met with Tier 1 or Tier 2 capital or debt that meets specific eligibility criteria. Deduction rules apply for holdings by G-SIBs of TLAC instruments of other G-SIBs. In addition, the competent authorities have the ability to impose on G-SIBs individual MREL requirements that exceed the statutory minimum requirements.

Limitations on Large Exposures

The CRR also contains the primary restrictions on large exposures, which limit a bank’s concentration of credit risks. The German Banking Act and the Large Exposure Regulation (Großkredit- und Millionenkreditverordnung) supplement the CRR. Under the CRR, our exposure to a customer and any customers affiliated with such customer is deemed to be a “large exposure” when the value of such exposure is equal to or exceeds 10 % of our eligible regulatory capital. All exposures to a single customer and any customers affiliated with such customer are aggregated for these purposes. In general, no large exposure may exceed 25 % of our eligible regulatory capital. “Eligible regulatory capital” for this purpose means the sum of Tier 1 capital and Tier 2 capital where the latter may not exceed one third of Tier 1 capital. If the customer is a credit institution or investment firm, the exposure is limited to the higher of 25 % of our eligible regulatory capital or €150 million. Competent authorities may set a lower limit than €150 million. For exposures in the trading book, the large exposure regime may give greater latitude, subject to an additional own funds requirement.

The banking reform package (see “Highlights” above) will restrict a bank’s exposures to a single counterparty to 25 % of its Tier 1 capital (instead of 25 % of the sum of its Tier 1 and Tier 2 capital) and will further limit exposures between banks designated as G-SIBs, such as Deutsche Bank, to 15 % of Tier 1 capital. The new rules will apply from June 28, 2021.

Liquidity Requirements

The CRR introduced a liquidity coverage requirement intended to ensure that banks have an adequate stock of unencumbered high quality liquid assets that can be easily and quickly converted into cash to meet their liquidity needs for a 30-calendar day liquidity stress scenario. The required liquidity coverage ratio (“LCR”) is calculated as the ratio of a bank’s liquidity buffer to its net liquidity outflows. Also, banks must regularly report the composition of the liquid assets in their liquidity buffer to their competent authorities.

In addition, the banking reform package (see “Highlights” above) introduced a net stable funding ratio (“NSFR”) to reduce medium- to long-term funding risks by requiring banks to fund their activities with sufficiently stable sources of funding over a one-year period. The NSFR, which will apply from June 28, 2021 onwards, is defined as the ratio of a bank’s available stable funding relative to the amount of required stable funding over a one-year period. Banks must maintain an NSFR of at least 100 %. The NSFR will apply to both the Group as a whole and to individual SSM regulated entities, including the parent entity Deutsche Bank AG. Upon the introduction of the ratio as a binding minimum requirement, we expect both the Group and its subsidiaries for which it applies to be above the regulatory minimum. To achieve this for Deutsche Bank AG, the company is actively working on a number of structural initiatives to improve the standalone NSFR position. In the event these initiatives are not successfully completed by June 2021, Deutsche Bank AG may incur additional costs.

The ECB may impose on individual banks liquidity requirements which are more stringent than the general statutory requirements if the bank’s continuous liquidity would otherwise not be ensured.

Separation of Proprietary Trading Activities by Universal Banks

The German Separation Act provides that deposit-taking banks and their affiliates are prohibited from engaging in proprietary trading that does not constitute a service for others, high-frequency trading, and credit or guarantee transactions with hedge funds and comparable enterprises that are substantially leveraged, unless such activities are exempt or excluded, or in the case no such exemption or exclusion is available, is transferred to a separate legal entity, referred to as a financial trading institution (Finanzhandelsinstitut). The separation requirement applies if certain thresholds are exceeded, which is the case for us. In addition, the German Separation Act authorizes the BaFin to prohibit the deposit-taking bank and its affiliates, on a case-by-case basis, from engaging in market-making and other activities that are comparable to the activities prohibited by law, if these activities may put the solvency of the deposit-taking bank or any of its affiliates at risk. In the event that the BaFin orders such a prohibition, the respective activities must be discontinued or transferred to a separate financial trading institution. The financial trading institution may be established in the form of an investment firm or a bank and may be part of the same group as the deposit-taking bank. However, it must be economically and organizationally independent from the deposit-taking bank and its other affiliates, and it has to comply with enhanced risk management requirements. We have established a compliance and control framework to ensure that no prohibited activities are conducted. Deutsche Bank has not established a financial trading institution.

Anti-Financial Crime, Sanctions, Fraud, Bribery and Corruption

Financial sector participants are required to take steps to prevent the abuse of the financial system through money laundering and other financial crime. The European Union has continually sought to strengthen its framework for anti-money laundering and combating the financing of terrorism, in line with international standards set by the Financial Action Task Force. Recent developments include the implementation into German law as of January 2020 of the European Union's Fifth Anti-Money Laundering Directive. It aims to enhance transparency on beneficial ownership and reinforce the framework for the assessment of high-risk third countries, address other risk and further the cooperation between anti-money-laundering and prudential supervisors. In addition, the Sixth Anti-Money Laundering Directive must be implemented into German law by December 3, 2020. Generally, the requirements (such as know-your-customer requirements) set out in the German AML Act (Geldwäschegesetz) and German Banking Act apply to all business lines and infrastructure units as well as all subsidiaries and affiliates that undertake AML-relevant business and in which Deutsche Bank AG has a dominating influence.

We are required to comply with international sanctions, which are measures to protect national security interests or international law by countries, multilateral or regional organizations against certain countries, organizations or individuals restricting economic activity. In 2019, various sanctions laws were issued or changed requiring us to update policies, processes or name list screening or transaction filtering.

We are subject to fraud, bribery and corruption laws and regulations under the German Criminal Code and in the other countries in which we conduct business. The UK Bribery Act 2010 has extraterritorial impact and requires us to design and develop appropriate measures to mitigate bribery and corruption risk and to administer controls and safeguards to mitigate such risks.

Data Protection and Cyber Risk

We have to comply with all applicable data protection laws in the countries in which we operate. The regulation on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, also referred to as the General Data Protection Regulation ("GDPR"), became applicable in the European Union on May 25, 2018. It relates to data protection and privacy rights of individuals within the European Union and addresses the export of personal data to other jurisdictions. The GDPR primarily aims at giving individuals control over their personal data and to unifying the regulatory environment for cross-border business. Superseding the 1995 Data Protection Directive, the GDPR contains provisions and requirements pertaining to the processing of personal data of individuals and also applies to businesses inside the European Union that are processing personal data. The regulation furthermore applies to businesses outside of the European Union if goods or services are offered to data subjects in the European Union, or if the behavior of data subjects in the European Union is being monitored. The GDPR imposes compliance obligations and grants broad enforcement powers to supervisory authorities, including the potential to levy significant fines for non-compliance.

Under the German Banking Act and the BaFin's Minimum Requirements for Risk Management for Banks (Mindestanforderungen an das Risikomanagement) information security needs to be an integral part of a financial institution's IT strategy and risk management. The BaFin requires that financial institutions establish a comprehensive information and cyber security program, define standards, implement controls and adhere to their resulting security policies and standards in accordance with evolving business requirements, regulatory guidance, and an emerging threat landscape. Information security risk management is part of vendor risk management for any procurement if information technology or outsourcing activity include the use of new technologies like cloud services. Information security risk (also referred to as cyber risk) is a component of operational risk assessed in the context of the SREP under Guidelines on Information and Communication Technology Risk Assessment issued by the European Banking Authority, which expects financial institutions to protect the confidentiality, integrity, and availability of customer data and information assets.

Remuneration Rules

Under the German Banking Act and the German Credit Institution Remuneration Regulation (Institutsvergütungsverordnung), we are subject to certain restrictions on the remuneration we pay our management board members and employees. These remuneration rules implement requirements of the CRD and impose a cap on bonuses. Pursuant to this cap, the variable remuneration for management board members and employees must not exceed the fixed remuneration. The variable remuneration may be increased to twice the management board member's or employee's fixed remuneration if expressly approved by the shareholders' meeting with the required majority. In addition, we are obliged to identify individuals who have a material impact on our risk profile ("material risk takers"). Such material risk takers are subject to additional rules, such as the requirement that at least 40 % to 60 % of the variable remuneration granted to them must be on a deferred basis. The deferral period must be at least three to five years. (Following the implementation of the respective changes in the banking reform package (see "Highlights" above), the minimum deferral period will be extended to four years, or five years for significant institutions (such as us) from December 29, 2020.) Also at least 50 % of the variable remuneration for material risk takers must be paid in shares of the bank or instruments linked to shares of the bank. Variable compensation of material risk takers has to be subject to an ex post risk adjustment mechanism and from the 2018 measurement period onwards to a claw back provision in case of personal wrongdoing. Finally, we are required to comply with certain disclosure requirements relating to the remuneration we pay to, and our remuneration principles in respect of, our material risk takers and other affected employees.

For details of Deutsche Bank's remuneration system, see "Management Report: Compensation Report" in our Annual Report 2019.

Deposit Protection and Investor Compensation in Germany

The Deposit Protection Act and the Investor Compensation Act

The German Deposit Protection Act (Einlagensicherungsgesetz) and the German Investor Compensation Act (Anlegerentschädigungsgesetz) provide for a mandatory deposit protection and investor compensation system in Germany, based on a European Union directive on deposit guarantee schemes ("DGS Directive") and a European Union directive on investor compensation schemes.

The German Deposit Protection Act requires that each German bank participates in one of the statutory government-controlled deposit protection schemes (Entschädigungseinrichtungen). The Entschädigungseinrichtung deutscher Banken GmbH acts as the deposit protection scheme for private sector banks such as Deutsche Bank, collects and administers the contributions of the member banks, and settles any compensation claims of depositors in accordance with the German Deposit Protection Act.

Under the German Deposit Protection Act, deposit protection schemes are generally liable for obligations resulting from deposits denominated in any currency in an amount of up to € 100,000 per depositor and bank. Certain depositors, such as banks, insurance companies, investment funds and governmental bodies, are excluded from coverage.

Deposit protection schemes are financed by annual contributions of the participating banks proportionate to their potential liabilities, depending on the amount of its covered deposits and the degree of risk the bank is exposed to. A target level of 0.8 % of the total covered deposits of the participating banks is supposed to be reached by July 3, 2024. Deposit protection schemes may also levy special contributions if required to settle compensation claims.

Deposit protection schemes will be required to contribute to bank resolution costs where resolution tools are used. The contribution made by the deposit protection scheme is limited to the compensation it would have to pay if the affected bank had become subject to insolvency proceedings. Furthermore, deposit protection schemes may provide funding to its participating banks to avoid their failure under certain circumstances.

Under the German Investor Compensation Act, in the event that the BaFin ascertains a compensation case, Entschädigungseinrichtung deutscher Banken GmbH as our deposit protection scheme is also required to compensate 90 % of the aggregate claims of each covered creditor arising from securities transactions denominated in euro or in a currency of any other European Union Member State up to an amount of the equivalent of €20,000. Many financial sector participants such as banks, insurance companies, investment funds, governmental bodies or medium-sized and large corporations do not benefit from this coverage.

European Deposit Insurance Scheme

The European Union is still aiming for a common European Deposit Insurance Scheme ("EDIS") based upon a proposal of the European Commission originally published in 2015. EDIS is still under discussion at the European Union level and the ultimate impact on us is uncertain.

Voluntary Deposit Protection System

Liabilities to creditors that are not covered by a statutory compensation scheme may be covered by the Deposit Protection Fund (Einlagensicherungsfonds) set up by the Association of German Banks (Bundesverband deutscher Banken e.V.) of which Deutsche Bank AG is a member. The Deposit Protection Fund protects deposits, i.e., generally credit balances credited to an account or resulting from interim positions which the bank is required to repay, subject to certain exclusions, up to an amount equal to 15 % of the bank's own funds (Eigenmittel) as further specified in the Deposit Protection Fund's by-laws. This limit will be reduced to 8.75 % from January 1, 2025 onwards.

The financial resources of the Deposit Protection Fund are funded by contributions of the participating banks. If the resources of the Fund are insufficient, banks may be required to make special contributions. If one or more German banks are in financial difficulties, we may participate in their restructuring even where we have no business relationship or strategic interest, in order to avoid making special contributions to the Deposit Protection Fund in case of an insolvency of such bank or banks, or we may be required to make such special contributions.

Market Conduct, Investor Protection and Infrastructure Regulation

Under the German Securities Trading Act (Wertpapierhandelsgesetz), the BaFin regulates and supervises securities trading, including the provision of investment services, in Germany. The German Securities Trading Act contains, among other things, disclosure and transparency rules for issuers of securities that are listed on a German exchange and organizational requirements as well as rules of conduct which apply to all businesses that provide investment services. Investment services include, in particular, the purchase and sale of securities or derivatives for others and the intermediation of transactions in securities or derivatives as well as investment advice. The BaFin has broad powers to investigate businesses providing investment services to monitor their compliance with the organizational requirements, rules of conduct and reporting requirements. In addition, the German Securities Trading Act requires an independent auditor to perform an annual audit of the investment services provider's compliance with its obligations under the German Securities Trading Act.

A related area is the Market Abuse Regulation ("MAR") which establishes a common European Union framework for, inter alia, insider dealing, the public disclosure of inside information, market manipulation, and managers' transactions. The German Securities Trading Act, which had contained rules on market abuse prior to the entering into force of the MAR, continues to supplement the MAR in this respect, for example by providing for sanctions in case of violations of the MAR.

In addition, the revised Markets in Financial Instruments Directive (“MiFID 2”), implemented primarily through amendments to the German Securities Trading Act, and the new Markets in Financial Instruments Regulation (“MiFIR”) became applicable on January 3, 2018. Their objectives are greater regulation and oversight of financial firms providing investment services or activities in the European Union by covering additional markets and instruments, the extension of pre- and post-trade transparency rules from equities to all financial instruments, greater restrictions on operating trading platforms, and greater sanctioning powers. The trading venues under supervision now also include organized trading facilities. In addition, MiFID 2/MiFIR, introduced a trading obligation for those OTC derivatives which are subject to mandatory clearing and which are sufficiently standardized, and new investor protection rules that significantly impact the way investment firms distribute products. The Regulation on Key Information Documents or Packaged Retail and Insurance-based Investment Products (PRIIPs) applies since January 1, 2018. It focuses on disclosure and transparency requirements when advising on or selling retail structured products and other complex and packaged investment products and aims at increasing investor protection.

Beyond the infrastructure-related provisions of MiFID 2 and MiFIR, market infrastructure has been the focus of other regulatory initiatives of the European Union that are relevant for Deutsche Bank. The Regulation on Transparency of Securities Financing Transactions aims at increasing transparency and reducing risks associated with such transactions. The regulation requires that repos, securities lending transactions and transactions with equivalent effect and margin lending transactions be reported to trade repositories and requires risk disclosures and consent before assets are reused or re-hypothecated. For the OTC derivatives markets, the European Regulation on OTC Derivatives, Central Counterparties and Trade Repositories, also referred to as European Market Infrastructure Regulation (“EMIR”), pursues the goals of reducing system, counterparty and operational risk and increase transparency in the OTC derivatives markets. The regulation introduced requirements for standardized over-the-counter derivatives, such as central clearing, margining, portfolio reconciliation or reporting to trade repositories.

In addition, the European Union’s Regulation on Financial Benchmarks seeks to ensure the integrity and accuracy of indices used as benchmarks for financial instruments and contracts, and prevent their manipulation. European Union-regulated banks, investment firms, fund managers and certain other supervised entities are only permitted to use benchmarks provided in accordance with the regulation. Benchmark administrators in the European Union are required to obtain authorization or registration, and are subject to rules and oversight regarding their organization, governance and conduct. Benchmarks provided by non-EU administrators are permissible under certain conditions.

Payment Services Regulation

Payment services in Germany are governed by the Payment Services Directive II (“PSD II”) as transposed into German law by the Payment Services Supervision Law (Zahlungsdienstenaufsichtsgesetz, “ZAG”). Payment services regulation is aimed at increasing competition for payment services and providing a level playing field by harmonizing consumer protection and rights and obligations of payment services providers and users within the European Union. The PSD II and the ZAG provide the legal framework for the rapidly progressing digitalization in payment services and promote consistent interpretation and application of the provisions throughout the European Union.

Legal Requirements relating to Financial Statements and Audits

As required by the German Commercial Code (Handelsgesetzbuch), Deutsche Bank AG prepares its non-consolidated financial statements in accordance with German GAAP. Deutsche Bank Group’s consolidated financial statements are prepared in accordance with International Financial Reporting Standards (“IFRS”), and our compliance with capital adequacy requirements and large exposure limits is determined solely based upon such consolidated financial statements.

Under German law, Deutsche Bank AG is required to be audited annually by a certified public accountant (Wirtschaftsprüfer). Deutsche Bank AG’s auditor is appointed each year at the annual shareholders’ meeting. However, the supervisory board mandates the auditor and supervises the audit. The BaFin and the Deutsche Bundesbank (“Bundesbank”), the German central bank, must be informed of the appointment and the BaFin may reject the auditor’s appointment. The German Banking Act requires that a bank’s auditor inform the BaFin and the Bundesbank of any facts that come to the auditor’s attention which would lead it to refuse to certify or to limit its certification of the bank’s annual financial statements or which would adversely affect the bank’s financial position. The auditor is also required to notify the BaFin and the Bundesbank in the event of a material breach by management of the articles of association or of any other applicable law. The auditor is required to prepare a detailed and comprehensive annual audit report (Prüfungsbericht) for submission to the bank’s supervisory board, the BaFin and the Bundesbank. The BaFin and the Bundesbank share their information with the ECB. In addition to the statutory audit directive and its amendment that has been implemented into national law, Deutsche Bank is also subject to the European Union’s Regulation on Specific Requirements regarding Statutory Audit of Public-Interest Entities which includes requirements for mandatory audit firm rotation and restrictions on non-audit services.

Banking Supervision under the Single Supervisory Mechanism

Under the European Union's system of financial supervision referred to as the single supervisory mechanism ("SSM"), the ECB is the primary supervisor of all systemically important or significant credit institutions (such as Deutsche Bank AG) and their banking affiliates in the relevant Member States. The competent national authorities supervise the remaining, less significant banks under the oversight of the ECB. As a result, Deutsche Bank AG is supervised by the ECB, the BaFin and the Bundesbank.

With respect to us and other significant credit institutions, the ECB is the primary supervisor and is responsible for most tasks of prudential supervision, such as compliance with regulatory requirements concerning own funds, large exposure limits, leverage, liquidity, securitizations, corporate governance, business organization and risk management requirements. The ECB carries out its day-to-day supervisory functions through a joint supervisory team ("JST") established for Deutsche Bank Group. The JST is led by the ECB and comprises staff from the ECB and national supervisory authorities, including the BaFin and the Bundesbank. In addition, and regardless of whether an institution is significant or not, the ECB is responsible for issuing new licenses to credit institutions and for assessing the acquisition and increase of significant participations (also referred to as qualifying holdings) in credit institutions established in those Member States of the European Union that participate in the SSM and where notification of such changes must be filed.

The BaFin is our principal supervisor for regulatory matters with respect to which we are not supervised by the ECB. These include business conduct in the securities markets, in particular when providing investment services to clients, anti-money laundering, terrorist financing and payment services, as well as certain special areas of bank regulation, such as those related to the issuance of covered bonds (Pfandbriefe) and the supervision of German home loan banks (Bausparkassen) with regard to certain regulatory requirements specifically applicable to such home loan banks. Generally, the BaFin also supervises us with respect to those requirements under the German Banking Act that are not based upon European law. The Bundesbank supports the BaFin and the ECB and closely cooperates with them. The cooperation includes the ongoing review and evaluation of reports submitted by us and of our audit reports as well as assessments of the adequacy of our capital base and risk management systems. The ECB, the BaFin and the Bundesbank receive comprehensive information from us in order to monitor our compliance with applicable legal requirements and to obtain information on our financial condition.

Supervisory Review and Evaluation Process

For significant institutions such as Deutsche Bank, the JST conducts the supervisory review and evaluation process (or "SREP") for an ongoing assessment of risks, governance arrangements and the capital and liquidity situation. The SREP requires that the JSTs review the arrangements, strategies, processes and mechanisms of supervised banks on a regular basis, in order to evaluate risks to which these banks are or might be exposed, risks they could pose to the financial system, and risks revealed by stress testing.

The SREP framework consists of a business model analysis, an assessment of internal governance and institution-wide control arrangements, an assessment of risks to capital and adequacy of capital to cover these risks; and an assessment of risks to liquidity and adequacy of liquidity resources to cover these risks. The SREP can result in Pillar 2 capital and liquidity requirements or guidance for the relevant institution (see above "Pillar 2 Capital Requirements and Guidance").

Audits, Investigations and Enforcement

Investigations and Supervisory Audits

The ECB and the BaFin may conduct audits of banks on a discretionary basis, as well as for cause. In particular, the ECB may audit our compliance with requirements with respect to which it supervises us, such as those set forth in CRR/CRD. The BaFin may also decide to audit our compliance with requirements with respect to which it supervises us, such as those relating to business conduct in the securities markets and the regulation of anti-money laundering, to counter terrorist financing and payment services, as well as certain special areas of bank regulation, such as those related to the issuance of covered bonds and the supervision of German home loan banks.

The ECB as well as the BaFin may require a bank to furnish information and documents in order to ensure that the bank is complying with applicable bank supervisory laws. The ECB and the BaFin may conduct investigations without having to state a reason therefor. Such investigations may also take place at a foreign entity that is part of a bank's group for regulatory purposes. Investigations of foreign entities are limited to the extent that the law of the jurisdiction where the entity is located restricts such investigations.

The ECB and the BaFin may attend meetings of a bank's supervisory board and shareholders meetings. They also have the authority to require that such meetings be convened.

Supervisory and Enforcement Powers

The ECB has a wide range of enforcement powers in the event it discovers any irregularities concerning adherence to requirements with respect to which it supervises us.

It may, for example,

- impose additional own funds or liquidity requirements in excess of statutory minimum requirements;
- restrict or limit a bank's business;
- require the cessation of activities to reduce risk;
- require a bank to use net profits to strengthen its own funds;
- restrict or prohibit dividend payments to shareholders or distributions to holders of Additional Tier 1 instruments; or
- remove the members of the bank's management or supervisory board members from office.

To the extent necessary to carry out the tasks granted to it, the ECB may also require national supervisory authorities to make use of their powers under national law. If these measures are inadequate, the ECB may revoke the bank's license. Furthermore, the ECB has the power to impose administrative penalties in case of breaches of directly applicable European Union laws, such as the CRR, or of applicable ECB regulations and decisions. Penalties imposed by the ECB may amount to up to twice the amount of profits gained or losses avoided because of the violation, or up to 10 % of the total annual turnover of the relevant entity in the preceding business year or such other amounts as may be provided for in relevant European Union law. In addition, where necessary to carry out the tasks granted to it, the ECB may also require that the BaFin initiate proceedings to ensure that appropriate penalties are imposed on the affected bank.

The BaFin also retains a wide range of enforcement powers. As discussed above, it may take action if instructed by the ECB in connection with supervisory tasks granted to the ECB. With respect to supervisory tasks remaining with the BaFin, the BaFin may take action upon its own initiative. In particular, if a bank is in danger of defaulting on its obligations to creditors, the BaFin may take emergency measures to avert default. These emergency measures may include:

- issuing instructions relating to the management of the bank;
- prohibiting the acceptance of deposits and the extension of credit;
- prohibiting or restricting the bank's managers from carrying on their functions;
- prohibiting payments and disposals of assets;
- closing the bank's customer services; and
- prohibiting the bank from accepting any payments other than payments of debts owed to the bank.

The BaFin may also impose administrative pecuniary penalties under the German Banking Act and other German laws. Penalties under the German Banking Act may amount to generally up to € 5 million or, in certain cases, € 20 million, depending of the type of offense. If the economic benefit derived from the offense is higher, the BaFin may impose penalties of up to 10 % of the net turnover of the preceding business year or twice the amount of the economic benefit derived from the violation.

Finally, violations of the German Banking Act may result in criminal penalties against the members of the Management Board or senior management.

Recovery and Resolution

Germany participates in the European Union's single resolution mechanism ("SRM"), which centralizes at a European level the key competences and resources for managing the failure of banks in Member States of the European Union participating in the banking union. The SRM is based on the SRM Regulation and the BRRD, which was implemented in Germany through the German Recovery and Resolution Act (Sanierungs- und Abwicklungsgesetz). In addition, the German Resolution Mechanism Act (Abwicklungsmechanismusgesetz) adapted German bank resolution laws to the SRM.

Under the SRM, broad resolution powers with respect to banks domiciled in the participating Member States are granted to the Single Resolution Board ("SRB") as the central European resolution authority and to the competent national resolution authorities. Resolution powers in particular include the power to reduce, including to zero, the nominal value of shares, or to cancel shares outright, and to write down certain eligible subordinated and unsubordinated unsecured liabilities, including to zero, or convert them into equity (commonly referred to as "bail-in").

For a bank directly supervised by the ECB, such as Deutsche Bank, the SRB draws up the resolution plan, assesses the bank's resolvability and may require legal and operational changes to the bank's structure to ensure its resolvability. In the event that a bank is failing or likely to fail and certain other conditions are met, in particular where there is no reasonable prospect that any alternative private sector measures would prevent the failure and resolution measures are necessary in the public interest, the SRB is responsible for adopting a resolution scheme for resolving the bank pursuant to the SRM Regulation. The European Commission and, to a lesser extent, the Council of the European Union, have a role in endorsing or objecting to the resolution scheme proposed by the SRB. The resolution scheme would be addressed to and implemented by the competent national resolution authorities (the BaFin in Germany).

Resolution measures that could be imposed upon a failing bank may include a range of measures including the transfer of shares, assets or liabilities of the bank to another legal entity, the reduction, including to zero, of the nominal value of shares, the dilution of shareholders of a failing bank or the cancellation of shares outright, or the amendment, modification or variation of the terms of the bank's outstanding debt instruments, for example by way of deferral of payments or a reduction of the applicable interest rate. Furthermore, by way of a "bail-in", certain liabilities may be written down, including to zero, or converted into equity after the bank's regulatory capital has been exhausted.

To ensure that resolution measures can be effectively taken, contractual obligations governed by the laws of a non-EU country or that are subject to jurisdiction outside the European Union are required to include contractual provisions that ensure that the relevant obligation can be bailed in. In the case of financial contracts governed by the laws of a non-EU country or that are subject to jurisdiction outside the European Union, stay acceptance clauses need to be included.

To ensure sufficient availability of liabilities with loss-absorbing capacity that could be bailed in, the SRM Regulation and the German Recovery and Resolution Act introduced a requirement for banks to meet minimum requirements for own funds and eligible liabilities ("MREL"). The required level of MREL is determined by the competent resolution authorities for each supervised bank individually on a case-by-case basis, depending on the preferred resolution strategy. In the case of Deutsche Bank AG, MREL is determined by the SRB.

In addition, the banking reform package entered into force on June 27, 2019 (see "Highlights" above) implemented the FSB's TLAC standard for G-SIBs by introducing a new Pillar 1 MREL requirement for G-SIBs. This new requirement is based on both risk-based and non-risk-based denominators and will be set at the higher of 18 % of total risk exposure and 6.75 % of the leverage ratio exposure measure following a transition period (until December 31, 2021, 16 % of total risk exposure and 6 % of the leverage ratio exposure measure). It can be met with Tier 1 or Tier 2 capital instruments or debt that meets specific eligibility criteria. In addition, the competent authorities have the ability to impose MREL requirements on G-SIBs that exceed the statutory minimum requirements.

We anticipate that G-SIBs will need to predominantly rely on capital instruments or eligible subordinated debt for this purpose. Effective January 1, 2017, the German Banking Acts provided for a new class of statutorily subordinated debt securities that rank as senior non-preferred below the bank's other senior liabilities (but in priority to the bank's contractually subordinated liabilities, such as those qualifying as Tier 2 instruments). Following a harmonization effort by the European Union implemented in Germany effective July 21, 2018, banks are permitted to decide if a specific issuance of eligible senior debt will rank as senior non-preferred debt or as senior preferred debt.

The SRB is charged with administering the Single Resolution Fund, a pool of money which is financed by bank levies raised at national level and intended to reach a target level of 1 % of insured deposits of all banks in Member States participating in the SRM by the end of 2023. It will be used for resolving failing banks after other options, such as the bail-in tool, have been exhausted. In line with the German Recovery and Resolution Act, public financial support for a failing bank should only be used as a last resort, after having assessed and exploited, to the maximum extent possible, resolution measures set forth in the SRM Regulation and the German Recovery and Resolution Act, including the bail-in tool.

In addition, a German bank could become subject to a stabilization plan or reorganization proceedings under the German Credit Institution Reorganization Act (Gesetz zur Reorganisation von Kreditinstituten).

Regulation in the European Economic Area and Brexit

Since 1989 the European Union has worked to create a single European Union-wide market with almost no internal barriers on banking and financial services. To this end, the European Union pursues common standards of laws and regulations to create consistency across the internal market and reduce compliance and regulatory burdens for businesses operating on a cross-border basis. The Agreement on the European Economic Area extends this single market to Iceland, Liechtenstein and Norway. These non-EU members of the European Economic Area have agreed to enact legislation similar to that passed in the European Union in many areas. Within this market, our branches generally operate under the so-called “European Passport”. Under the European Passport, our branches are subject to regulation and supervision primarily by the ECB and the BaFin. Similarly, we also provide cross-border services in the European Economic Area under the “European Passport” directly without intermediation of branches. To the extent that activities are carried out within its jurisdiction, the authorities of the host country supervise the conduct of such activities. This includes, for example, rules on treating clients fairly and rules governing a bank’s conduct in the securities market.

The United Kingdom left the European Union on January 31, 2020. Relationships with Member States of the European Union are subject to a transition period until December 31, 2020 under a withdrawal agreement. The withdrawal agreement allows us to operate our business in the United Kingdom during the transition period as if the United Kingdom were still a Member State. Also after the expiry of the transition period, Deutsche Bank AG is planning to continue to provide banking and other financial services on a cross-border basis into the United Kingdom as well as through its London branch, which it will retain. Deutsche Bank AG will then be subject to additional regulatory requirements in the United Kingdom, and its activities in the United Kingdom will be supervised and monitored by both the Prudential Regulatory Authority (“PRA”) and the Financial Conduct Authority (“FCA”). Deutsche Bank AG is already in the process of applying for authorization to provide banking and other financial services in the United Kingdom after the expiry of the transition period.

Regulation and Supervision in the United States

Our operations are subject to extensive federal and state banking, securities and derivatives regulation and supervision in the United States. We engage in U.S. banking activities directly through our New York branch. We also control U.S. banking organization subsidiaries, including DB USA Corporation and Deutsche Bank Trust Company Americas (“DBTCA”), and U.S. broker-dealers, such as Deutsche Bank Securities Inc., U.S. nondeposit trust companies and nonbanking subsidiaries. We hold our U.S. subsidiaries through two intermediate holding companies, DB USA Corporation, through which our U.S. banking subsidiaries and the large majority of our other U.S. subsidiaries are held, and DWS USA Corporation, through which our U.S. asset management subsidiaries are held.

In 2010, the United States enacted the Dodd-Frank Wall Street Reform and Consumer Protection Act (the “Dodd-Frank Act”), which provides a broad framework for significant regulatory changes that extend to almost every area of U.S. financial regulation. While rulemaking in respect of many of the provisions of the Dodd-Frank Act has already taken place, full implementation of the Dodd-Frank Act will require further detailed rulemaking and uncertainty remains about the final details, timing and impact of some rules. Some existing regulations implementing the Dodd-Frank Act are undergoing tailoring as part of the implementation process. In addition, the substance and impact of the Dodd-Frank Act may be affected by subsequent legislation and changes in the U.S. political landscape.

The Dodd-Frank Act provisions known as the “Volcker Rule” limit the ability of banking entities and their affiliates to engage as principal in certain types of proprietary trading and to sponsor or invest in private equity or hedge funds or similar funds (“covered funds”), subject to certain exclusions and exemptions. In the case of non-U.S. banking entities such as Deutsche Bank AG, these exemptions permit certain activities conducted outside the United States, provided that certain criteria are satisfied. The Volcker Rule also limits the ability of banking entities and their affiliates to enter into certain transactions with covered funds with which they or their affiliates have certain relationships. The Volcker Rule also requires banking entities to establish comprehensive compliance programs designed to help ensure and monitor compliance with restrictions under the Volcker Rule. In September and October 2019, the US federal agencies responsible for administration of the Volcker Rule finalized amendments to simplify and tailor compliance requirements related to the proprietary trading provisions of the Volcker Rule. While the recent amendments are intended to streamline the existing requirements and result in a more simplified revised final rule, these changes to the Volcker Rule may result in increased compliance and operational costs. These amendments to the Volcker Rule became effective January 1, 2020, with compliance required by January 1, 2021. On January 30, 2020, the agencies proposed further amendments to the Volcker Rule’s covered funds provisions. The proposal is currently open for comment, and the timeline for finalization remains uncertain.

The Dodd-Frank Act also provides regulators with tools to provide greater capital, leverage and liquidity requirements and other prudential standards, particularly for financial institutions that pose significant systemic risk. U.S. regulators are also able to restrict the size and growth of systemically significant non-bank financial companies and large interconnected bank holding companies. U.S. regulators are also required to impose bright-line debt-to-equity ratio limits on financial companies that the Financial Stability Oversight Council determines pose a grave threat to financial stability if it determines that the imposition of such limits is necessary to minimize the risk.

With respect to prudential standards, in February 2014, the Federal Reserve Board adopted rules that set forth how the U.S. operations of certain foreign banking organizations (“FBOs”), such as Deutsche Bank, are required to be structured, as well as the enhanced prudential standards that apply to our U.S. operations. Under these rules, as of July 1, 2016, a large FBO with U.S.\$ 50 billion or more in U.S. non-branch assets, such as Deutsche Bank, was required to establish or designate a separately capitalized top-tier U.S. intermediate holding company (an “IHC”) that would hold substantially all of the FBO’s ownership interests in its U.S. subsidiaries. The Federal Reserve Board may permit an FBO subject to the U.S. IHC requirement to establish or designate multiple U.S. IHCs upon written request. On July 1, 2016, we designated DB USA Corporation as our IHC. In March 2018, we completed the partial initial public offering of our Asset Management division, consolidating these activities in DWS Group GmbH & Co. KGaA, in which we retain approximately 80 % of the shares. In April 2018, DWS USA Corporation was formed as a subsidiary of DWS Group GmbH & Co. KGaA, and, following receipt of Federal Reserve Board approval, we designated it as our second IHC, through which our U.S. asset management subsidiaries are held. As of the date of their designation or formation, they each became subject, on a consolidated basis, to the risk-based and leverage capital requirements under the U.S. Basel 3 capital framework, capital planning and stress testing requirements (on a phased-in basis), U.S. liquidity buffer requirements and other enhanced prudential standards comparable to those applicable to top-tier U.S. bank holding companies of a similar size as DB USA Corporation. Supplementary leverage ratio requirements applicable to DB USA Corporation took effect beginning in January 2018 and were applicable to DWS USA Corporation upon its formation.

On October 10, 2019, the Federal Reserve Board finalized rules to categorize the US operations of large FBOs based on size, complexity and risk for purposes of tailoring the application of the US enhanced prudential standards (the “Tailoring Rules”). The Tailoring Rules do not significantly change the capital requirements that apply to DB USA Corporation or DWS USA Corporation, although they provide the option to comply with certain simplifications to the capital requirements. However, the Tailoring Rules provide modest relief for our US IHCs with respect to applicable liquidity requirements so long as the IHCs’ combined weighted short term wholesale funding remains below \$75 billion.

The Federal Reserve Board has the authority to examine an IHC, such as DB USA Corporation and DWS USA Corporation, and its subsidiaries, as well as U.S. branches and agencies of FBOs, such as our New York branch. An FBO’s U.S. branches and agencies are not held beneath an IHC; however, the U.S. branches and agencies of the FBO are subject to certain liquidity requirements, as well as other specific enhanced prudential standards, such as risk management and, under certain circumstances, asset maintenance requirements. Additionally, the Tailoring Rules also placed requirements on the FBO itself related to the adequacy and reporting of the FBO’s home country capital and stress testing regime.

In June 2018 and October 2019, the Federal Reserve Board finalized rules relating to single counterparty credit limits that apply to an FBO’s combined U.S. operations and its IHCs. Our IHCs will each be prohibited from having net credit exposure to a single unaffiliated counterparty in excess of 25 percent of each IHC’s tier 1 capital beginning on July 1, 2020. In addition, our combined U.S. operations (including our IHCs and our New York branch) would become separately subject to similar restrictions beginning July 1, 2020 unless Deutsche Bank AG certifies compliance with a home country large exposure regime that is consistent with the Basel large exposure framework. In November 2019, the Federal Reserve Board issued a proposed rule to extend the initial compliance date for FBOs’ combined US operations to July 1, 2021 or January 1, 2022. If the rule is adopted as proposed, Deutsche Bank AG may avail itself of substituted compliance through certification for its combined U.S. operations, as the European Union’s framework becomes effective on June 28, 2021.

In addition, the Federal Reserve Board proposed but has not adopted an “early remediation” framework under which it would implement prescribed restrictions and penalties against the FBO and its U.S. operations, such as restrictions on the ability of the FBO and its U.S. operations to make discretionary compensation payments to certain of its officers and directors, if the FBO and/or its U.S. operations do not meet certain risk-based capital, leverage, liquidity, stress testing or other risk management requirements, and would authorize the termination of U.S. operations under certain circumstances.

As a bank holding company with assets of U.S.\$ 250 billion or more, Deutsche Bank AG is required under Title I of the Dodd-Frank Act, as amended, to prepare and submit periodically to the Federal Reserve Board and the Federal Deposit Insurance Corporation (“FDIC”) a plan for the orderly resolution of its subsidiaries and operations in the event of future material financial distress or failure (the “U.S. Resolution Plan”). For foreign-based companies subject to these resolution planning requirements such as Deutsche Bank AG, the U.S. Resolution Plan relates only to subsidiaries, branches, agencies and businesses that are domiciled in or whose activities are carried out in whole or in material part in the United States. Deutsche Bank AG filed its most recent U.S. Resolution Plan in July 2018. The U.S. Resolution Plan describes the single point of entry strategy for our U.S. Material Entities, Core Business Lines, Critical Operations and prescribes that DB USA Corporation, our single U.S. IHC as of December 31, 2017, would provide liquidity and capital support to its U.S. Material Entity subsidiaries and ensure their solvent wind-down outside of applicable resolution proceedings. In December 2018, Deutsche Bank AG received regulatory feedback from the Federal Reserve and FDIC, which found that Deutsche Bank’s U.S. Resolution Plan had no deficiencies but identified one shortcoming in the plan, associated with governance mechanisms and related escalation triggers. Deutsche Bank submitted a response to its December 2018 feedback letter on April 1, 2019. Deutsche Bank’s response discussed its proposed remediation of the shortcoming as well as enhancements of its resolution capabilities. Deutsche Bank is required to make a submission to the Federal Reserve Board and FDIC by July 1, 2020 explaining how it remediated the shortcoming and providing an update on the enhancement of its resolutions capabilities. Following this submission, Deutsche Bank’s next targeted U.S. Resolution Plan is due on or before July 1, 2021.

Both DB USA Corporation and DWS USA Corporation were subject to the Federal Reserve Board’s Comprehensive Capital Analysis and Review (“CCAR”) for 2019. On June 27, 2019, the Federal Reserve Board publicly indicated that it did not object to the 2019 capital plans submitted by DB USA Corporation and DWS USA Corporation. DB USA Corporation and DWS USA Corporation will make their next capital plan submissions to the Federal Reserve Board in April 2020. On March 4, 2020, the Federal Reserve Board issued a rule to amend its CCAR process to combine the CCAR quantitative assessment and the buffer requirements in the Federal Reserve Board’s capital rules to create an integrated capital buffer requirement.

In September 2014, the Federal Reserve Board and other U.S. regulators approved a final rule implementing liquidity coverage ratio (“LCR”) requirements for large U.S. banking holding companies and certain of their subsidiary depository institutions that are generally consistent with the Basel Committee’s revised Basel 3 liquidity standards. DB USA Corporation and DBTCA became subject to the full LCR requirements on April 1, 2017 and DWS USA Corporation became subject to LCR requirements on a phased-in basis following its formation in April 2018. The Tailoring Rules reduced the LCR requirements applicable to DB USA Corporation, DWS USA Corporation and DBTCA from 100 to 85 percent beginning on January 1, 2020.

On June 1, 2016, the Federal Reserve Board and other U.S. regulators proposed rules implementing the second element of the Basel 3 liquidity framework, the net stable funding ratio (“NSFR”). Under the Tailoring Rules, DB USA Corporation, DWS USA Corporation and DBTCA would be subject to an 85 percent NSFR so long as our IHCs’ combined weighted short term wholesale funding remains below \$75 billion; however, the NSFR proposal has yet to be finalized and, accordingly, such entities are not currently subject to the proposed requirements.

On December 15, 2016, the Federal Reserve Board adopted final rules that implement a U.S. version of the FSB’s TLAC standard in the United States. The final rules require, among other things, the U.S. IHCs of non-U.S. G-SIBs, including DB USA Corporation and DWS USA Corporation, to maintain a minimum TLAC amount, and separately require them to maintain a minimum amount of eligible long-term debt. Under the final rules, the required TLAC amount and the ability or inability of the IHC to count long-term debt issued externally towards the requirements varies depending on the G-SIB’s planned resolution strategy. DB USA Corporation and DWS USA Corporation are each considered a “non-resolution covered IHC”, which means that they are intended, under the planned resolution strategy of their G-SIB parent (Deutsche Bank AG), to continue to operate outside of resolution proceedings while the G-SIB parent is subject to a bail-in under the applicable European resolution regime. The final rules require a “non-resolution covered IHC” to maintain (i) internal minimum TLAC of at least 16 % of its risk-weighted assets, 6 % of its Basel 3 leverage ratio denominator and 8 % of its average total consolidated assets, and (ii) internal eligible long-term debt of at least 6 % of its risk-weighted assets, 2.5 % of its Basel 3 leverage ratio denominator and 3.5 % of its average total consolidated assets. Eligible long-term debt instruments for non-resolution covered IHCs are required to meet certain criteria, including issuance to a foreign company that controls directly or indirectly the covered IHC or a foreign affiliate (a non-U.S. entity that is wholly owned, directly or indirectly, by the non-U.S. G-SIB) and the inclusion of a contractual trigger allowing for, in limited circumstances, the immediate conversion or exchange of some or all of the instrument into Common Equity Tier 1 instruments upon an order by the Federal Reserve Board. Internal TLAC requirements may be satisfied with a combination of eligible long-term debt instruments and Tier 1 capital. Each of DB USA Corporation and DWS USA Corporation would also face restrictions on its discretionary bonus payments and capital distributions if it fails to maintain a TLAC buffer consisting of Common Equity Tier 1 capital above the minimum TLAC requirement equal to 2.5 % of risk-weighted assets. The final rules also prohibit or limit the ability of DB USA Corporation and DWS USA Corporation to engage in certain types of financial transactions.

Furthermore, the Dodd-Frank Act provides for an extensive framework for the regulation of over-the-counter (“OTC”) derivatives, including mandatory clearing, exchange trading and transaction reporting of certain OTC derivatives, as well as rules regarding the registration of, and capital, margin and business conduct standards for, swap dealers, security-based swap dealers, major swap participants and major security-based swap participants. The Commodity Futures Trading Commission (“CFTC”) adopted final rules in 2016 that require additional interest rate swaps to be cleared. In November 2018 the CFTC proposed amendments to rules that would significantly expand the types of swaps that must be executed on an approved platform. More recently, in January 2020, also pursuant to the Dodd-Frank Act, the CFTC re-proposed regulations to impose position limits on certain commodities and economically equivalent swaps, futures and options. These proposals have not yet been finalized. In December 2019, the CFTC issued a proposal on the cross-border application of U.S. swap rules, building on the CFTC’s cross-border guidance from 2013 and related no-action relief letters. The Securities and Exchange Commission (“SEC”) has also finalized rules regarding registration, capital, risk-mitigation techniques, reporting, business conduct standards, trade acknowledgement and verification requirements, and cross-border requirements for security-based swap dealers and major security-based swap participants. These rules will generally come into effect in October 2021, the compliance date for registration of security-based swap dealers and major security-based swap participants. Finally, the U.S. prudential regulators (the Federal Reserve Board, the FDIC, the Office of the Comptroller of the Currency, the Farm Credit Administration and the Federal Housing Finance Agency) have adopted final rules establishing margin requirements for non-cleared swaps and security-based swaps, the CFTC has adopted final rules establishing margin requirements for non-cleared swaps, and the SEC has adopted final rules establishing margin requirements for non-cleared security-based swaps. The final margin rules follow a phased implementation schedule, with certain initial margin and variation margin requirements in effect as of September 2016, additional variation margin requirements in effect as of March 2017, and additional initial margin requirements phased in on an annual basis from September 2017 through September 2020, with the relevant compliance dates depending in each case on the transactional volume of the parties and their affiliates. Compliance with SEC margin requirements will not be required prior to the compliance date for registration of security-based swap dealers in October 2021.

The Dodd-Frank Act, as amended, also established a regulatory framework and enhanced regulation for several other areas, including but not limited to the following. The Dodd-Frank Act established a new regime for the orderly liquidation of failing financial companies through the appointment of the FDIC as receiver that is available only if the U.S. Secretary of the Treasury determines in consultation with the U.S. President that certain criteria are met, including that the failure of the company and its resolution under otherwise applicable federal or state law would have serious adverse effects on U.S. financial stability. In addition, the Dodd-Frank Act requires U.S. regulatory agencies to prescribe regulations with respect to incentive-based compensation at financial institutions in order to prevent inappropriate behavior that could lead to a material financial loss. Other provisions require issuers with securities listed on U.S. stock exchanges, which may include foreign private issuers such as Deutsche Bank, to establish a “clawback” policy to recoup previously awarded executive compensation in the event of an accounting restatement; in May 2016, the SEC re-proposed rules to implement this provision of the Dodd-Frank Act that would cover foreign private issuers, but such rules have not yet been adopted. The Dodd-Frank Act also grants the SEC discretionary rule-making authority to impose a new fiduciary standard on brokers, dealers and investment advisers; pursuant to this authority, on June 5, 2019, the SEC adopted rules and interpretations applicable to the relationships between such entities and their retail customers, which include a transition period until June 30, 2020 for full compliance. The Dodd-Frank Act also expands the extraterritorial jurisdiction of U.S. courts over actions brought by the SEC or the United States with respect to violations of the antifraud provisions of the Securities Act of 1933, the Securities Exchange Act of 1934 and the Investment Advisers Act of 1940.

Implementation of the Dodd-Frank Act and related final regulations will result in additional costs and could limit or restrict the way we conduct our business.

Regulatory Authorities

We, as well as our wholly owned subsidiary DB USA Corporation are bank holding companies under the U.S. Bank Holding Company Act of 1956, as amended (the "Bank Holding Company Act"), by virtue of, among other things, our and its ownership of DBTCA. As bank holding companies, we and DB USA Corporation have elected to become financial holding companies. As a result, we and our U.S. operations are subject to regulation, supervision and examination by the Federal Reserve Board as our U.S. "umbrella supervisor".

DBTCA is a New York state-chartered bank whose deposits are insured by the FDIC to the extent permitted by law. DBTCA is subject to regulation, supervision and examination by the Federal Reserve Board and the New York State Department of Financial Services and to relevant FDIC regulation. In addition, DBTCA is also subject to regulation by the Consumer Financial Protection Bureau in relation to retail products and services offered to its customers. Deutsche Bank Trust Company Delaware is a Delaware state-chartered bank which is subject to regulation, supervision and examination by the FDIC and the Office of the State Bank Commissioner of Delaware. Deutsche Bank AG's New York branch is supervised by the Federal Reserve Board and the New York State Department of Financial Services. Deutsche Bank's federally chartered nondeposit trust companies are subject to regulation, supervision and examination by the Office of the Comptroller of the Currency. We and our subsidiaries are also subject to regulation, supervision and examination by state banking regulators of certain states in which we and they conduct banking operations.

Restrictions on Activities

As described below, federal and state banking laws and regulations restrict our ability to engage, directly or indirectly through subsidiaries, in activities in the United States. Among others, we are required to obtain the prior approval of the Federal Reserve Board before directly or indirectly acquiring the ownership or control of more than 5 % of any class of voting shares of U.S. banks, certain other depository institutions, and bank or depository institution holding companies. Under applicable U.S. federal banking law, our U.S. banking operations are also restricted from engaging in certain "tying" arrangements involving products and services.

Our two U.S. FDIC-insured bank subsidiaries, as well as our New York branch, are subject to requirements and restrictions under federal and state law, including requirements to maintain reserves against deposits, restrictions on the types and amounts of loans that may be made and the interest that may be charged thereon, and limitations on the types of investments that may be made and the types of services that may be offered.

In addition to the business of banking, and managing or controlling banks, so long as we are a financial holding company under U.S. law, we may also engage in nonbanking activities in the United States that are financial in nature, or incidental or complementary to such financial activity, including certain securities, merchant banking, insurance and other financial activities, subject to certain limitations on the conduct of such activities and to notice or prior regulatory approval in some cases. As a non-U.S. bank, Deutsche Bank AG and our non-U.S. subsidiaries are generally authorized under U.S. law and regulations to acquire a non-U.S. company engaged in nonfinancial activities as long as that company's U.S. operations do not exceed certain thresholds and certain other conditions are met.

In November 2018, the Federal Reserve Board adopted a revised supervisory rating system for bank holding companies with U.S.\$ 100 billion or more in total consolidated assets and for IHCs with U.S.\$ 50 billion or more in total consolidated assets, such as DB USA Corporation. The revised system will also generally apply to DWS USA Corporation. Under the revised system, covered companies receive separate ratings from the Federal Reserve Board for (i) capital planning and positions, (ii) liquidity risk management and positions and (iii) governance and controls. Each of these component areas will receive one of the following four ratings: (i) Broadly Meets Expectations, (ii) Conditionally Meets Expectations, (iii) Deficient-1, and (iv) Deficient-2. A covered company must maintain a rating of Broadly Meets Expectations or Conditionally Meets Expectations for each of the three components to be considered "well managed."

In August 2017, the Federal Reserve Board issued proposed guidance intended to enhance the effectiveness of boards of directors and refocus the Federal Reserve Board's supervisory expectations for boards of directors on their core responsibilities, and also to delineate between roles and responsibilities for boards of directors and for senior management. Although the proposed guidance does not directly apply to DB USA Corporation or DWS USA Corporation, the Federal Reserve Board indicated that it expects to issue a separate proposal on governance specific to IHCs.

Our status as a financial holding company, and our resulting ability to engage in a broader range of nonbanking activities, are dependent on Deutsche Bank AG, DB USA Corporation and our two insured U.S. depository institutions qualifying as “well capitalized” and “well managed” under applicable regulations and upon our insured U.S. depository institutions meeting certain requirements under the Community Reinvestment Act. The Federal Reserve Board’s and other U.S. regulators’ “well capitalized” standards are generally based on specified quantitative thresholds set at levels above the minimum requirements to be considered “adequately capitalized.” For our two insured depository institution subsidiaries, DBTCA and Deutsche Bank Trust Company Delaware, the well-capitalized thresholds under the U.S. Basel 3 framework are a Common Equity Tier 1 capital ratio of 6.5 %, a Tier 1 capital ratio of 8 %, a Total capital ratio of 10 %, and a U.S. leverage ratio of 5 %. For bank holding companies, including Deutsche Bank AG and DB USA Corporation, the well-capitalized thresholds are a Tier 1 capital ratio of 6 % and a Total capital ratio of 10 %, both of which in the case of Deutsche Bank AG are calculated for Deutsche Bank AG under its home country standards.

State-chartered banks (such as DBTCA) and state-licensed branches and agencies of foreign banks (such as our New York branch) may not, with certain exceptions that require prior regulatory approval, engage as a principal in any type of activity not permissible for their federally chartered or licensed counterparts. In addition, DBTCA and Deutsche Bank Trust Company Delaware are subject to their respective state banking laws pertaining to legal lending limits and permissible investments and activities. Likewise, the United States federal banking laws also subject state branches and agencies to the single-borrower lending limits that apply to federal branches or agencies, which are substantially similar to the lending limits applicable to national banks. The single-borrower lending limits applicable to branches and agencies are calculated based on the dollar equivalent of the capital of the foreign bank (i.e., Deutsche Bank AG in the case of the New York branch).

The Federal Reserve Board may terminate the activities of any U.S. office of a foreign bank if it determines that the foreign bank is not subject to comprehensive supervision on a consolidated basis in its home country or that there is reasonable cause to believe that such foreign bank or its affiliate has violated the law or engaged in an unsafe or unsound banking practice in the United States or, for a foreign bank that presents a risk to the stability of the United States financial system, the home country of the foreign bank has not adopted, or made demonstrable progress toward adopting, an appropriate system of financial regulation to mitigate such risk.

Also, under the so-called swaps “push-out” provisions of the Dodd-Frank Act, certain structured finance derivatives activities of FDIC-insured banks and U.S. branch offices of foreign banks (including our New York branch) are restricted.

There are various qualitative and quantitative restrictions on the extent to which we and our nonbank subsidiaries can borrow or otherwise obtain credit from our U.S. banking subsidiaries or engage in certain other transactions involving those subsidiaries, including derivative transactions and securities borrowing or lending transactions. In general, these transactions must be on terms that would ordinarily be offered to unaffiliated entities, must be secured by designated amounts of specified collateral and are subject to volume limitations. These restrictions also apply to certain transactions of our New York branch with our U.S. broker-dealers and certain of our other U.S. affiliates.

A major focus of U.S. governmental policy relating to financial institutions is aimed at preventing money laundering and terrorist financing and compliance with economic sanctions in respect of designated countries or activities. Failure of an institution to have policies and procedures and controls in place to prevent, detect and report money laundering and terrorist financing could in some cases have serious legal, financial and reputational consequences for the institution.

New York Branch

The New York branch of Deutsche Bank AG is licensed by the Superintendent of the New York State Department of Financial Services to conduct a commercial banking business and is required to maintain and pledge eligible high-quality assets with banks in the State of New York (up to a maximum of U.S.\$ 100 million of assets pledged so long as the foreign bank remains designated as “well-rated” by the Superintendent of Financial Services). Should we cease to be designated as “well-rated” by the Superintendent of Financial Services, we may need to maintain and pledge substantial additional amounts of eligible assets. The Superintendent of Financial Services may also impose asset maintenance requirements on foreign banks with branch offices in New York. In addition, the Federal Reserve Board is authorized to impose institution-specific asset maintenance requirements under certain conditions, pursuant to the Tailoring Rules. Currently, no such requirements have been imposed upon our New York branch.

The New York State Banking Law authorizes the Superintendent of Financial Services to take possession of the business and property of a New York branch of a foreign bank under certain circumstances, generally involving violation of law, conduct of business in an unsafe manner, impairment of capital, suspension of payment of obligations, or initiation of liquidation proceedings against the foreign bank at its domicile or elsewhere. In liquidating or dealing with a branch's business after taking possession of a branch, only the claims of depositors and other creditors which arose out of transactions with a branch are to be accepted by the Superintendent of Financial Services for payment out of the business and property of the foreign bank in the State of New York or in the U.S. and reflected on the books of the New York branch, without prejudice to the rights of the holders of such claims to be satisfied out of other assets of the foreign bank. After such claims are paid, the Superintendent of Financial Services will turn over the remaining assets, if any, first to the liquidators of other offices of the foreign bank that are being liquidated in the United States and then, if any assets remain, to the foreign bank or its duly appointed liquidator or receiver.

Deutsche Bank Trust Company Americas

The Federal Deposit Insurance Corporation Improvement Act of 1991 ("FDICIA") provides for extensive regulation of depository institutions (such as DBTCA and its direct and indirect parent companies), including requiring federal banking regulators to take "prompt corrective action" with respect to FDIC-insured banks that do not meet minimum capital requirements. As an insured bank's capital level declines and the bank falls into lower categories (or if it is placed in a lower category by the discretionary action of its supervisor), greater limits are placed on its activities and federal banking regulators are authorized (and, in many cases, required) to take increasingly more stringent supervisory actions, which could ultimately include the appointment of a conservator or receiver for the bank (even if it is solvent). In addition, FDICIA generally prohibits an FDIC-insured bank from making any capital distribution (including payment of a dividend) or payment of a management fee to its holding company if the bank would thereafter be undercapitalized. If an insured bank becomes "undercapitalized", it is required to submit to federal regulators a capital restoration plan guaranteed by the bank's holding company. Since the enactment of FDICIA, both of our U.S. insured banks have maintained capital above the "well capitalized" standards, the highest capital category under applicable regulations.

DBTCA, like other FDIC-insured banks, is required to pay assessments to the FDIC for deposit insurance under the FDIC's Deposit Insurance Fund (calculated using the FDIC's risk-based assessment system). The minimum reserve ratio for the Deposit Insurance Fund was increased under the Dodd-Frank Act from 1.15 % to 1.35 %, which was reached as of September 30, 2018 following the imposition from July 1, 2016 through that date of a surcharge on the quarterly assessments of large insured depository institutions, including DBTCA. In addition, the FDIC has set the designated reserve ratio at 2 % as a long-term goal. The FDIC's standard maximum deposit insurance amount per customer at an insured depository institution is U.S.\$ 250,000.

Other

In the United States, our U.S.-registered broker-dealers are regulated by the SEC. Broker-dealers are subject to regulations that cover all aspects of the securities business, including sales methods, trade practices among broker-dealers, use and safekeeping of customers' funds and securities, capital structure, recordkeeping, the financing of customers' purchases and the conduct of directors, officers and employees.

Our principal U.S. SEC-registered broker-dealer subsidiary, Deutsche Bank Securities Inc., is a member of the New York Stock Exchange (and other securities exchanges) and is regulated by the Financial Industry Regulatory Authority, Inc. ("FINRA") and the individual state securities authorities in the states in which it operates. The U.S. government agencies and self-regulatory organizations, as well as state securities authorities in the United States having jurisdiction over our U.S. broker-dealer affiliates, are empowered to conduct administrative proceedings that can result in censure, fine, the issuance of cease-and-desist orders or the suspension or expulsion of a broker-dealer or its directors, officers or employees. Deutsche Bank Securities Inc. is also registered with and regulated by the SEC as an investment adviser, and by the CFTC and the National Futures Association as a futures commission merchant and commodity pool operator.

Under the Dodd-Frank Act, with certain exceptions, our entities that are swap dealers, security-based swap dealers, major swap participants or major security-based swap participants are registered or will be required to register with the SEC or CFTC, or both. Currently, Deutsche Bank AG is provisionally registered as a swap dealer. At a future date, we will be required to register one or more subsidiaries as security-based swap dealers with the SEC and may be required to register additional subsidiaries as swap dealers with the CFTC and certain subsidiaries as CFTC-regulated major swap participants and/or SEC-regulated major security-based swap participants. Registration, including provisional registration, as swap dealers, security-based swap dealers, major swap participants or major security-based swap participants subjects us to requirements as to capital, margin, business conduct and recordkeeping, among other requirements.

Organizational Structure

We operate our business along the structure of our four corporate divisions and the newly created Capital Release Unit. Deutsche Bank AG is the direct or indirect holding company for our subsidiaries. The following table sets forth the significant subsidiaries we own, directly or indirectly, as of December 31, 2019. We used the three-part test set out in Section 1-02 (w) of Regulation S-X under the U.S. Securities Exchange Act of 1934 to determine significance. We do not have any other subsidiaries we believe are material based on other, less quantifiable, factors.

We own 100 % of the equity and voting interests in these subsidiaries except for DWS Group GmbH & Co. KGaA, of which we own 79.49 % of equity and voting interests. These subsidiaries prepare financial statements as of December 31, 2019, and are included in our consolidated financial statements. Their principal countries of operation are the same as their countries of incorporation.

Subsidiary	Place of Incorporation
DB USA Corporation ¹	Delaware, United States
Deutsche Bank Americas Holding Corporation ²	Delaware, United States
DB U.S. Financial Markets Holding Corporation ³	Delaware, United States
Deutsche Bank Securities Inc. ⁴	Delaware, United States
Deutsche Bank Trust Corporation ⁵	New York, United States
Deutsche Bank Trust Company Americas ⁶	New York, United States
Deutsche Bank Luxembourg S.A. ⁷	Luxembourg
DB Privat- und Firmenkundenbank AG ⁸	Frankfurt am Main, Germany
DB Beteiligungs-Holding GmbH ⁹	Frankfurt am Main, Germany
DWS Group GmbH & Co. KGaA ¹⁰	Frankfurt am Main, Germany

¹ DB USA Corporation is the top-level holding company for our subsidiaries in the United States.

² Deutsche Bank Americas Holding Corporation is a second tier holding company for subsidiaries in the United States.

³ DB U.S. Financial Markets Holding Corporation is a second tier holding company for subsidiaries in the United States.

⁴ Deutsche Bank Securities Inc. is a U.S. company registered as a broker dealer and investment advisor with the Securities and Exchange Commission and as a futures commission merchant with the Commodities Futures Trading Commission.

⁵ Deutsche Bank Trust Corporation is a bank holding company under Federal Reserve Board regulations.

⁶ Deutsche Bank Trust Company Americas is a New York State-chartered bank and member of the Federal Reserve System. It originates loans and other forms of credit, accepts deposits, arranges financings and provides numerous other commercial banking and financial services.

⁷ The company's primary business model comprises loan business with international clients (Corporate Bank & Investment Bank), where the bank acts globally as lending office and as risk transfer hub for the Credit Portfolio Strategies Group of Deutsche Bank, as well as structured finance activities covering long-term infrastructure projects and high quality investment goods. Furthermore, the bank offers tailor-made solutions with a wide range of products and services to their Wealth Management clients.

⁸ The company serves private individuals, affluent clients as well as small and medium sized corporate clients with banking products.

⁹ The company holds the majority stake in DWS Group GmbH & Co. KGaA.

¹⁰ The company is a partnership limited by shares (Kommanditgesellschaft auf Aktien) with a German limited liability company (Gesellschaft mit beschränkter Haftung) as a general partner. The business purpose of the company is the holding of participations in as well as the management and support of a group of financial services providers. Following the public listing on March 23, 2018 on the Frankfurt Stock Exchange Deutsche Bank Group owns 79.49 % of equity and voting interests in the entity.

Property and Equipment

As of December 31, 2019, we operated in 59 countries out of 1,931 branches around the world, of which 69 % were in Germany. We lease a majority of our offices and branches under long-term agreements.

We continue to review our property requirements worldwide taking into account cost containment measures as well as growth initiatives in selected businesses. Please see Note 21 "Property and Equipment" to the consolidated financial statements for further information.

Information Required by Industry Guide 3

Please see pages S-1 through S-19 of the Supplemental Financial Information, which pages are incorporated by reference herein, for information required by SEC Industry Guide 3.

Item 4A: Unresolved Staff Comments

We have not received written comments from the Securities and Exchange Commission regarding our periodic reports under the Exchange Act, as of any day 180 days or more before the end of the fiscal year to which this annual report relates, which remain unresolved.

Item 5: Operating and Financial Review and Prospects

Overview

The following discussion and analysis should be read in conjunction with the consolidated financial statements and the related notes to them included in “Item 18: Financial Statements” of this document, on which we have based this discussion and analysis.

We have prepared our consolidated financial statements in accordance with IFRS as issued by the International Accounting Standards Board (“IASB”) and as endorsed by the European Union (“EU”).

Significant Accounting Policies and Critical Accounting Estimates

Our significant accounting policies are essential to understanding our reported results of operations and financial condition. Certain of these accounting policies require critical accounting estimates that involve complex and subjective judgments and the use of assumptions, some of which may be for matters that are inherently uncertain and susceptible to change. Such critical accounting estimates could change from period to period and have a material impact on our financial condition, changes in financial condition or results of operations. Critical accounting estimates could also involve estimates where management could have reasonably used another estimate in the current accounting period. Actual results may differ from these estimates if conditions or underlying circumstances were to change. See Note 1 “Significant Accounting Policies and Critical Accounting Estimates” to the consolidated financial statements for a discussion on our significant accounting policies and critical accounting estimates.

We have identified the following significant accounting policies that involve critical accounting estimates:

- the impairment of associates
- the impairment of financial assets available for sale (under IAS 39 only)
- the impairment of financial assets classified as fair value through other comprehensive income (under IFRS 9 only)
- the determination of fair value
- the recognition of trade date profit
- the impairment of loans and provisions for off-balance sheet positions
- the impairment of goodwill and other intangibles
- the recognition and measurement of deferred tax assets
- the accounting for legal and regulatory contingencies and uncertain tax positions

Recently Adopted Accounting Pronouncements and New Accounting Pronouncements

See Note 2 “Recently Adopted and New Accounting Pronouncements” to the consolidated financial statements for a discussion on our recently adopted and new accounting pronouncements.

Recent developments on Interest Rate Benchmark Reform

Benchmark interest rates such as the London Inter-bank Offered Rate (LIBOR) have come under criticism in recent years due to claims of market manipulation. At the same time, banks have increasingly withdrawn from the unsecured short-term financing market, which has been the source of the rates used in the submissions to generate the benchmark interest rates. As a result, IBOR reform projects were launched in 2012, which, with several parallel initiatives by supranational bodies (G20, FSB) and central banks working groups, aim to create alternative and robust benchmark interest rates.

The transition from LIBOR is highly complex and will continue to require close collaboration between regulators, central banks and a wide range of market participants. Significant change effort is required, specifically in relation to risk-free rates (RFR) product development, client legal documentation, upgrades and infrastructure changes including to systems, processes and models across Front-Office, Operations, Finance, Risk and Treasury functions. There are also key external dependencies on achieving industry and client consensus on standards and conventions, timing and sequencing of transition, the creation of term versions of the RFRs and amendments of existing client contracts. Deutsche Bank has performed a risk assessment associated with IBOR transition and these factors have been considered as part of the assessment. We will continue to drive and follow industry wide solutions as they develop and as they are relevant to our business.

Deutsche Bank has established a Group-wide IBOR & EU BMR transition program, aimed at managing a smooth transition from LIBOR and other IBORs to the new RFRs. The program was established in 2018, is sponsored by the Chief Financial Officer and has senior representation from each division, region and infrastructure functions. The program has been focused on identifying and quantifying our exposures to various interest rate benchmarks, providing the capability to trade products referencing alternative RFRs and evaluating our existing contracts that reference IBORs. Efforts also include identifying potential accounting impacts and options to mitigate these impacts, for example, through early adoption of the Phase One IBOR reform amendments issued by the International Accounting Standards Board (IASB).

Deutsche Bank has significant exposure to IBORs predominantly in financial instruments and many of these contracts mature after 2021. Our exposures result from derivatives Deutsche Bank enters into in order to make markets for our clients and hedge our risks as well as from loans and deposits, bonds and securitizations. Additionally, we have exposure to IBOR performance/risk benchmarks.

Our core planning for LIBOR transition assumes a base case scenario of LIBOR cessation by end of 2021 with sufficient market adoption of RFRs to provide a viable replacement. There are a number of dependencies within this scenario that are outside of our control, creating significant uncertainty.

As part of the program, we have undertaken a comprehensive risk assessment which is regularly refreshed and have identified key inherent risks and mitigating actions. Our key risks include business strategic risk, liquidity risk, market risk, client focused activity risk, market focused activity risk, legal risk, accounting, financial reporting and tax risk, information security and technology risk, transaction processing and model risk. A conduct risk assessment for key businesses has been completed, and will be refreshed periodically. The legal risk assessment has identified various litigation, legal and fallback risks. We have assessed the financial risk arising from changes in the valuation of financial instruments linked to RFRs, earnings volatility resulting from contract modifications and changes in hedge accounting. Furthermore, an assessment of systems, processes and vendor arrangements impacted by LIBOR has also been conducted. We have identified a number of mitigating actions to manage these risks including but not limited to amending contracts and developing appropriate disclosures for customers, enhancing our infrastructure to further support RFR issued products, using advocacy channels for hedge accounting, modification and tax relief, and performing reviews of existing trades. Where possible, Deutsche Bank is proactively using the most effective fallback language available when conducting new transactions. We intend to continue to develop infrastructure improvements and assess potential transition risk impacts alongside relevant stress scenarios.

Operating Results

You should read the following discussion and analysis in conjunction with our consolidated financial statements.

Executive Summary

Please see “Management Report: Operating and Financial Review: Executive Summary” in the Annual Report 2019.

Trends and Uncertainties

For insight into the trends impacting our performance please see the “Management Report: Operating and Financial Review” section of the Annual Report 2019. Key risks and uncertainties for the Bank are discussed in “Item 3: Key Information – Risk Factors”.

The Bank’s future performance and the implementation of our strategic goals could be influenced by a number of uncertainties. Challenges may arise from sustained market volatility, increasing competitive pressures, potential deterioration of international trade relations, weakness of global, regional and national economic conditions and political instability in key markets.

In addition, regulatory, tax and supervisory requirements continue to evolve. Regulatory changes have and may continue to increase our costs, restrict our operations, or require structural change, which could put pressure on our capital position. In addition, we are involved in litigation, tax examinations, arbitration and regulatory proceedings and investigations in Germany and in a number of jurisdictions outside Germany, especially in the U.S. Such matters are subject to many uncertainties.

While we seek to achieve efficiencies in our operations, the realization of planned savings are dependent on the successful and timely implementation of our updated strategy measures. The benefits, costs and timeframe of the implementation of our strategy could be adversely affected by unforeseen difficulties in the implementation process as well as factors beyond our control, such as negative market developments.

Risks to our Corporate Bank (CB) outlook include potential impacts on our business model from macro and global geopolitical uncertainty, including COVID 19 and a potential deterioration of international trade relations. In addition, uncertainty around central bank policies, ongoing regulatory developments (e.g. IBOR transition and the finalization of Basel III framework), event risks and levels of client activity may also have an adverse impact.

Risks to our Investment Bank (IB) outlook include potential impacts on our business model from COVID 19, trade negotiations relating to Brexit and other macro and global geopolitical uncertainty. Risks regarding a potential deterioration of international trade relations cause further concerns. Uncertainty around central bank policies and ongoing regulatory developments also pose risks, while challenges such as event risks and levels of client activity may also have an adverse impact.

Risks to our Private Bank (PB) outlook include increasing pressure on interest rates in the Eurozone, slower economic growth in our major operating countries and lower client activity in the investment business. Client activity could be affected by adverse developments or market uncertainties including from COVID 19, higher than expected volatility in equity and credit markets. The implementation of regulatory requirements including consumer protection measures and delays in the implementation of our strategic projects could also have a negative impact on our revenues and costs.

Risks to our Asset Management (AM) outlook include potential impacts from COVID 19 to our business model, continued low interest rates in industrialized countries’ markets, the pace of growth in emerging economies and increase in wealth, as well as the increasing demand for retirement products in industrialized countries for aging populations. Continued elevated levels of political uncertainty worldwide, protectionist and anti-trade policies, could have unpredictable consequences in the economy, market volatility and investors’ confidence, which may lead to declines in business and could affect our revenues and profits as well as the execution of our strategic plans. In addition, the evolving regulatory framework could lead to unforeseen regulatory compliance costs and possible delays in the implementation of our efficiency measures due to jurisdictional restrictions, which could have an adverse impact on our cost base.

Risks to our Capital Release Unit (CRU) outlook include that the speed and cost of our asset reductions could be affected by adverse developments or market uncertainties, including from COVID 19, higher than expected volatility in equity and credit markets and lack of counterparty appetite. Delays to the implementation of our expense management initiatives could have an adverse impact on our cost base.

Performance in Corporate & Other is impacted by valuation and timing differences from different accounting methods used for management reporting and IFRS, plus unallocated items including one-offs which are not business specific, infrastructure expenses associated with shareholder activities as defined in the OECD Transfer Pricing Guidelines and costs held centrally as part of our new funds transfer pricing framework. Corporate & Other will continue to be impacted by any difference between planned and actual allocations as Infrastructure expenses are allocated to the corporate divisions based on the planned allocations as well as the reversal of non-controlling interests, mainly related to DWS, which are deducted from profit or loss before tax of the divisions. We still expect volatility from these items in our future results.

Our effective tax rate was primarily impacted by changes in the recognition and measurement of deferred tax assets and non deductible goodwill impairments. Going forward these items may continue to impact our effective tax rate depending upon our performance. The effective tax rate in future periods may also be influenced by changes in tax laws or interpretative guidance, the occurrence of non-tax deductible litigation and other charges, or the resolution of tax examinations and investigations.

Results of Operations

Please see “Management Report: Operating and Financial Review: Results of Operations” in the Annual Report 2019 and our discussion of Non-GAAP financial measures in the “Supplementary Information (Unaudited): Non-GAAP Financial Measures”.

Financial Position

Please see “Management Report: Operating and Financial Review: Financial Position” in the Annual Report 2019.

Liquidity and Capital Resources

For a detailed discussion of our liquidity risk management, see “Management Report: Risk Report: Liquidity Risk” in the Annual Report 2019.

For a detailed discussion of our capital management, see “Management Report: Risk Report: Capital Management” in the Annual Report 2019.

Post-Employment Benefit Plans

Please see “Management Report: Employees: Post-Employment Benefit Plans” in the Annual Report 2019.

Off-Balance Sheet Arrangements

For information on the nature, purpose and extent of our off-balance sheet arrangements, please see Note 38 “Structured Entities” to the consolidated financial statements. For further information on off-balance sheet arrangements, including allowances for off-balance sheet positions, please refer to “Management Report: Risk Report: Asset Quality: Allowance for Credit Losses” in the Annual Report 2019 and Note 19 “Allowance for Credit Losses” to the consolidated financial statements. For information on irrevocable lending commitments and contingent liabilities with respect to third parties, please see Note 28 “Credit related Commitments” to the consolidated financial statements.

Tabular Disclosure of Contractual Obligations

Please see “Management Report: Operating and Financial Review: Tabular Disclosure of Contractual Obligations” in the Annual Report 2019.

Research and Development, Patents and Licenses

Not applicable.

Item 6: Directors, Senior Management and Employees

Directors and Senior Management

In accordance with the German Stock Corporation Act (Aktiengesetz), we have a Management Board (Vorstand) and a Supervisory Board (Aufsichtsrat). The German Stock Corporation Act prohibits simultaneous membership on both the Management Board and the Supervisory Board. The members of the Management Board are the executive officers of our company. The Management Board is responsible for managing our company and representing us in dealings with third parties. The Supervisory Board oversees the Management Board, appoints and removes its members and determines their remuneration and other compensation components, including pension benefits. According to German law, our Supervisory Board represents us in dealings with members of the Management Board. Therefore, no members of the Management Board may enter into any agreement with us without the prior consent of our Supervisory Board.

German law does not require the members of the Management Board nor the members of the Supervisory Board to own any of our shares to be qualified. In addition, German law has no requirement that members of the Management Board retire based on an age limit. However, age limits for members of the Management Board are defined contractually. Age limits also exist for the members of the Supervisory Board according to the Terms of Reference (Geschäftsordnung) for our Supervisory Board. There is a maximum age limit of 70 years for members of the Supervisory Board. In exceptional cases, a Supervisory Board member can be elected or appointed for a period that extends no longer than until the end of the fourth Ordinary General Meeting that takes place after he/she has turned the age of 70.

The Supervisory Board may not make management decisions. However, German law and our Articles of Association (Satzung) require the Management Board to obtain the approval of the Supervisory Board for certain actions. The most important of these actions are:

- granting of general powers of attorney (Generalvollmachten). A general power of attorney authorizes its holder to represent the company in substantially all legal matters without limitation to the affairs of a specific office;
- acquisitions and disposals (including transactions carried out by a dependent company) of real estate in so far as the object involves more than € 500,000,000;
- granting of credits, including the acquisition of participations in other companies, where the German Banking Act (Kreditwesengesetz) requires approval by the Supervisory Board. In particular, pursuant to the German Banking Act, it requires inter alia the approval of the Supervisory Board if we grant a loan (to the extent legally permissible) to a member of the Management Board or the Supervisory Board or one of our employees who holds a procuracy (Prokura) or general power of attorney; and
- acquisitions and disposals (including transactions carried out by a dependent company) of other participations, insofar as the object involves more than € 1 billion. The Supervisory Board must be informed without delay of any acquisition or disposal of such participations involving more than € 500,000,000.

The Management Board must submit regular reports or ad-hoc reports, as the case may be, to the Supervisory Board on our current operations and future business planning as well as on our risk situation. The Supervisory Board may also request special reports from the Management Board at any time.

With respect to voting powers, a member of the Supervisory Board or the Management Board may not vote on resolutions open to a vote at a board meeting if the proposed resolution concerns:

- a legal transaction between us and the respective member; or
- commencement, settlement or completion of legal proceedings between us and the respective member.

A member of the Supervisory Board or the Management Board may not directly or indirectly exercise voting rights on resolutions open to a vote at a shareholders' meeting (Hauptversammlung, which we refer to as the General Meeting) if the proposed resolution concerns:

- ratification of the member's acts;
- a discharge of liability of the member; or
- enforcement of a claim against the member by us.

Supervisory Board and Management Board

In carrying out their duties, members of both the Management Board and Supervisory Board must exercise the standard of care of a prudent and diligent business person, and they are liable to us for damages if they fail to do so.

The liability of the members of the Management Board or the Supervisory Board under the German Stock Corporation Act for breach of their fiduciary duties is to the company rather than individual shareholders. However, individual shareholders that hold at least 1 % or € 100,000 of the subscribed capital and are granted standing by the court may also invoke such liability to the company. The underlying concept is that all shareholders should benefit equally from amounts received under this liability by adding such amounts to the company's assets rather than disbursing them to plaintiff shareholders. We may waive the right to claim damages or settle these claims if at least three years have passed since the alleged breach and if the shareholders approve the waiver or settlement at the General Meeting with a simple majority of the votes cast, and provided that opposing shareholders do not hold, in the aggregate, one tenth or more of our share capital and do not have their opposition formally noted in the minutes maintained by a German notary.

Supervisory Board

Our Articles of Association require our Supervisory Board to have twenty members. In the event that the number of members on our Supervisory Board falls below twenty and remains below twenty for more than three months or falls below ten, upon application to a competent court, the court must appoint replacement members to serve on the board until official appointments are made.

The German Co-Determination Act of 1976 (Mitbestimmungsgesetz) requires that the shareholders elect half of the members of the supervisory board of large German companies, such as Deutsche Bank, and that employees in Germany elect the other half. None of the current members of either of our boards were selected pursuant to any arrangement or understandings with major shareholders, customers or others.

Each member of the Supervisory Board generally serves for a fixed term of approximately five years. For the election of shareholder representatives, the General Meeting may establish that the terms of office of up to five members may begin or end on differing dates. Pursuant to German law, the term expires at the latest at the end of the Annual General Meeting that approves and ratifies such member's actions in the fourth fiscal year after the year in which the Supervisory Board member was elected. Supervisory Board members may also be re-elected. The shareholders may, by a majority of the votes cast in a General Meeting, remove any member of the Supervisory Board they have elected in a General Meeting. The employees may remove any member they have elected by a vote of three-quarters of the employee votes cast.

The members of the Supervisory Board elect the chairperson and the deputy chairperson of the Supervisory Board. Traditionally, the chairperson is a representative of the shareholders, and the deputy chairperson is a representative of the employees. At least half of the members of the Supervisory Board must be present at a meeting or must have submitted their vote in writing to constitute a quorum. In general, approval by a simple majority of the members of the Supervisory Board present and voting is required to pass a resolution. In the case of a deadlock, the resolution is put to a second vote. In the case of a second deadlock, the chairperson has the deciding vote.

For additional information on our Supervisory Board, including a table providing the names of and biographical information for the current members, see "Corporate Governance Statement/Corporate Governance Report: Management Board and Supervisory Board: Supervisory Board" in the Annual Report 2019.

On March 11, 2020, Sigmar Gabriel became a member of the Supervisory Board by way of court appointment until the end of the next Ordinary General Meeting. Mr. Gabriel (born 1959), who resides in Goslar, Germany, is a former German federal government minister and former deputy federal chancellor ("Vizekanzler"). He is a member of the supervisory board of PG Günter Papenburg AG. Sigmar Gabriel has been classified as an independent member and has joined the Integrity Committee of our Supervisory Board, where he succeeded Katherine Garrett-Cox.

Standing Committees

For information on the standing committees of our Supervisory Board, please see "Corporate Governance Statement/Corporate Governance Report: Management Board and Supervisory Board: Standing Committees" in the Annual Report 2019.

The business address of the members of the Supervisory Board is the same as our business address, Taunusanlage 12, 60325 Frankfurt am Main, Germany.

Management Board

Our Articles of Association require the Management Board to have at least three members. Our Management Board currently has nine members. The Supervisory Board has also appointed a Chairman (CEO) and one Deputy Chairman (President) of the Management Board.

The Supervisory Board appoints the members of the Management Board for a maximum term of five years and oversees them. They may be re-appointed or have their term extended for one or more terms of up to a maximum of five years each. The Supervisory Board may remove a member of the Management Board prior to the expiration of his or her term for good cause.

Pursuant to our Articles of Association, two members of the Management Board, or one member of the Management Board together with a holder of procuration, may represent us for legal purposes. A holder of procuration is an attorney-in-fact who holds a legally defined power under German law, which cannot be restricted with respect to third parties. However, pursuant to German law, the Management Board itself must resolve on certain matters as a whole and may not delegate the decision to one or more individual members. In particular, it may not delegate the determination of our business and risk strategies, and the coordinating or controlling responsibilities. The Management Board is required to ensure that shareholders are treated on an equal basis and receive equal information. The Management Board is also responsible for ensuring our proper business organization, which includes appropriate and effective risk management as well as compliance with legal requirements and internal guidelines, and for taking the necessary measures to ensure that adequate internal guidelines are developed and implemented.

Other selected responsibilities of the Management Board in accordance with the Terms of Reference for the Management Board and/or German law are:

- appointing key personnel at the level directly below the Management Board, in particular, appointing the Global Key Function Holders employed by us;
- making decisions regarding significant credit exposures or other risks which have not been delegated to individual risk management units;
- acquisition and disposal of equity investments, including capital measures in all cases in which (i) the law or our Articles of Association require approval by the Supervisory Board, or (ii) the equivalent of € 100 million is exceeded;
- acquisition and disposal of real estate – directly or by separate legal entities – in all cases in which: (i) the law or our Articles of Association require approval by the Supervisory Board, or (ii) the real estate's equivalent exceeds € 100 million;
- individual vendor or intra Group-outsourcings (or material changes to those outsourcings) in all cases in which the equivalent of € 100 million is exceeded on an annual basis or include the delegation of core organizational duties of the Management Board;
- calling shareholders' meetings;
- filing petitions to set aside shareholders' resolutions;
- preparing and executing shareholders' resolutions; and
- reporting to the Supervisory Board.

For additional information on our Management Board, including the names of and biographical information for the current members, see "Corporate Governance Statement/Corporate Governance Report: Management Board and Supervisory Board: Management Board" in the Annual Report 2019. The Terms of Reference of the Management Board are published on our website www.db.com/ir/en/documents.htm.

Board Practices of the Management Board

The Terms of Reference for the Management Board are in accordance with the Supervisory Board resolution of July 7, 2019. These Terms of Reference provide that the members of the Management Board have the collective responsibility for managing Deutsche Bank. Notwithstanding this principle, the allocation of functional responsibilities to the individual members of the Management Board and their substitution (in case of temporary absence) are set out in the business allocation plan for the Management Board in accordance with the Supervisory Board resolution of January 29, 2020. The allocation of functional responsibilities does not exempt any member of the Management Board from collective responsibility for the management of the business. The members of the Management Board are responsible for the proper performance and/or delegation of their duties and the clear allocation of accountabilities and responsibilities within the area of own functional responsibility (so-called "Ressort") in accordance with the business allocation plan.

Members of the Management Board are bound to the corporate interest of Deutsche Bank. No member of the Management Board may pursue personal interests in his/her decisions or use business opportunities intended for the company for himself/herself. As permitted by German law, individual members of the Management Board may exercise Deutsche Bank Group-external mandates, honorary offices or special assignments. In order to effectively prevent any conflicts of interest, the members of the Management Board may accept such activities only upon the approval of the other members of the Management Board and the Chairman's Committee of the Supervisory Board. Management Board members generally do not accept the chair of supervisory boards of Group-external companies.

Section 161 of the German Stock Corporation Act requires that the management board and supervisory board of any German stock exchange-listed company declare annually that the company complies with the recommendations of the German Corporate Governance Code or, if not, which recommendations the company does not comply with (so-called "comply or explain"-principle). On some points, these recommendations go beyond the requirements of the German Stock Corporation Act. The Management Board and Supervisory Board issued a new Declaration of Conformity in accordance with Section 161 of the German Stock Corporation Act on October 30, 2019, which is available on our internet website at www.db.com/ir/en/documents.htm under the heading "Declaration of Conformity pursuant to Section 161 German Stock Corporation Act (AktG), Oct 2019".

For information on the Management Board's terms of office, please see "Corporate Governance Statement/Corporate Governance Report: Management Board and Supervisory Board: Management Board" in the Annual Report 2019. For details of the Management Board's service contracts providing benefits upon termination, please see "Compensation Report: Pension Benefits" and "Compensation Report: Other Benefits upon Early Termination" in the Management Report of the Annual Report 2019.

The allocation of functional responsibilities to the individual members of the Management Board is described in the Business Allocation Plan for the Management Board, which sets the framework for the delegation of responsibilities to senior management below the Management Board. The Management Board endorses individual accountability of senior position holders as opposed to joint decision-taking in committees. At the same time, the Management Board recognizes the importance of having comprehensive and robust information across all businesses in order to take well informed decisions and established, in addition to Infrastructure Committees, Business Executive Committees and Regional Committees, the "Group Management Committee" which aims to improve the information flow across the corporate divisions and between the Corporate Divisions and the Management Board. The Group Management Committee as a senior platform, which is not required by the German Stock Corporation Act, is composed of all Management Board members as well as most senior business representatives to exchange information and discuss business, growth and profitability.

Compensation

For information on the compensation of the members of our Management Board, see "Management Report: Compensation Report: Management Board Compensation Report" in the Annual Report 2019.

For information on the compensation of the members of our Employees, see "Management Report: Compensation Report: Employee Compensation Report" in the Annual Report 2019.

For information on the compensation of the members of our Supervisory Board, see "Management Report: Compensation Report: Compensation System for Supervisory Board Members" in the Annual Report 2019.

Employees

Labor Relations

In Germany, labor unions and employers' associations generally negotiate collective bargaining agreements on salaries and benefits for employees below the management level. Many companies in Germany, including ourselves and our material German subsidiaries, are members of employers' associations and are bound by collective bargaining agreements.

Accordingly, our employers' association, the "Arbeitgeberverband des privaten Bankgewerbes e.V.", regularly renegotiates the collective bargaining agreements that cover many of our employees. The current agreement reached in July 2019. As part of the final package, salaries will increase in two stages by a total of 4.0 %: 2.0 % from September 2019 and a further 2.0 % from November 2020. In addition to salary increases, the final result also includes new collective bargaining agreements on qualification, working hours, training and prevention as well as the start of a further modernisation of the collective bargaining agreements. The existing collective bargaining agreement lasts until end of June 2021.

Our employers' association negotiates with the following unions:

- ver.di (Vereinigte Dienstleistungsgewerkschaft), a union formed in July 2001 resulting from the merger of five unions, including the former bank unions Deutsche Angestellten Gewerkschaft and Gewerkschaft Handel, Banken und Versicherungen;
- Deutscher Bankangestellten Verband (DBV – Gewerkschaft der Finanzdienstleister);
- Deutscher Handels- und Industrieangestellten Verband (DHV – Die Berufsgewerkschaft).

As German law prohibits us from asking our employees whether they are members of labor unions, there is no record of how many of the bank's employees are union members.

On the basis of the agreement on cross-border information and consultation of Deutsche Bank employees in the EU concluded on September 10, 1996, all employees in the EU are represented by the European Works Council. This amounts to around two thirds of the Group's total workforce.

As of December 31, 2019, 30 % of former Postbank staff members in Germany are civil servants (full-time equivalent basis), compared to 31 % as of December 31, 2018.

For further information on our employees, see "Management Report: Employees" in the Annual Report 2019.

Share Ownership

For the share ownership of the Management Board, see "Management Report: Compensation Report: Management Board Share Ownership" in the Annual Report 2019.

For the share ownership of the members of the Supervisory Board, see "Corporate Governance Statement/Corporate Governance Report: Reporting and Transparency: Directors' Share Ownership" in the Annual Report 2019.

For a description of our employee share programs, please see Note 33 "Employee Benefits" to the consolidated financial statements.

Item 7: Major Shareholders and Related Party Transactions

Major Shareholders

On December 31, 2019, our issued share capital amounted to €5,290,939,215.36 divided into 2,066,773,131 no par value ordinary registered shares.

On December 31, 2019, we had 644,906 registered shareholders. 969,097,871 of our shares were registered in the names of 632,984 shareholders resident in Germany, representing 46.89 % of our share capital. 359,339,187 of our shares were registered in the names of 631 shareholders resident in the United States, representing 17.39 % of our share capital.

The German Securities Trading Act (Wertpapierhandelsgesetz) requires investors in publicly-traded corporations whose investments reach certain thresholds to notify both the corporation and the BaFin of such change within four trading days. The minimum disclosure threshold is 3 % of the corporation's issued voting share capital.

BlackRock, Inc., Wilmington, DE, has notified us that as of February 13, 2020 it held 4.19 % of our shares. We have received no further notification by BlackRock, Inc., Wilmington, DE, through March 4, 2020.

Douglas L. Braunstein (Hudson Executive Capital LP), has notified us that as of October 31, 2018 he held 3.14 % of our shares. We have received no further notification by Douglas L. Braunstein (Hudson Executive Capital LP), through March 4, 2020.

The Capital Group Companies, Inc., Los Angeles, California, has notified us that as of January 31, 2020 it held 3.10 % of our shares. We have received no further notification by The Capital Group Companies, Inc., Los Angeles, California, through March 4, 2020.

Paramount Services Holdings Ltd., British Virgin Islands, has notified us that as of August 20, 2015 it held 3.05 % of our shares. We have received no further notification by Paramount Services Holdings Ltd., British Virgin Islands, through March 4, 2020.

Supreme Universal Holdings Ltd., Cayman Islands, has notified us that as of August 20, 2015 it held 3.05 % of our shares. We have received no further notification by Supreme Universal Holdings Ltd., Cayman Islands, through March 4, 2020.

Stephen A. Feinberg (Cerberus), has notified us that as of November 14, 2017 he held 3.001 % of our shares. We have received no further notification by Stephen A. Feinberg (Cerberus), through March 4, 2020.

We are neither directly nor indirectly owned nor controlled by any other corporation, by any government or by any other natural or legal person severally or jointly.

Pursuant to German law and our Articles of Association, to the extent that we may have major shareholders at any time, we may not give them different voting rights from any of our other shareholders.

We are aware of no arrangements which may at a subsequent date result in a change in control of our company.

Related Party Transactions

We have business relationships with a number of the companies in which we own significant equity interests. We also have business relationships with a number of companies where members of our Management Board also hold positions on boards of directors. Our business relationships with these companies cover many of the financial services we provide to our clients generally. For more detailed information, refer to Note 36 “Related Party Transactions” to the consolidated financial statements.

We conduct our business with these companies on terms equivalent to those that would prevail if we did not have equity holdings in them or management members in common, and we have conducted business with these companies on that basis in 2019 and prior years. None of these transactions is or was material to us.

Among our business with related party companies in 2019, there have been and currently are loans, guarantees and commitments, which totaled € 199 million (including loans amounting to € 187 million) as of December 31, 2019, compared to € 189 million (including loans amounting to € 186 million) as of December 31, 2018.

All these credit exposures

- were made in the ordinary course of business,
- were made on substantially the same terms, including interest rates and collateral, as those prevailing at the time for comparable transactions with other persons, and
- did not involve more than the normal risk of collectability or present other unfavorable features compared to loans to nonrelated parties at their initiation.

Related Party Impaired Loans

In addition to our other shareholdings, we hold acquired equity interests in some of our clients arising from our efforts to protect our then-outstanding lending exposures to them.

Impaired loans to related parties which may exhibit more than normal risk of collectability or present other unfavorable features compared to performing loans to related parties increased by € 1 million to € 11 million, from December 31, 2018. The following table presents an overview of the impaired loans we hold of our related parties as of December 31, 2019.

in € m.	Amount outstanding as of December 31, 2019	Largest amount outstanding January 1, to December 31, 2019	Provision for loan losses in 2019 ¹	Allowance for loan losses as of December 31, 2019 ¹	Nature of the loan and transaction in which incurred
Customer A	11	11	0 ²	11	Company was put into a court-supervised debt moratorium process in 2016. This triggered a debt to equity swap for 70% of our loans and a € 25 million write-off in 2017. According to the proposed investor plan no payments are expected until 2022.
Total	11	11	0	11	

¹ The allowance for loan losses is calculated by subtracting the net present value of future expected cash flows from the current outstanding. The year-end balance of the loan loss allowance is in most cases lower than the amount of provision for credit losses required for the recognition due to unwinding effects based upon passage of time which are recognized in interest income.

² Provision of € 0.3 million in 2019 mainly driven by FX effect of € 0.4 million.

In the above table, customer A is a company in which we hold a minority share and which is not consolidated at equity.

We have not disclosed the name of the related party customer described above because we have concluded that such disclosure would violate applicable privacy laws, such as customer confidentiality and data protection laws, and this customer has not waived application of these privacy laws. A legal opinion regarding the applicable privacy laws is filed as Exhibit 14.1 hereto.

Interests of Experts and Counsel

Not required because this document is filed as an annual report.

Item 8: Financial Information

Consolidated Statements and Other Financial Information

Consolidated Financial Statements

The Financial Statements of this Annual Report on Form 20-F consist of the Consolidated Financial Statements including Notes 1 to 44 thereto, which are set forth as Part 2 of the Annual Report 2019, and, as described in Note 1 “Significant Accounting Policies and Critical Accounting Estimates” thereto in the third paragraph under “Basis of Accounting”, certain parts of the Management Report set forth as Part 1 of the Annual Report 2019. Such Consolidated Financial Statements have been audited by KPMG AG Wirtschaftsprüfungsgesellschaft, as described in their “Report of Independent Registered Public Accounting Firm” included in the Annual Report 2019.

Legal Proceedings

General. We and our subsidiaries operate in a legal and regulatory environment that exposes us to significant litigation risks. As a result, we are involved in litigation, arbitration and regulatory proceedings and investigations in Germany and in a number of jurisdictions outside Germany, including the United States. Please refer to Note 27 “Provisions” to the Consolidated Financial Statements for descriptions of certain significant legal proceedings. Additional legal proceedings that may have, or have had in the recent past, significant effects on our financial position or profitability are described below.

Bank Bill Swap Rate Claims. On August 16, 2016, a putative class action was filed in the US District Court for the Southern District of New York against Deutsche Bank and other defendants, bringing claims based on alleged collusion and manipulation in connection with the Australian Bank Bill Swap Rate (“BBSW”) on behalf of persons and entities that engaged in US-based transactions in BBSW-linked financial instruments from 2003 through the date on which the effects of the alleged unlawful conduct ceased. The complaint alleged that the defendants, among other things, engaged in money market transactions intended to influence the BBSW fixing, made false BBSW submissions, and used their control over BBSW rules to further the alleged misconduct. An amended complaint was filed on December 16, 2016. On November 26, 2018, the court partially granted defendants’ motions to dismiss the amended complaint, dismissing all claims against Deutsche Bank. On April 3, 2019, the plaintiffs filed a second amended complaint, which the defendants moved to dismiss. On February 13, 2020, the court partially granted the motion to dismiss the second amended complaint, with certain claims against Deutsche Bank remaining.

Challenge of the General Meeting’s Resolution Not to Pay a Dividend for the 2015 Fiscal Year. In May 2016, Deutsche Bank AG’s General Meeting resolved that no dividend was to be paid to Deutsche Bank’s shareholders for the 2015 fiscal year. Some shareholders filed a lawsuit with the Regional Court Frankfurt am Main (Landgericht), challenging (among other things) the resolution on the grounds that Deutsche Bank was required by law to pay a minimum dividend in an amount equal to 4 % of Deutsche Bank’s share capital. In December 2016, the Regional Court ruled in favor of the plaintiffs. Deutsche Bank initially appealed the court’s decision. However, consistent with Deutsche Bank’s updated strategy, Deutsche Bank withdrew its appeal prior to Deutsche Bank’s 2017 General Meeting, as a result of which the challenged resolution became void. Deutsche Bank’s General Meeting in May 2017 resolved the payment of a dividend of approximately € 400 million from Deutsche Bank’s distributable profit for 2016 which amount contained a component reflecting the distributable profit carried forward from 2015 of approximately € 165 million. Such dividend was paid to the shareholders shortly after the annual General Meeting. The resolution was also challenged in court based on the argument that the way the decision was taken was not correct. On January 18, 2018, the Regional Court Frankfurt am Main dismissed the shareholder actions as regards the dividend resolution taken in May 2017. The plaintiffs appealed to the Higher Regional Court Frankfurt am Main. On March 26, 2019, the Higher Regional Court Frankfurt am Main confirmed the decision of the Regional Court and dismissed the appeal. The plaintiffs filed an appeal against the denial of leave to appeal with the Federal Supreme Court.

CO2 Emission Rights. The Frankfurt am Main Office of Public Prosecution (the “OPP”) has investigated alleged value-added tax (VAT) fraud in connection with the trading of CO2 emission rights by certain trading firms, some of which also engaged in trading activity with Deutsche Bank. The OPP alleges that certain employees of Deutsche Bank knew that their counterparties were part of a fraudulent scheme to avoid VAT on transactions in CO2 emission rights, and it searched Deutsche Bank in April 2010 and December 2012.

On June 13, 2016, the Regional Court Frankfurt am Main sentenced seven former Deutsche Bank employees for VAT evasion and for aiding and abetting VAT evasion in connection with their involvement in CO2 emissions trading. On May 15, 2018, the Federal Supreme Court (*Bundesgerichtshof*) handed down its decision in the appeal proceedings. The Federal Supreme Court partly granted the appeal of one former employee and referred the case back to the trial court, which closed the case against payment of the fine in August 2019. In relation to the other cases where appeal proceedings were pending, the Federal Supreme Court confirmed the trial court’s judgment, which meant that the judgment became final and binding and the cases are closed. The majority of the other investigations by the OPP against former and current employees which were ongoing have meanwhile been closed. Investigations remain ongoing against one current employee and an indictment was filed against one former employee in August 2019.

Deutsche Bank Shareholder Litigation. Deutsche Bank and certain of its current and former officers and management board members are the subject of a purported class action, filed in the United States District Court for the Southern District of New York, asserting claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 on behalf of persons who purchased or otherwise acquired securities of Deutsche Bank on a United States exchange or pursuant to other transactions within the United States between March 20, 2017 and May 30, 2018. Plaintiffs alleged that Deutsche Bank’s SEC Annual Reports on Form 20-F for the years 2016 and 2017 and its quarterly interim reports on Form 6-K for calendar 2017 contained materially false and misleading statements regarding its business, operational and compliance policies and internal control environment. On January 25, 2019, the lead plaintiff filed an amended class action complaint. Deutsche Bank moved to dismiss the action. On September 30, 2019, the court granted the motion to dismiss with prejudice as to all defendants and entered judgment dismissing the lawsuit.

Esch Funds Litigation. Prior to its acquisition by Deutsche Bank in 2010, Sal. Oppenheim jr. & Cie. AG & Co. KGaA (“Sal. Oppenheim”) was involved in the marketing and financing of participations in closed end real estate funds. These funds were structured as partnerships under German law. Usually, Josef Esch Fonds-Projekt GmbH carried out the planning and project development in connection with the funds’ investments. Sal. Oppenheim held an indirect interest in this company via a joint-venture. In relation to this business, a number of civil claims were filed against Sal. Oppenheim. Some, but not all, of these claims were also directed against former managing partners of Sal. Oppenheim and other individuals. The investors were seeking to unwind their fund participation and to be indemnified against potential losses incurred in connection with the investment. The claims were based in part, on an alleged failure of Sal. Oppenheim to adequately disclose related risks and other material aspects important for the investors’ investment decision. The claims brought against Sal. Oppenheim related to investments in an amount of originally approximately €1.1 billion. Over the past few years, based on the facts of the individual cases, some courts have decided in favor and some against Sal. Oppenheim, and certain claims have either been dismissed or settled. Claims of approximately €10 million relating to investments in an amount of originally approximately €6 million were pending as of the beginning of 2019, which claims were settled in 2019 for amounts not material to the Bank.

KOSPI Index Unwind Matters. Following the decline of the Korea Composite Stock Price Index 200 (the “KOSPI 200”) in the closing auction on November 11, 2010 by approximately 2.7 %, the Korean Financial Supervisory Service (“FSS”) commenced an investigation and expressed concerns that the fall in the KOSPI 200 was attributable to a sale by Deutsche Bank of a basket of stocks, worth approximately €1.6 billion, that was held as part of an index arbitrage position on the KOSPI 200. On February 23, 2011, the Korean Financial Services Commission, which oversees the work of the FSS, reviewed the FSS’ findings and recommendations and resolved to take the following actions: (i) to file a criminal complaint to the Korean Prosecutor’s Office for alleged market manipulation against five employees of Deutsche Bank group and Deutsche Bank’s subsidiary Deutsche Securities Korea Co. (DSK) for vicarious corporate criminal liability; and (ii) to impose a suspension of six months, commencing April 1, 2011 and ending September 30, 2011, of DSK’s business for proprietary trading of cash equities and listed derivatives and DMA (direct market access) cash equities trading, and the requirement that DSK suspend the employment of one named employee for six months. On August 19, 2011, the Korean Prosecutor’s Office announced its decision to indict DSK and four employees of Deutsche Bank group on charges of spot/futures-linked market manipulation. The criminal trial commenced in January 2012. On January 25, 2016, the Seoul Central District Court rendered guilty verdicts against a DSK trader and DSK. A criminal fine of KRW 1.5 billion (less than €2.0 million) was imposed on DSK. The Court also ordered forfeiture of the profits generated on the underlying trading activity. The Group disgorged the profits on the underlying trading activity in 2011. The criminal trial verdicts against both the DSK trader and against DSK were overturned on appeal in a decision rendered by the Seoul High Court on December 12, 2018. The Korean Prosecutor’s Office has appealed the Seoul High Court decision.

In addition, a number of civil actions have been filed in Korean courts against Deutsche Bank and DSK by certain parties who allege they incurred losses as a consequence of the fall in the KOSPI 200 on November 11, 2010. First instance court decisions were rendered against the Bank and DSK in some of these cases starting in the fourth quarter of 2015. The outstanding claims known to Deutsche Bank have an aggregate claim amount of less than €50 million (at present exchange rates).

Monte Dei Paschi. In March 2013, Banca Monte dei Paschi di Siena (“MPS”) initiated civil proceedings in Italy against Deutsche Bank alleging that Deutsche Bank assisted former MPS senior management in an accounting fraud on MPS, by undertaking repo transactions with MPS and “Santorini”, a wholly owned special-purpose vehicle of MPS, which helped MPS defer losses on a previous transaction undertaken with Deutsche Bank. Subsequently, in July 2013, the Fondazione Monte dei Paschi di Siena (“FMPS”), MPS’ largest shareholder, also commenced civil proceedings in Italy for damages based on substantially the same facts. In December 2013, Deutsche Bank reached an agreement with MPS to settle the civil proceedings and the transactions were unwound. The civil proceedings initiated by FMPS, in which damages of between €220 million and €381 million were claimed, were also settled in December 2018 upon payment by Deutsche Bank of €17.5 million. FMPS’s separate claim filed in July 2014 against FMPS’s former administrators and a syndicate of 12 banks including Deutsche Bank S.p.A. for €286 million continues to be pending before the first instance Florence courts.

A criminal investigation was launched by the Siena Public Prosecutor into the transactions entered into by MPS with Deutsche Bank and certain unrelated transactions entered into by MPS with other parties. Such investigation was moved in summer 2014 from Siena to the Milan Public Prosecutors as a result of a change in the alleged charges being investigated. On February 16, 2016, the Milan Public Prosecutors issued a request of committal to trial against Deutsche Bank and six current and former employees. The committal process concluded with a hearing on October 1, 2016, during which the Milan court committed all defendants in the criminal proceedings to trial. Deutsche Bank’s potential exposure is for administrative liability under Italian Legislative Decree n. 231/2001 and for civil vicarious liability as an employer of current and former Deutsche Bank employees who are being criminally prosecuted.

On November 8, 2019, the Milan court issued its verdicts, finding five former employees and one current employee of Deutsche Bank guilty and sentencing them to either 3 years and 6 months or 4 years and 8 months. Deutsche Bank was found liable under Italian Legislative Decree n. 231/2001 and the court ordered the seizure of alleged profits of €64.9 million and a fine of €3 million. The Court also found Deutsche Bank has civil vicarious liability for damages (to be quantified by the civil court) as an employer of the current and former employees who were convicted. The sentences and fines are not due until the conclusion of any appeal process. The reasons for the verdict are due to be provided in the first week of May 2020 and the parties then have 45 days to file an appeal.

On May 22, 2018, CONSOB, the authority responsible for regulating the Italian financial markets, issued fines of €100,000 each against the six current and former employees of Deutsche Bank who are defendants in the criminal proceedings. The six individuals were also banned from performing management functions in Italy and for Italian based institutions for three to six months each. No separate fine or sanction was imposed on Deutsche Bank but it is jointly and severally liable for the six current/former Deutsche Bank employees’ fines. On June 14, 2018, Deutsche Bank and the six individuals filed an appeal in the Milan Court of Appeal challenging CONSOB’s decision and one of the individuals sought a stay of enforcement of the fine against that individual. The stay was granted on July 21, 2018. Upon request of the parties, the final hearing of the appeal, which had been scheduled for November 13, 2019, was postponed until April 8, 2020.

Pension Plan Assets. The Group sponsors a number of post-employment benefit plans on behalf of its employees. In Germany, the pension assets that fund the obligations under these pension plans are held by Benefit Trust GmbH. The German tax authorities are challenging the tax treatment of certain income received by Benefit Trust GmbH in the years 2010 to 2013 with respect to its pension plan assets. For the year 2010 Benefit Trust GmbH paid the amount of tax and interest assessed of €160 million to the tax authorities and is seeking a refund of the amounts paid in litigation. For 2011 to 2013 the matter is stayed pending the outcome of the 2010 tax litigation. The amount of tax and interest under dispute for years 2011 to 2013, which also has been paid to the tax authorities, amounts to €456 million. In March 2017, the lower fiscal court ruled in favor of Benefit Trust GmbH and in September 2017 the tax authorities appealed the decision to the German supreme fiscal court (Bundesfinanzhof). A decision by the supreme fiscal court is not expected for a number of years.

Precious Metals Investigations and Litigations. Deutsche Bank received inquiries from certain regulatory and law enforcement authorities, including requests for information and documents, pertaining to investigations of precious metals trading and related conduct. Deutsche Bank has cooperated with these investigations. On January 29, 2018, Deutsche Bank entered into a US\$ 30 million settlement with the US Commodity Futures Trading Commission (“CFTC”) concerning spoofing, and manipulation and attempted manipulation in precious metals futures and of stop loss orders.

Deutsche Bank is a defendant in two consolidated class action lawsuits pending in the US District Court for the Southern District of New York. The suits allege violations of US antitrust law, the US Commodity Exchange Act and related state law arising out of the alleged manipulation of gold and silver prices through participation in the Gold and Silver Fixes. Deutsche Bank has reached agreements to settle the Gold action for US\$ 60 million and the Silver action for US \$ 38 million, which remain subject to final court approval.

In addition, Deutsche Bank was a defendant in Canadian class action proceedings in the provinces of Ontario and Quebec concerning gold and silver. Each of the proceedings seeks damages for alleged violations of the Canadian Competition Act and other causes of action. Deutsche Bank reached agreements to settle these actions which were approved by the Ontario court on May 29, 2019 and the Quebec court on June 17, 2019, and the actions have been dismissed against Deutsche Bank. The amounts are not material to the Bank.

Pre-Release ADRs. Deutsche Bank and certain affiliates have received inquiries from certain European regulatory, tax and law enforcement authorities, including requests for documents and information, with respect to American Depositary Receipts (ADRs), including ADRs that have been issued on a "pre-release" basis (“pre-release ADRs”). Deutsche Bank is cooperating with these inquiries. On March 5, 2020, the German local tax authorities issued a liability notice in the amount of € 10.7 million related to withholding tax certificates issued by Deutsche Bank AG, which Deutsche Bank AG will not contest.

On July 20, 2018, the US Securities and Exchange Commission (SEC) announced that it had reached civil settlements with Deutsche Bank Trust Company Americas (“DBTCA”) and Deutsche Bank Securities Inc. (“DBSI”) in this matter. The settlements resolved SEC claims that DBTCA was negligent in issuing pre-release ADRs under certain circumstances, and that DBSI failed reasonably to supervise employees who were negligent in borrowing and lending pre-release ADRs. The settlements required DBTCA and DBSI to pay a combined financial sanction of approximately US\$ 75 million, and the SEC ordered DBTCA to cease and desist from committing or causing any violations and any future violations of Section 17(a)(3) of the Securities Act of 1933.

Regula Ltd. Clients AML Investigations. On November 29, 2018, based on a search warrant issued by the Local Court (*Amtsgericht*) in Frankfurt, Deutsche Bank’s offices in Frankfurt were searched by German law enforcement authorities on the suspicion that two employees – and as-yet unidentified further individuals – deliberately abstained from issuing suspicious activity reports (SARs) in a timely manner and aided and abetted money laundering in connection with our offshore trust business. The Bank has cooperated in the investigation, as has been publicly acknowledged by the Frankfurt Public Prosecutor’s Office. The Bank has also cooperated with other requests for information from regulatory and law enforcement agencies that followed on the November 29, 2018 search warrant in Frankfurt.

In December 2019, the Frankfurt public prosecutor's office closed investigations into the two employees due to lack of sufficient suspicion in accordance with paragraph 170 (2) of the German Code of Criminal Procedure. This step means that the allegations of aiding and abetting tax evasion and of money laundering that were made against the employees and the bank have been dropped. At the same time, we accepted in a separate regulatory fining proceeding a fine of € 5 million as well as the confiscation of avoided expenses in the amount of € 10 million, payable as a result of shortcomings in our control environment in the past.

Transfer of Lease Assets. In December 2017, a claim for damages was filed with the Regional Court Frankfurt am Main against Deutsche Bank AG in the amount of approximately € 155 million (excluding interest). In 2006, Deutsche Bank AG (indirectly, through a special-purpose vehicle) entered into transactions according to which the plaintiff transferred certain lease assets to the special-purpose vehicle against, among others things, receipt of a preference dividend. The plaintiff alleges that Deutsche Bank had entered into an agreement with it under which Deutsche Bank provided flawed contractual documentation as a result of which the German tax authorities have disallowed the plaintiff’s expected tax savings. The Regional Court Frankfurt am Main fully dismissed the claim on July 26, 2019. The plaintiff has appealed this decision to the Higher Regional Court Frankfurt am Main.

Vestia. In December 2016, Stichting Vestia, a Dutch housing association, commenced proceedings against Deutsche Bank in England. The proceedings relate to derivatives entered into between Stichting Vestia and Deutsche Bank between 2005 and 2012. Stichting Vestia alleges that certain of the transactions entered into by it with Deutsche Bank should be set aside on the grounds that they were not within its capacity and/or were induced by the bribery of Vestia's treasurer by an intermediary involved in those transactions. The amount claimed ranged between € 757 million and € 837 million, plus compound interest. The trial commenced on May 8, 2019 and was scheduled to finish on July 18, 2019. On July 12, 2019, the parties agreed a full and final settlement of all claims between them, which included a payment from Deutsche Bank of € 175 million to Vestia on a no-admissions basis.

Dividend Policy

For 2019, the Management Board will propose to the General Meeting that we do not pay a dividend. In each of 2017 and 2018, we paid a dividend of € 0.11 per share. Historically, we have paid dividends at higher levels. However, we cannot assure investors that we will pay dividends as we did in previous years, nor at any other level, or at all, in any future period. If the company is not profitable, we may not pay dividends at all.

Furthermore, if Deutsche Bank AG fails to meet the regulatory capital adequacy requirements under CRR/CRD (including individually imposed capital requirements (so-called "Pillar 2" requirements) and the combined buffer requirement), it may be prohibited from making, and the ECB or the BaFin may suspend or limit, the payment of dividends. In addition, the ECB expects banks to meet "Pillar 2" guidance. If Deutsche Bank AG operates or expects to operate below "Pillar 2" guidance, the ECB will review the reasons why the Bank's capital level has fallen or is expected to fall and may take appropriate and proportionate measures in connection with such shortfall. Any such measures might have an impact on Deutsche Bank AG's willingness or ability to pay dividends. For further information on regulatory capital adequacy requirements and the powers of Deutsche Bank AG's regulators to suspend dividend payments, see "Item 4: Information on the Company – Regulation and Supervision – Capital Adequacy Requirements" and "– Investigative and Enforcement Powers."

Under German law, Deutsche Bank AG's dividends are based on the unconsolidated results of Deutsche Bank AG as prepared in accordance with German accounting rules. Deutsche Bank AG's Management Board, which prepares the annual financial statements of Deutsche Bank AG on an unconsolidated basis, and its Supervisory Board, which reviews them, first allocate part of Deutsche Bank AG's annual surplus (if any) to Deutsche Bank AG's statutory reserves and to any losses carried forward, as it is legally required to do. They then allocate the remainder between other revenue reserves (or retained earnings) and balance sheet profit. They may allocate up to one-half of this remainder to other revenue reserves, and must allocate at least one-half to balance sheet profit. A profit distribution from balance sheet profit is only permitted to the extent that the balance sheet profit plus distributable earnings exceeds potential dividend blocking items, which consist of deferred tax assets, self-developed software and unrealized gains on plan assets, all net of respective deferred tax liabilities.

Deutsche Bank AG then distributes up to the full amount of the balance sheet profit not subject to dividend blocking of Deutsche Bank AG if the annual General Meeting so resolves. The annual General Meeting may resolve a non-cash distribution instead of, or in addition to, a cash dividend. However, Deutsche Bank AG is not legally required to distribute its balance sheet profit to its shareholders to the extent that it has issued participatory rights (Genussrechte) or granted a silent participation (stille Beteiligung) that accord their holders the right to a portion of Deutsche Bank AG's distributable profit.

Deutsche Bank AG declares dividends by resolution of the annual General Meeting and pays them (if any) once a year. Dividends approved at a General Meeting are payable on the third business day after that meeting, unless a later date has been determined at that meeting or by the Articles of Association. In accordance with the German Stock Corporation Act, the record date for determining which holders of Deutsche Bank AG's ordinary shares are entitled to the payment of dividends, if any, or other distributions whether cash, stock or property, is the date of the General Meeting at which such dividends or other distributions are declared.

Significant Changes

Except as otherwise stated in this document, there have been no significant changes subsequent to December 31, 2019.

Item 9: The Offer and Listing

Offer and Listing Details and Markets

Our share capital consists of ordinary shares issued in registered form without par value. Under German law, shares without par value are deemed to have a “nominal” value equal to the total amount of share capital divided by the number of shares. Our shares have a nominal value in this sense of €2.56 per share.

The principal trading market for our shares is the Frankfurt Stock Exchange, where it trades under the symbol DBK. Our shares are also traded on the six other German stock exchanges (Berlin, Duesseldorf, Hamburg, Hanover, Munich and Stuttgart, where on each exchange it also trades under the symbol DBK), on the Eurex and the New York Stock Exchange, where it trades under the symbol DB.

We maintain a share register in Frankfurt am Main and, for the purposes of trading our shares on the New York Stock Exchange, a share register in New York.

All shares on German stock exchanges trade in euros, and all shares on the New York Stock Exchange trade in U.S. dollars.

You should not rely on our past share performance as a guide to our future share performance.

Plan of Distribution

Not required because this document is filed as an annual report.

Selling Shareholders

Not required because this document is filed as an annual report.

Dilution

Not required because this document is filed as an annual report.

Expenses of the Issue

Not required because this document is filed as an annual report.

Item 10: Additional Information

Share Capital

Not required because this document is filed as an annual report.

Memorandum and Articles of Association

The following is a summary of certain information relating to certain provisions of our Articles of Association, our share capital and German law. This summary is not complete and is qualified by reference to our Articles of Association and German law in effect at the date of this filing. Copies of our Articles of Association are publicly available at the Commercial Register (Handelsregister) in Frankfurt am Main, and an English translation is filed as Exhibit 1.1 to this Annual Report.

Our Business Objectives

Section 2 of our Articles of Association sets out the objectives of our business:

- to transact all aspects of banking business;
- to provide financial and other services; and
- to promote international economic relations.

Our Articles of Association permit us to pursue these objectives directly or through subsidiaries and affiliated companies.

Our Articles of Association also provide that, to the extent permitted by law, we may transact all business and take all steps that appear likely to promote our business objectives. In particular, we may:

- acquire and dispose of real estate;
- establish branches in Germany and abroad;
- acquire, administer and dispose of participations in other enterprises; and
- conclude intercompany agreements (Unternehmensverträge).

Supervisory Board and Management Board

For more information on our Supervisory Board and Management Board, see “Item 6: Directors, Senior Management and Employees.”

Voting Rights and Shareholders' Meetings

Each of our shares entitles its registered holder to one vote at our General Meeting. Our Annual General Meeting takes place within the first eight months of our fiscal year. Pursuant to our Articles of Association, we may hold the meeting in Frankfurt am Main, Düsseldorf or any other German city with over 500,000 inhabitants. Unless a shorter period is permitted by law, we must give the notice convening the General Meeting at least 30 days before the last day on which shareholders can register their attendance of the General Meeting (which is the fifth day immediately preceding that General Meeting). Shorter periods apply if the General Meeting is called to adopt a resolution on a capital increase in the context of early intervention measures pursuant to the Act on the Recovery and Resolution of Institutions and Financial Groups (Gesetz zur Sanierung und Abwicklung von Instituten und Finanzgruppen). We are required to include details regarding the shareholder attendance registration process and the issuance of admission cards in our invitation to the General Meeting.

The Management Board or the Supervisory Board may also call an extraordinary General Meeting. Shareholders holding in the aggregate at least 5 % of the nominal value of our share capital may also request that such a meeting be called.

According to our Articles of Association our shares are issued in the form of registered shares. For purposes of registration in the share register, all shareholders are required to notify us of the number of shares they hold and, in the case of natural persons, of their name, address and date of birth and, in the case of legal persons, of their registered name, business address and registered domicile. Both being registered in our share register and the timely registration for attendance of the General Meeting constitute prerequisite conditions for any shareholder's attendance and exercise of voting rights at the General Meeting. Shareholders may register their attendance of a General Meeting with the Management Board (or as otherwise designated in the invitation) by written notice or electronically, no later than the fifth day immediately preceding the date of that General Meeting. Any shareholders who have failed to comply with certain notification requirements summarized under "Notification Requirements" below are precluded from exercising any rights attached to their shares, including voting rights.

Under German law, upon our request a registered shareholder must inform us whether that shareholder owns the shares registered in its name or whether that shareholder holds the shares for any other person as a nominee shareholder. Both the nominee shareholder and the person for whom the shares are held have an obligation to provide the same personal data as required for registration in the share register with respect to the person for whom the shares are held. For so long as a registered shareholder does not provide the requested information as to its holding of the shares or, in the case of nominee shareholding, the required information about the person for whom the shares are held has not been provided, the shares held by the registered shareholder carry no voting rights.

Shareholders may appoint proxies to represent them at General Meetings. As a matter of German law, a proxy relating to voting rights granted by shares may be revoked at any time.

As a foreign private issuer, we are not required to file a proxy statement under US securities law. The proxy voting process for our shareholders in the United States is substantially similar to the process for publicly held companies incorporated in the United States.

The Annual General Meeting normally adopts resolutions on the following matters:

- appropriation of distributable balance sheet profits (Bilanzgewinn) from the preceding fiscal year;
- formal ratification of the acts (Entlastung) of the members of the Management Board and the members of the Supervisory Board in the preceding fiscal year; and
- appointment of independent auditors for the current fiscal year.

A simple majority of votes cast is generally sufficient to approve a measure, except in cases where a greater majority is otherwise required by our Articles of Association or by law. Under the German Stock Corporation Act and the German Transformation Act (Umwandlungsgesetz), certain resolutions of fundamental importance require a majority of at least 75 % of the share capital represented at the General Meeting adopting the resolution, in addition to a majority of the votes cast. Such resolutions include the following matters, among others:

- amendments to our Articles of Association changing our business objectives;
- capital increases that exclude subscription rights;
- capital reductions;
- creation of authorized or conditional capital;
- our dissolution;
- "transformations" under the German Transformation Act such as mergers, spin-offs and changes in our legal form;
- transfer of all our assets;
- integration of another company; and
- intercompany agreements (in particular, domination and profit-transfer agreements).

Under certain circumstances, such as when a resolution violates our Articles of Association or the German Stock Corporation Act, shareholders may file a shareholder action with the appropriate Regional Court (Landgericht) in Germany to set aside resolutions adopted at the General Meeting.

Under German law, the rights of shareholders as a group can be changed by amendment of the company's articles of association. Any amendment of our Articles of Association requires a resolution of the General Meeting. The authority to amend our Articles of Association, insofar as such amendments merely relate to the wording, such as changes of the share capital as a result of the issuance of shares from authorized capital, has been assigned to our Supervisory Board by our Articles of Association. Pursuant to our Articles of Association, the resolutions of the General Meeting are taken by a simple majority of votes and, insofar as a majority of capital stock is required, by a simple majority of capital stock, except where law or our Articles of Association determine otherwise. The rights of individual shareholders can only be changed with their consent. Amendments to the Articles of Association become effective upon their registration in the Commercial Register.

Share Register

We maintain a share register with Link Market Services GmbH and our New York transfer agent, pursuant to an agency agreement between us and Link Market Services GmbH and a sub-agency agreement between Link Market Services GmbH and the New York transfer agent.

Our share register will be open for inspection by shareholders during normal business hours at our offices at Taunusanlage 12, 60325 Frankfurt am Main, Germany. The share register generally contains each shareholder's surname, first name, date of birth, address and the number or the quantity of our shares held. Shareholders may prevent their personal information from appearing in the share register by holding their securities through a bank or custodian. Although the shareholder would remain the beneficial owner of the securities, only the bank's or custodian's name would appear in the share register.

Dividend Rights

For a summary of our dividend policy and legal basis for dividends under German law, see "Item 8: Financial Information – Dividend Policy."

Increases in Share Capital

German law and our Articles of Association permit us to increase our share capital in any of three ways:

- Resolution by our General Meeting authorizing the issuance of new shares.
- Resolution by our General Meeting authorizing the Management Board, subject to the approval of the Supervisory Board, to issue new shares up to a specified amount (no more than 50 % of existing share capital) within a specified period, which may not exceed five years. This is referred to as authorized capital (genehmigtes Kapital).
- Resolution by our General Meeting authorizing the issuance of new shares up to a specified amount (no more than 50 % of existing share capital) for specific purposes, such as for employee stock options, for use as consideration in a merger or to issue to holders of convertible bonds or other convertible securities. This is referred to as conditional capital (bedingtes Kapital).

The issuance of new ordinary shares by resolution of the General Meeting requires the simple majority of the votes cast and of the share capital represented at the General Meeting. Resolutions of the General Meeting concerning the creation of authorized or conditional capital require the simple majority of the votes cast and a majority of at least 75 % of the share capital represented at the General Meeting.

Liquidation Rights

The German Stock Corporation Act requires that if we are liquidated, any liquidation proceeds remaining after the payment of all our liabilities will be distributed to our shareholders in proportion to their shareholdings.

Preemptive Rights

In principle, holders of our shares have preemptive rights allowing them to subscribe any shares, bonds convertible into, or attached warrants to subscribe for, our shares or participatory certificates we issue. Such preemptive rights exist in proportion to the number of shares currently held by the shareholder. Preemptive rights of shareholders may be excluded with respect to any capital increase, however, as part of the resolution by the General Meeting on such capital increase. Such a resolution by the General Meeting on a capital increase that excludes the shareholders' preemptive rights with respect thereto requires both a majority of the votes cast and a majority of at least 75 % of the share capital represented at the General Meeting. A resolution to exclude preemptive rights requires that the proposed exclusion is expressly disclosed in the agenda to the General Meeting and that the Management Board presents the reasons for the exclusion to the shareholders in a written report. Under the German Stock Corporation Act, preemptive rights may in particular be excluded with respect to capital increases not exceeding 10 % of the existing share capital with an issue price payable in cash not significantly below the stock exchange price at the time of issuance. In addition, shareholders may, in a resolution by the General Meeting on authorized capital, authorize the Management Board to exclude the preemptive rights with respect to newly issued shares from authorized capital in specific circumstances set forth in the resolution.

Shareholders are generally permitted to transfer their preemptive rights. Preemptive rights may be traded on one or more German stock exchanges for a limited number of days prior to the final day the preemptive rights can be exercised.

Notices and Reports

We publish notices pertaining to our shares and the General Meeting in the electronic German Federal Gazette (Bundesanzeiger) and, when so required, in at least one national newspaper designated for exchange notices.

We send our New York transfer agent, through publication or otherwise, a copy of each of our notices pertaining to any General Meeting, any adjourned General Meeting or our actions with respect to any cash or other distributions or the offering of any rights. We provide such notices in the form given or to be given to our shareholders. Our New York transfer agent is requested to arrange for the mailing of such notices to all shareholders registered in the New York registry.

We will make all notices we send to shareholders available at our principal office for inspection by shareholders. Link Market Services GmbH and our New York transfer agent will send copies of all notices pertaining to General Meetings to all registered shareholders. Link Market Services GmbH and our New York transfer agent will send copies of other notices or information material, such as quarterly reports or shareholder letters, to those registered shareholders who have requested to receive such notices or information material.

Charges of Transfer Agents

We pay Link Market Services GmbH and our New York transfer agent customary fees for their services as transfer agents and registrars. Our shareholders will not be required to pay Link Market Services GmbH or our New York transfer agent any fees or charges in connection with their transfers of shares in the share register. Our shareholders will also not be required to pay any fees in connection with the conversion of dividends from euros to US dollars.

Liability of Transfer Agents

Neither Link Market Services GmbH nor our New York transfer agent will be liable to shareholders if prevented or delayed by law, or any circumstances beyond their control, from performing their obligations as transfer agents and registrars.

Notification Requirements

Disclosure of Interests in a Listed Stock Corporation

Disclosure Obligations under the German Securities Trading Act

Deutsche Bank AG, as a listed company, and its shareholders are subject to the shareholding disclosure obligations under the German Securities Trading Act (Wertpapierhandelsgesetz). Pursuant to the German Securities Trading Act, any shareholder whose voting interest in a listed company like Deutsche Bank AG, through acquisition, sale or by other means, reaches, exceeds or falls below a 3 %, 5 %, 10 %, 15 %, 20 %, 25 %, 30 %, 50 % or 75 % threshold must notify us and the BaFin of its current aggregate voting interest in writing and without undue delay, but at the latest within four trading days. In connection with this requirement, the German Securities Trading Act contains various provisions regarding the attribution of voting rights to the person who actually controls the voting rights attached to the shares.

Furthermore, the voting rights attached to a third party's shares are attributed to a shareholder if the shareholder coordinates its conduct concerning the listed company with the third party (so-called "acting in concert") either through an agreement or other means. Acting in concert is deemed to exist if the parties coordinate their voting at the listed company's general meeting or, outside the general meeting, coordinate their actions with the goal of significantly and permanently modifying the listed company's corporate strategy. Each party's voting rights are attributed to each of the other parties acting in concert.

Shareholders failing to comply with their notification obligations are prevented from exercising any rights attached to their shares (including voting rights and the right to receive dividends) until they have complied with the notification requirements. If the failure to comply with the notification obligations specifically relates to the size of the voting interest in the Deutsche Bank AG and is the result of willful or grossly negligent conduct, the suspension of shareholder rights is – subject to certain exceptions in case of an incorrect notification deviating no more than 10 % from the actual percentage of voting rights – extended by a six-month period commencing upon the submission of the required notification.

Except for the 3 % threshold, similar notification obligations exist for reaching, exceeding or falling below the thresholds described above when a person holds, directly or indirectly, certain instruments other than shares. This applies to instruments which grant upon maturity an unconditional right to acquire existing voting shares of Deutsche Bank AG, a discretionary right to acquire such shares, as well as to instruments that refer to such shares and have an economic effect similar to that of the aforementioned instruments, irrespective of whether such instruments are physically or cash-settled. These instruments include, for example, transferable securities, options, futures contracts and swaps. Voting rights to be attributed to a person based on any such instrument will generally be aggregated with the person's other voting rights deriving from shares or other instruments.

Notice must be given without undue delay, but within four trading days at the latest. The notice period commences as soon as the person obliged to notify knows, or, under the circumstances should know, that his or her voting rights reach, exceed or fall below any of the abovementioned relevant thresholds, but in any event no later than two trading days after reaching, exceeding or falling below the threshold. Only in case that the voting rights reach, exceed or fall below any of the thresholds as a result of an event affecting all voting rights, the notice period might commence at a later stage. Deutsche Bank AG must publish the foregoing notifications without undue delay, but no later than within three trading days after their receipt, and report such publication to the BaFin. Furthermore, the Deutsche Bank AG must publish a notification in case of any increase or decrease of the total number of voting rights without undue delay, but within two trading days at the latest, and such notification must be reported to the BaFin and forwarded to the German Company Register (Unternehmensregister). An exception applies where the increase of the total number of voting rights is due to the issue of new shares from conditional capital. In this case, Deutsche Bank AG must publish the increase at the end of the month in which it occurred. However, such increase must also be notified without undue delay, but within two trading days at the latest, where any other increase or decrease of the total number of voting rights triggers the aforementioned notification requirement.

Non-compliance with the disclosure requirements regarding shareholdings and holdings of other instruments may result in a significant fine imposed by the BaFin. In addition, the BaFin publishes, on its website, sanctions imposed and measures taken indicating the person or entity responsible and the nature of the breach (so-called “naming and shaming”).

Shareholders whose voting rights reach or exceed thresholds of 10 % of the voting rights in a listed company, or higher thresholds, are obliged to inform the company within 20 trading days of the purpose of their investment and the origin of the funds used for such investment, unless the articles of association of the listed company provide otherwise. Our Articles of Association do not contain such a provision.

Disclosure Obligations under the German Securities Acquisition and Takeover Act

Pursuant to the German Securities Acquisition and Takeover Act (Wertpapiererwerbs- und Übernahmegesetz), any person whose voting interest reaches or exceeds 30 % of the voting shares of a listed stock corporation must, within seven calendar days, publish this fact (including the percentage of its voting rights) on the Internet and by means of an electronically operated financial information dissemination system. In addition, the person must subsequently make a mandatory public tender offer within four weeks to all shareholders of the listed company unless an exemption has been granted. The German Securities Acquisition and Takeover Act contains a number of provisions intended to ensure that shareholdings are attributed to those persons who actually control the voting rights attached to the shares. The provisions regarding coordinated conduct as part of the German Securities Acquisition and Takeover Act (so-called “acting in concert”) and the rules on the attribution of voting rights attached to shares of third parties are the same as the statutory securities trading provisions described above under “Disclosure Obligations under the German Securities Trading Act” except with respect to voting rights of shares underlying instruments whose holders are vested with the right to unilaterally acquire existing voting shares of the listed company or voting rights which may be acquired on the basis of instruments with similar economic effect. If a shareholder fails to provide notice on reaching or exceeding the 30 % threshold, or fails to make a public tender offer, the shareholder will be precluded from exercising any rights associated with its shares (including voting and dividend rights) until it has complied with the requirements under the German Securities Acquisition and Takeover Act. In addition, non-compliance with the disclosure requirement may result in a fine.

Disclosure of Participations in a Credit Institution

The German Banking Act (Kreditwesengesetz) requires any person intending to acquire, alone or acting in concert with another person, a qualifying holding (bedeutende Beteiligung) in a credit or financial services institution to notify the BaFin and the Bundesbank without undue delay and in writing of the intended acquisition. A qualifying holding is a direct or indirect holding in an undertaking which represents 10 % or more of the capital or voting rights or which makes it possible to exercise a significant influence over the management of such undertaking. The required notice must contain information demonstrating, among other things, the reliability of the person or, in the case of a corporation or other legal entity, the reliability of its directors and officers.

A person holding a qualifying holding shall also notify the BaFin and the Bundesbank without undue delay and in writing if he intends to increase the amount of the qualifying holding up to or beyond the thresholds of 20 %, 30 % or 50 % of the voting rights or capital or in such way that the institution comes under such person's control or if such person intends to reduce the participation below 10 % or below one of the other thresholds described above.

The BaFin will have to confirm the receipt of a complete notification within two working days in writing to the proposed acquirer. Within a period of 60 working days from the BaFin's written confirmation that a complete notification has been received (assessment period), the BaFin will review and, in accordance with Council Regulation (EU) No 1024/2013 of October 15, 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions, forward the notification and a proposal for a decision whether or not to object to the acquisition to the ECB. The ECB will decide whether or not to object to the acquisition on the basis of the applicable assessment criteria. Within the assessment period the ECB may prohibit the intended acquisition in particular if there appears to be reason to assume that the acquirer or its directors and officers are not reliable or that the acquirer is not financially sound, that the participation would impair the effective supervision of the relevant credit institution, that a prospective managing director (Geschäftsleiter) is not reliable or not qualified, that money laundering or financing of terrorism has occurred or been attempted in connection with the intended acquisition, or that there would be an increased risk of such illegal acts as a result of the intended acquisition. During the assessment period the BaFin may request further information necessary for its or the ECB's assessment. Generally, such a request delays the expiration of the assessment period by up to 30 business days. If the information submitted is incomplete or incorrect the ECB may prohibit the intended acquisition.

If a person acquires a qualifying holding despite such prohibition or without making the required notification, the competent authority may prohibit the person from exercising the voting rights attached to the shares. In addition, non-compliance with the disclosure requirement may result in the imposition of a fine in accordance with statutory provisions. Moreover, the competent authority may order that any disposition of the shares requires its approval and may ultimately appoint a trustee to exercise the voting rights attached to the shares or to sell the shares to the extent they constitute a qualifying holding.

Review of Acquisition of 25 % or more by the German Federal Ministry of Economics and Technology

Pursuant to the German Foreign Trade Act (Außenwirtschaftsgesetz) and the German Foreign Trade Regulation (Außenwirtschaftsverordnung), the direct or indirect acquisition of 25 % or more of the voting rights in a German company by investors from outside the European Union and the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland) or by entities which are owned by 25 % or more by investors from outside the aforementioned region may be reviewed by the German Federal Ministry of Economics and Technology. If the Ministry determines that the acquisition poses a threat to the public policy or public security of Germany, it may impose conditions on or suspend the acquisition or require that it is unwound. The conclusion of an acquisition contract for critical infrastructure and security-related technologies has to be notified to the German Federal Ministry of Economics and Technology in writing. The decision to review an acquisition must be made within three months following the Ministry's knowledge of the conclusion of the contract, of the publication of the decision to launch a take-over bid or of the publication of the acquisition of control. The review must be completed within four months following receipt of the complete acquisition documents. A review is precluded if more than 5 years have passed since the acquisition. The acquirer may seek pre-clearance of a proposed acquisition from the Federal Ministry of Economics and Technology.

EU Short Selling Regulation (ban on naked short selling)

Regulation (EU) No 236/2012 of the European Parliament and of the Council of March 14, 2012 on short selling and certain aspects of credit default swaps (the “EU Short Selling Regulation”) came into force on November 1, 2012. The EU Short Selling Regulation, the regulations adopted by the EU Commission implementing it, and the German act implementing the EU Short Selling Regulation replace the previously applicable German federal provisions governing the ban on naked short selling of shares and certain debt securities. (Short sales are sales of securities that the seller does not own, with the intention of buying back an identical security at a later point in time in order to be able to deliver the security. A short sale is “naked” when the seller has not borrowed the securities at the time of the short sale, or ensured they can be borrowed.) Under the EU Short Selling Regulation, short sales of shares are permitted only under certain conditions. Significant net short positions in shares must be reported to the BaFin and, if a certain threshold is exceeded, they must also be publicly disclosed. Net short positions are calculated by netting the long and short positions held by a natural or legal person in the issued capital of the company concerned. The details are set forth in the EU Short Selling Regulation and the regulations adopted by the EU Commission implementing it. In certain situations described in greater detail in the EU Short Selling Regulation, the BaFin is permitted to limit short selling and comparable transactions.

Disclosure of Transactions of Managers

Art. 19 of Regulation (EU) No 596/2014 of the European Parliament and of the Council of April 16, 2014 on market abuse (the “EU Market Abuse Regulation”) requires persons with management responsibilities (“Managers”) in a listed company like Deutsche Bank AG to notify the company and the BaFin of their own transactions in shares or debt instruments of the company or financial instruments based thereon, in particular derivatives. Such notifications must be made promptly and no later than three business days after the date of the transaction. The notification obligation also applies to persons who are closely associated with a Manager. The obligation does not apply if the aggregate annual transactions by a Manager or persons with whom he or she is closely associated do not, individually, exceed an amount of €5,000.00 through the end of a calendar year. The BaFin may decide to increase this threshold up to €20,000.00.

Deutsche Bank AG is required to promptly publish any notification received but in any case no later than three business days after the transaction. The publication must be made in a manner which enables fast access to this information on a non-discriminatory basis in accordance with the implementing standards published by the European Securities and Markets Authority. Furthermore, Deutsche Bank AG must without undue delay notify the BaFin and forward the notification to the Company Register (Unternehmensregister). For the purposes of the EU Market Abuse Regulation, the following persons are deemed to be a Manager: members of management, administrative or supervisory bodies of Deutsche Bank AG as well as senior executives who are not such members but who have regular access to inside information relating directly or indirectly to the Company and who have power to take managerial decisions affecting the future developments and business prospects of the Company. The following persons are deemed to be closely associated with a Manager: spouses, registered civil partners (eingetragene Lebenspartner), dependent children and other relatives who at the time of the transaction requiring notification have lived in the same household with the Manager for at least one year. Legal entities for which the aforementioned persons have management responsibilities are also subject to the notification requirement. The aforementioned provisions also apply to legal entities, companies and institutions directly or indirectly controlled by a Manager or by a person closely associated with a Manager, which have been founded to the benefit of such a person, or whose economic interests correspond to a considerable extent to those of such a person. Non-compliance with the notification requirements may result in a fine.

Material Contracts

In the usual course of our business, we enter into numerous contracts with various other entities. We have not, however, entered into any material contracts outside the ordinary course of our business within the past two years.

Exchange Controls

As in other member states of the European Union, regulations issued by the competent European Union authorities to comply with United Nations resolutions have caused freeze orders on assets of certain legal and natural persons designated in such regulations. In addition, the European Union maintained a wide range of autonomous economic and financial sanctions on Iran. While all nuclear-related economic and financial EU sanctions against Iran were repealed on January 16, 2016, some restrictions remain in force.

With some exceptions, corporations or individuals residing in Germany are required to report to the Bundesbank any payment received from, or made to or for the account of, a nonresident corporation or individual that exceeds € 12,500 (or the equivalent in a foreign currency). This reporting requirement is for statistical purposes.

Subject to the above-mentioned exceptions, there are currently no German laws, decrees or regulations that would prevent the transfer of capital or remittance of dividends or other payments to our shareholders who are not residents or citizens of Germany.

There are also no restrictions under German law or our Articles of Association concerning the right of nonresident or foreign shareholders to hold our shares or to exercise any applicable voting rights. Where the investment reaches or exceeds certain thresholds, however, certain reporting obligations apply and the investment may become subject to review by the BaFin, the European Central Bank and other competent authorities. For more information see "Item 10: Additional Information – Notification Requirements".

Taxation

The following is a general summary of material German and United States federal income tax consequences of the ownership and disposition of shares for a resident of the United States for purposes of the income tax convention between the United States and Germany (the "Treaty") who is fully eligible for benefits under the Treaty. A U.S. resident will generally be entitled to Treaty benefits if it is:

- the beneficial owner of shares (and of the dividends paid with respect to the shares);
- an individual resident of the United States, a U.S. corporation, or a partnership, estate or trust to the extent its income is subject to taxation in the United States in its hands or in the hands of its partners or beneficiaries;
- not also a resident of Germany for German tax purposes; and
- not subject to "anti-treaty shopping" articles under German domestic law or the Treaty that apply in limited circumstances.

The Treaty benefits discussed below generally are not available to shareholders who hold shares in connection with the conduct of business through a permanent establishment in Germany. The summary does not discuss the treatment of those shareholders.

The summary does not purport to be a comprehensive description of all of the tax considerations that may be relevant to any particular shareholder, including tax considerations that arise from rules of general application or that are generally assumed to be known by shareholders. In particular, the summary deals only with shareholders that will hold shares as capital assets and does not address the tax treatment of shareholders that are subject to special rules, such as fiduciaries of pension (e.g. U.S. pension funds), profit-sharing or other employee benefit plans, banks, insurance companies, dealers in securities or currencies, persons that hold shares as a position in a straddle, conversion transaction, synthetic security or other integrated financial transaction, persons that elect mark-to-market treatment, persons that own, directly or indirectly, 10 % or more of our stock, measured by vote or value, persons that hold shares through a partnership or hybrid entity and persons whose "functional currency" is not the U.S. dollar. The summary is based on German and U.S. laws, treaties and regulatory interpretations, including in the United States current and proposed U.S. Treasury regulations as of the date hereof, all of which are subject to change (possibly with retroactive effect).

Shareholders should consult their own advisors regarding the tax consequences of the ownership and disposition of shares in light of their particular circumstances, as well as the effect of any state, local or other national laws.

Taxation of Dividends

In general, dividends that we pay are subject to German withholding tax at an aggregate rate of 26.375 % (consisting of a 25 % withholding tax and a 1.375 % surcharge). Under the Treaty, a U.S. resident will be entitled to receive a refund from the German tax authorities of 11.375 in respect of a declared dividend of 100. For example, for a declared dividend of 100, a U.S. resident initially will receive 73.625 and may claim a refund from the German tax authorities of 11.375 and, therefore, receive a total cash payment of 85 (i.e., 85 % of the declared dividend). According to an amendment of the German Investment Tax Act dividends received by a fund within the meaning of the German Investment Tax Act are generally subject to 15 % German withholding tax equal to the Treaty tax rate. U.S. residents who are entitled to a refund of more than 11.375 % (e.g. U.S. pension funds) have to fulfill further requirements according to para. 50j German Income Tax Act, in particular certain holding requirements.

For U.S. tax purposes, a U.S. resident will be deemed to have received total dividends of 100. The gross amount of dividends that a U.S. resident receives (which includes amounts withheld in respect of German withholding tax) generally will be subject to U.S. federal income taxation as foreign source dividend income, and will not be eligible for the dividends received deduction generally allowed to U.S. corporations. German withholding tax at the 15 % rate provided under the Treaty will be treated as a foreign income tax that, subject to generally applicable limitations under U.S. tax law, is eligible for credit against a U.S. resident's U.S. federal income tax liability or, at its election, may be deducted in computing taxable income. Thus, for a declared dividend of 100, a U.S. resident will be deemed to have paid German taxes of 15. A U.S. resident cannot claim credits for German taxes that would have been refunded to it if it had filed a claim for refund. Foreign tax credits will not be allowed for withholding taxes imposed in respect of certain short-term or hedged positions. The creditability of foreign withholding taxes may be limited in certain situations, including where the burden of foreign taxes is separated inappropriately from the related foreign income.

Subject to certain exceptions for short-term and hedged positions, "qualified dividends" received by certain non-corporate U.S. shareholders will generally be subject to taxation in the United States at a lower rate than other ordinary income. Dividends received will be qualified dividends if we (i) are eligible for the benefits of a comprehensive income tax treaty with the United States that the U.S. Internal Revenue Service ("IRS") has approved for purposes of the qualified dividend rules and (ii) were not, in the year prior to the year in which the dividend was paid, and are not, in the year in which the dividend is paid, a passive foreign investment company ("PFIC"). The Treaty has been approved for purposes of the qualified dividend rules, and we believe we qualify for benefits under the Treaty. The determination of whether we are a PFIC must be made annually and is dependent on the particular facts and circumstances at the time. It requires an analysis of our income and valuation of our assets, including goodwill and other intangible assets. Based on our audited financial statements and relevant market and shareholder data, we believe that we were not a PFIC for U.S. federal income tax purposes with respect to our taxable years ended December 31, 2017 or December 31, 2018. In addition, based on our current expectations regarding the value and nature of our assets, the sources and nature of our income, and relevant market and shareholder data, we do not currently anticipate becoming a PFIC for our taxable year ending December 31, 2019, or for the foreseeable future. However, the PFIC rules are complex and their application to financial services companies is unclear. Each U.S. shareholder should consult its own tax advisor regarding the potential applicability of the PFIC regime to us and its implications for their particular circumstances.

If a U.S. resident receives a dividend paid in euros, it will recognize income in a U.S. dollar amount calculated by reference to the exchange rate in effect on the date of receipt, regardless of whether the payment is in fact converted into U.S. dollars. If dividends are converted into U.S. dollars on the date of receipt, a U.S. resident generally should not be required to recognize foreign currency gain or loss in respect of the dividend income but may be required to recognize foreign currency gain or loss on the receipt of a refund in respect of German withholding tax to the extent the U.S. dollar value of the refund differs from the U.S. dollar equivalent of that amount on the date of receipt of the underlying dividend.

Refund Procedures

To claim a refund, a U.S. resident must submit, within four years from the end of the calendar year in which the dividend is received, a claim for refund to the German tax authorities. The claim for refund must be accompanied by a withholding tax certificate (Kapitalertragsteuerbescheinigung) on an officially prescribed form and issued by the institution that withheld the tax.

Claims for refunds are made on a German claim for refund form, which must be filed with the German tax authorities: Bundeszentralamt für Steuern, An der Kuppe 1, D-53225 Bonn, Germany. The German claim for refund forms can be downloaded from the homepage of the Bundeszentralamt für Steuern (www.bzst.de). A special form is available in cases para. 50j German Income Tax Act is applicable. A U.S. resident must also submit to the German tax authorities a certification (on IRS Form 6166) with respect to its last filed U.S. federal income tax return. Requests for IRS Form 6166 are made on IRS Form 8802, which requires payment of a user fee. IRS Form 8802 and its instructions can be obtained from the IRS website at www.irs.gov. Instead of the individual refund procedure described above, a U.S. resident may use an IT-supported quick-refund procedure (“Datenträgerverfahren – DTV”/“Data Medium Procedure – DMP”). If the U.S. resident’s bank or broker elects to participate in the DMP, it will perform administrative functions necessary to claim the Treaty refund for the beneficiaries. The refund beneficiaries must provide specified information to the DMP participant and confirm to the DMP participant that they meet the conditions of the Treaty provisions and that they authorize the DMP participant to file applications and receive notices and payments on their behalf.

The refund beneficiaries also must provide a “certification of filing a tax return” on IRS Form 6166 with the DMP participant. In addition, if the individual refund procedure requires a withholding tax certificate (see above), such certificate is generally also necessary under the DMP.

The German tax authorities reserve the right to audit the entitlement to tax refunds for several years following their payment pursuant to the Treaty in individual cases. The DMP participant must assist with the audit by providing the necessary details or by forwarding the queries to the respective refund beneficiaries/shareholders. Presently the DMP cannot be used if the Treaty tax rate is below 15 % or if a holder of Depository Receipts claims for a refund.

The German tax authorities will issue refunds denominated in euros. In the case of shares held through banks or brokers participating in the Depository Trust Company, the refunds will be issued to the Depository Trust Company, which will convert the refunds to U.S. dollars. The resulting amounts will be paid to banks or brokers for the account of holders.

If a U.S. resident holds its shares through a bank or broker who elects to participate in the DMP, it could take at least three weeks for it to receive a refund after a combined claim for refund has been filed with the German tax authorities. If a U.S. resident files a claim for refund directly with the German tax authorities, it could take at least eight months for it to receive a refund. The length of time between filing a claim for refund and receipt of that refund is uncertain and we can give no assurances as to when any refund will be received.

Taxation of Capital Gains

Under the Treaty, a U.S. resident will generally not be subject to German capital gains tax in respect of a sale or other disposition of shares. For U.S. federal income tax purposes, a U.S. holder will recognize capital gain or loss on the sale or other disposition of shares in an amount equal to the difference between such holder’s tax basis in the shares and the U.S. dollar value of the amount realized from their sale or other disposition. Such gain or loss will be capital gain or loss and will be long-term capital gain or loss if the shares were held for more than one year. The net amount of long-term capital gain realized by an individual generally is subject to taxation at a lower rate than ordinary income. Any such gain generally would be treated as income arising from sources within the United States; any such loss would generally be allocated against U.S. source income. The ability to offset capital losses against ordinary income is subject to limitations.

Shareholders whose shares are held in an account with a German bank or financial services institution (including a German branch of a non-German bank or financial services institution) are urged to consult their own advisors. This summary does not discuss their particular tax situation.

United States Information Reporting and Backup Withholding

Dividends and payments of the proceeds on a sale of shares, paid within the United States or through certain U.S.-related financial intermediaries are subject to information reporting and may be subject to backup withholding unless the U.S. resident (i) is a corporation (other than an S corporation) or other exempt recipient or (ii) provides a taxpayer identification number and certifies (on IRS Form W-9) that no loss of exemption from backup withholding has occurred. Shareholders that are not U.S. persons generally are not subject to information reporting or backup withholding.

However, a non-U.S. person may be required to provide a certification (generally on IRS Form W-8BEN or W-8BEN-E) of its non-U.S. status in connection with payments received in the United States or through a U.S.-related financial intermediary.

Backup withholding tax is not an additional tax, and any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against a holder's U.S. federal income tax liability, provided the required information is furnished to the IRS.

Shareholders may be subject to other U.S. information reporting requirements. Shareholders should consult their own advisors regarding the application of U.S. information reporting rules in light of their particular circumstances.

German Gift and Inheritance Taxes

Under the current estate, inheritance and gift tax treaty between the United States and Germany (the "Estate Tax Treaty"), a transfer of shares generally will not be subject to German gift or inheritance tax so long as the donor or decedent, and the heir, donee or other beneficiary, were not domiciled in Germany for purposes of the Estate Tax Treaty at the time the gift was made, or at the time of the decedent's death, and the shares were not held in connection with a permanent establishment or fixed base in Germany.

The Estate Tax Treaty provides a credit against U.S. federal estate and gift tax liability for the amount of inheritance and gift tax paid in Germany, subject to certain limitations, where shares are subject to German inheritance or gift tax and United States federal estate or gift tax.

Other German Taxes

There are currently no German net wealth, transfer, stamp or other similar taxes that would apply to a U.S. resident as a result of the receipt, purchase, ownership or sale of shares.

Dividends and Paying Agents

Not required because this document is filed as an annual report.

Statement by Experts

Not required because this document is filed as an annual report.

Documents on Display

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended. In accordance with these requirements, we file reports and other information with the Securities and Exchange Commission. You may inspect and copy these materials, including this document and its exhibits, at the Commission's Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You may also obtain copies of the materials from the Public Reference Room at prescribed rates. You may obtain information on the operation of the Commission's Public Reference Room by calling the Commission in the United States at 1-800-SEC-0330. Our Securities and Exchange Commission filings are also available over the Internet at the Securities and Exchange Commission's website at www.sec.gov under File Number 001-15242.

Subsidiary Information

Not applicable.

Item 11: Quantitative and Qualitative Disclosures about Credit, Market and Other Risk

For Quantitative and Qualitative Disclosures about Credit, Market and Other Risk, please see “Management Report: Risk Report” in the Annual Report 2019.

Please see pages S-1 through S-19 of the Supplemental Financial Information, which pages are incorporated by reference herein, for information required by SEC Industry Guide 3.

Item 12: Description of Securities other than Equity Securities

Our ordinary shares are not represented by American Depositary Receipts and accordingly no information is required to be provided pursuant to Item 12.D.3 and Item 12.D.4. The remainder of the information required by this Item 12 and by Instruction 2(d) under the Instructions as to Exhibits of Form 20-F is provided as Exhibit 2.2 to this Annual Report on Form 20-F.

PART II

Item 13: Defaults, Dividend Arrearages and Delinquencies

Not applicable.

Item 14: Material Modifications to the Rights of Security Holders and Use of Proceeds

The Bank has outstanding several issuances of notes qualifying as Additional Tier 1 capital – sometimes referred to as capital securities –, some of which are governed by German law and issued in transactions exempt from registration under the U.S. Securities Act of 1933 and some of which are governed by New York law (except for the provisions thereof relating to ranking and status, which are governed by German law) and issued in transactions registered under the U.S. Securities Act of 1933. The terms of these notes restrict us from making interest payments on them in certain circumstances when the distributions that are simultaneously planned or made or that have been made by us on our other Tier 1 Instruments during the relevant financial year would exceed our "Available Distributable Items". The term "Available Distributed Items" is defined by reference to the term "distributable items" set forth in the CRR (Regulation (EU) No 575/2013 of the European Parliament and the Council of June 26, 2013 on prudential requirements for credit institutions and investment firms). The CRR was amended by EU Regulation 2019/876 effective June 27, 2019, including to amend the definition of "distributable items" so that it includes capital reserves, and so that distribution restrictions pursuant to Sections 253 (6) and 268 (8) of the German Commercial Code (HGB) do not apply. As a result, the amount of Available Distributable Items – and thus the circumstances under which we would be permitted to make interest payments on the notes – was significantly increased. The amendment to the CRR was automatically effective as to the German law-governed notes and became effective with respect to the then-outstanding and subsequently issued New York law-governed notes pursuant to an amendment to the indenture under which they were issued.

Item 15: Controls and Procedures

Disclosure Controls and Procedures

An evaluation was carried out under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934) as of December 31, 2019. There are, as described below, inherent limitations to the effectiveness of any control system, including disclosure controls and procedures. Accordingly, even effective disclosure controls and procedures can provide only reasonable assurance of achieving their control objectives. Based upon such evaluation, our Chief Executive Officer and Chief Financial Officer concluded that the design and operation of our disclosure controls and procedures were effective as of December 31, 2019.

Management's Annual Report on Internal Control over Financial Reporting

Management of Deutsche Bank Aktiengesellschaft, together with its consolidated subsidiaries, is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is a process designed under the supervision of our principal executive officer and our principal financial officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the firm's financial statements for external reporting purposes in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB) and endorsed by the European Union (EU). As of December 31, 2019, management conducted an assessment of the effectiveness of our internal control over financial reporting based on the framework established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on the assessment performed, management has determined that our internal control over financial reporting as of December 31, 2019 was effective based on the COSO framework (2013).

KPMG AG Wirtschaftsprüfungsgesellschaft, the registered public accounting firm that audited the financial statements included in this document, has issued a report on our internal control over financial reporting, which is set forth below.

Report of Independent Registered Public Accounting Firm

To the Shareholders and Supervisory Board
Deutsche Bank Aktiengesellschaft:

Opinion on Internal Control over Financial Reporting

We have audited Deutsche Bank Aktiengesellschaft and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of income, comprehensive income, changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes, and the specific disclosures described in Note 1 to the consolidated financial statements as being part of the financial statements (collectively, the consolidated financial statements) and our report dated March 13, 2020 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying 'Management's Annual Report on Internal Control over Financial Reporting'. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Frankfurt am Main, Germany
March 13, 2020

KPMG AG
Wirtschaftsprüfungsgesellschaft

Change in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation referred to above that occurred during the year ended December 31, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. As such, disclosure controls and procedures or systems for internal control over financial reporting may not prevent all error and all fraud. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and any design may not succeed in achieving its stated goals under all potential future conditions; over time, control may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Item 16A: Audit Committee Financial Expert

Please see "Corporate Governance Statement/Corporate Governance Report: Auditing and Controlling: Audit Committee Financial Expert" in the Annual Report 2019.

Item 16B: Code of Ethics

Please see "Corporate Governance Statement/Corporate Governance Report: Values and Leadership Principles of Deutsche Bank AG and Deutsche Bank Group: Deutsche Bank Group Code of Conduct and Code of Ethics for Senior Financial Officers" in the Annual Report 2019.

Item 16C: Principal accountant fees and services

Please see “Management Report: Corporate Governance Statement/Corporate Governance Report: Auditing and Controlling: Principal Accountant Fees and Services” in the Annual Report 2019.

Item 16D: Exemptions from the Listing Standards for Audit Committees

Our common shares are listed on the New York Stock Exchange, the corporate governance rules of which require a foreign private issuer such as us to have an audit committee that satisfies the requirements of Rule 10A-3 under the U.S. Securities Exchange Act of 1934. These requirements include a requirement that the audit committee be composed of members that are “independent” of the issuer, as defined in the Rule, subject to certain exemptions, including an exemption for employees who are not executive officers of the issuer if the employees are elected or named to the board of directors or audit committee pursuant to the issuer’s governing law or documents, an employee collective bargaining or similar agreement or other home country legal or listing requirements. The German Co-Determination Act of 1976 (Mitbestimmungsgesetz) requires that the shareholders elect half of the members of the supervisory board of large German companies, such as us, and that employees in Germany elect the other half. Employee-elected members are typically themselves employees or representatives of labor unions representing employees. Pursuant to law and practice, committees of the Supervisory Board are typically composed of both shareholder- and employee-elected members. Of the current members of our Audit Committee, four – Henriette Mark, Gabriele Platscher, Detlef Polaschek and Bernd Rose – are current employees of Deutsche Bank who have been elected as Supervisory Board members by the employees. None of them is an executive officer. Accordingly, their service on the Audit Committee is permissible pursuant to the exemption from the independence requirements provided for by paragraph (b)(1)(iv)(C) of the Rule. We do not believe the reliance on such exemption would materially adversely affect the ability of the Audit Committee to act independently and to satisfy the other requirements of the Rule.

Item 16E: Purchases of Equity Securities by the Issuer and Affiliated Purchasers

In 2019, we repurchased a total of 23,300,001 shares of which none via derivatives, for group purposes pursuant to share buybacks authorized by the General Meeting. During the period from January 1, 2019 until the 2019 Annual General Meeting on May 23, 2019, we repurchased 15,000,000 shares, of which none via derivatives, of our ordinary shares pursuant to the authorization granted by the Annual General Meeting on May 24, 2018, at an average price of €7.54 and for a total consideration of €113 million. This authorization was replaced by a new authorization to buy back shares approved by the Annual General Meeting on May 23, 2019. Under the new authorization, up to 206,677,313 shares may be repurchased through April 30, 2024. Of these, 103,338,656 shares may be purchased by using derivatives. During the period from the 2019 Annual General Meeting until December 31, 2019, we repurchased 8,300,001 shares at an average price of €7.06 and for a total consideration of €59 million (excluding option premium). At December 31, 2019, the number of shares held in Treasury from buybacks totaled one share. This figure stems from one thousand shares at the beginning of the year, plus 23.3 million shares from buybacks in 2019, less 23.3 million shares which were used to fulfill delivery obligations in the course of share-based compensation of employees. We did not cancel any shares in 2019.

In addition to these share buybacks for group purposes, pursuant to a shareholder authorization approved at our 2019 Annual General Meeting, we are authorized to buy and sell, for the purpose of securities trading, our ordinary shares through April 30, 2024, provided that number of shares held for this purpose may not at any time exceed 10 % of the company’s share capital. The shares may be bought through the stock exchange or by means of a public purchase offer to all shareholders. The gross volume of these securities trading transactions is often large, and even the net amount of such repurchases or sales may, in a given month, be large, though over longer periods of time such transactions tend to offset and are in any event constrained by the 10 % of share capital limit. These securities trading transactions consist predominantly of transactions on major non-US securities exchanges. We also enter into derivative contracts with respect to our shares and limited to shares in a maximum volume of 5 % of the actual share capital.

The following table sets forth, for each month in 2019 and for the year as a whole, the total gross number of our shares repurchased by us and our affiliated purchasers (pursuant to both activities described above), the total gross number of shares sold, the net number of shares purchased or sold, the average price paid per share (based on the gross shares repurchased), the number of shares that were purchased for group purposes mentioned above and the maximum number of shares that at that date remained eligible for purchase under such programs.

Issuer Purchases of Equity Securities in 2019

Month	Total number of shares purchased	Total number of shares sold	Net number of shares purchased or (sold)	Average price paid per share (in €)	Number of shares purchased for group purposes	Maximum number of shares that may yet be purchased under plans or programs
January	51,805,171	36,836,461	14,968,710	7.55	15,000,000	197,336,313
February	7,126,211	11,817,012	(4,690,801)	7.68	0	182,336,313
March	8,723,282	16,705,604	(7,982,322)	7.85	0	182,336,313
April	5,283,842	6,933,222	(1,649,380)	7.51	0	182,336,313
May	47,272,668	47,394,099	(121,431)	6.58	0	182,336,313
June	11,098,662	11,134,252	(35,590)	6.19	0	206,677,313
July	23,064,523	14,855,637	8,208,886	7.01	8,300,000	206,677,313
August	334,928	97,425	237,503	6.34	0	198,377,313
September	5,851,562	14,956,067	(9,104,505)	7.14	0	198,377,313
October	29,303,436	29,279,026	24,410	6.62	0	198,377,313
November	1,769,790	2,102,846	(333,056)	6.75	0	198,377,313
December	2,032,080	2,227,291	(195,211)	6.75	1	198,377,313
Total 2019	193,666,155	194,338,942	(672,787)	7.02	23,300,001	198,377,312

At December 31, 2019, the number of shares held by us in treasury totaled 671,357. This figure stems from 1,344,144 shares at the beginning of the year, plus 672,787 net shares sold in 2019. At December 31, 2019, our issued share capital consisted of 2,066,773,131 ordinary shares, of which 2,066,101,774 were outstanding.

Item 16F: Change in Registrant's Certifying Accountant

Our long-time external auditor, KPMG AG Wirtschaftsprüfungsgesellschaft ("KPMG"), has acted as our auditor for the 2019 financial year covered by this Annual Report on Form 20-F and the consolidated financial statements contained herein.

New European and national regulations, however, require a rotation of the external auditor at regular intervals. The Bank's tender process for a new external auditor was announced in February 2018. An extensive and rigorous evaluation process held over seven months was run independently by the Audit Committee of the Bank's Supervisory Board. As a result of this required rotation, the Bank did not request KPMG to submit a tender proposal to stand for re-election as auditor.

The Bank's Supervisory Board decided to recommend the appointment of Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft ("EY") as external auditor. This recommendation was approved by the Bank's shareholders at the 2019 Annual General Meeting on May 23, 2019.

The new external auditor will review the presentation of the Group's financial results for the first quarter of 2020 and will be recommended at the 2020 Annual General Meeting as external auditor for the full financial year 2020.

The current audit engagement of KPMG will terminate as of March 24, 2020.

Neither of KPMG's reports on the Group's consolidated financial statements for the two preceding fiscal years – 2018 and 2019 – contained an adverse opinion or a disclaimer of an opinion, or was qualified or modified as to uncertainty, audit scope, or accounting principles, except that KPMG's reports on the consolidated financial statements of the Group, which reports appear in the 2018 and 2019 Annual Reports on Form 20-F, contained separate paragraphs stating that the Group changed its method of accounting for financial instruments in 2018 due to the adoption of International Financial Reporting Standard 9, Financial Instruments.

During the two most recent fiscal years – 2018 and 2019 – and through the date of filing of this Annual Report on Form 20-F, there has not been any disagreement between the Bank and KPMG on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreement, if not resolved to the satisfaction of KPMG, would have caused KPMG to make reference to the subject matter of the disagreement in connection with its report, nor have there been any “reportable events” as that term is defined in Item 16F(a)(1)(v) of Form 20-F.

During the two most recent fiscal years – 2018 and 2019 – and through the date of filing of this Annual Report on Form 20-F, neither the Bank nor anyone on its behalf has consulted EY regarding either the application of accounting principles to a specific transaction, either completed or proposed; or the type of audit opinion that might be rendered on the Group’s consolidated financial statements, and either a written report was provided to the Bank or oral advice was provided that the new external auditor concluded was an important factor considered by the Bank in reaching a decision as to the accounting, auditing or financial reporting issue, or regarding any matter that was either the subject of a disagreement (as defined in Item 16F(a)(1)(iv)) or a reportable event (as defined in Item 16F(a)(1)(v)).

As required by Item 16F, the Bank has provided KPMG with a copy of the foregoing disclosures and requested KPMG to furnish the Bank with a letter addressed to the Securities and Exchange Commission stating whether KPMG agrees with the statements made by the Bank in response to this Item 16F and, if not, stating the respects in which it does not agree. The letter from KPMG, dated March 20, 2020, in which KPMG states that it agrees with the statements made by the Bank in response to this Item 16F, is provided as Exhibit 15.2 of this Annual Report on Form 20-F.

Item 16G: Corporate Governance

Our common shares are listed on the New York Stock Exchange, as well as on all seven German stock exchanges. Set forth below is a description of the significant ways in which our corporate governance practices differ from those applicable to US domestic companies under the New York Stock Exchange’s listing standards as set forth in its Listed Company Manual (the “NYSE Manual”).

The Legal Framework. Corporate governance principles for German stock corporations (Aktiengesellschaften) are set forth in the German Stock Corporation Act (Aktiengesetz), the German Co-Determination Act of 1976 (Mitbestimmungsgesetz) and the German Corporate Governance Code (Deutscher Corporate Governance Kodex, referred to as the Code).

The Two-Tier Board System of a German Stock Corporation. The German Stock Corporation Act provides for a clear separation of management and oversight functions. It therefore requires German stock corporations to have both a supervisory board (Aufsichtsrat) and a management board (Vorstand). These boards are separate; no individual may be a member of both. Both the members of the management board and the members of the supervisory board must exercise the standard of care of a diligent business person to the company. In complying with this standard of care they are required to take into account a broad range of considerations, including the interests of the company and those of its shareholders, employees and creditors.

The management board is responsible for managing the company and representing the company in its dealings with third parties. The management board is also required to ensure appropriate risk management within the corporation and to establish an internal monitoring system. The members of the management board, including its chairperson or speaker, are regarded as peers and share a collective responsibility for all management decisions.

The supervisory board appoints and removes the members of the management board. It also may appoint a chairman (CEO) and one or more deputy chairmen (“Presidents”) of the management board. Although it is not permitted to make management decisions, the supervisory board has comprehensive monitoring functions with respect to the activities of the management board, including advising the management board and participating in decisions of fundamental importance to the company. To ensure that these monitoring functions are carried out properly, the management board must, among other things, regularly report to the supervisory board with regard to current business operations and business planning, including any deviation of actual developments from concrete and material targets previously presented to the supervisory board. The supervisory board may also request special reports from the management board at any time. Transactions of fundamental importance to the company, such as major strategic decisions or other actions that may have a fundamental impact on the company’s assets and liabilities, financial condition or results of operations, may be subject to the consent of the supervisory board. Pursuant to our Articles of Association (Satzung), such transactions include the granting of powers of attorney without limitation to the affairs of a specific office, major acquisitions or disposals of real estate or other participations and granting of loans, including the acquisition of participations in other companies if the German Banking Act (Kreditwesengesetz) requires approval by the Supervisory Board.

Pursuant to the German Co-Determination Act, our Supervisory Board consists of representatives elected by the shareholders and representatives elected by the employees in Germany. Based on the total number of Deutsche Bank employees in Germany these employees have the right to elect one-half of the total of twenty Supervisory Board members. The chairperson of the Supervisory Board of Deutsche Bank is a shareholder representative who has the deciding vote in the event of a tie.

This two-tier board system contrasts with the unitary board of directors envisaged by the relevant laws of all US states and the New York Stock Exchange listing standards for US companies.

German companies which have their shares listed on a stock exchange must report each year on the company's corporate governance in their annual report to shareholders.

The Recommendations of the Code. The Code was issued in 2002 by a commission composed of German corporate governance experts appointed by the German Federal Ministry of Justice in 2001. The Code was last amended in [February] 2020. It describes and summarizes the basic mandatory statutory corporate governance principles found in the provisions of German law. In addition, it contains supplemental recommendations and suggestions for standards on responsible corporate governance intended to reflect generally accepted best practice.

The Code is structured from a task perspective and addresses seven core areas of corporate governance. These are the tasks of (a) management and supervision, (b) appointment of candidates to the management board, (c) composition of the supervisory board, (d) supervisory board procedures, (e) conflicts of interest, (f) transparency and external reporting as well as (g) the remuneration for the members of the management board and the supervisory board. The Code contains three types of provisions. First, the Code contains principles which reflect material legal requirements for responsible governance, and are used in the Code to inform investors and other stakeholders. The second type of provisions is recommendations. While these are not legally binding, Section 161 of the German Stock Corporation Act requires that any German exchange-listed company declare annually that the company complies with the recommendations of the Code or, if not, which recommendations the company does not comply with ("comply or explain"). The third type of Code provisions comprises suggestions which companies may choose not to comply with without disclosure. The Code contains a significant number of such suggestions, covering almost all of the core areas of corporate governance it addresses.

In their last Declaration of Conformity of October 30, 2019, the Management Board and the Supervisory Board of Deutsche Bank stated that, since the last Declaration of Conformity issued on October 25, 2018, they have acted and will act in the future in conformity with the recommendations of the Code, with certain specified exceptions. The Declaration of Conformity is available on Deutsche Bank's internet website at www.db.com/ir/en/documents.htm.

Supervisory Board Committees. The supervisory board may form committees. The German Co-Determination Act requires that the supervisory board form a mediation committee to propose candidates for the management board in the event that the two-thirds majority of the members of the supervisory board needed to appoint members of the management board is not met.

The German Stock Corporation Act specifically mentions the possibility to establish an "audit committee" to deal with the supervision of accounting processes, the efficiency of the internal control system, the risk management system and the internal revision system as well as with the annual auditing, in particular with the selection and the independence of the external auditor and the additional services rendered by the external auditor. The Code recommends establishing such an "audit committee". The Code also recommends establishing a "nomination committee" comprised only of shareholder-elected supervisory board members to prepare the supervisory board's proposals for the election or appointment of new shareholder representatives to the supervisory board. In general the Code recommends that the supervisory board shall form – depending on the specific circumstances of the enterprise and the number of supervisory board members – committees of members with relevant specialist expertise which can handle subjects, such as corporate strategy, compensation of the members of the management board, investments and financing. Under the German Stock Corporation Act, any supervisory board committee must regularly report to the supervisory board. Sections 25d (7) to (12) of the German Banking Act require, depending on size and complexity of the respective credit institution, the establishment of supervisory board committees with specific tasks to be performed as follows: risk committee, audit committee, nomination committee (with different tasks and composition requirements than under the Code) and compensation control committee.

The Supervisory Board of Deutsche Bank has established a Chairman's Committee (Präsidentalausschuss) which is inter alia responsible for conclusion, amendment and termination of employment and pension contracts in consideration of the plenary Supervisory Board's sole authority to decide on the remuneration of the members of the Management Board, a Nomination Committee (Nominierungsausschuss), an Audit Committee (Prüfungsausschuss), a Risk Committee (Risikoausschuss), an Integrity Committee (Integritätsausschuss), a Compensation Control Committee (Vergütungskontrollausschuss), a Strategy Committee (Strategieausschuss), a Technology, Data and Innovation Committee (Technologie-, Daten- und Innovationsausschuss) and a Mediation Committee (Vermittlungsausschuss). The functions of a nominating/corporate governance committee and of a compensation committee required by the NYSE Manual for US companies listed on the NYSE are therefore performed by the Supervisory Board or one of its committees, in particular the Chairman's Committee, the Compensation Control Committee and the Mediation Committee.

Independent Board Members. The NYSE Manual requires that a majority of the members of the board of directors of a NYSE listed US company and each member of its nominating/corporate governance, compensation and audit committees be "independent" according to strict criteria and that the board of directors determines that such member has no material direct or indirect relationship with the company.

As a foreign private issuer, Deutsche Bank is not subject to these requirements. However, its audit committee must meet the more lenient independence requirement of Rule 10A-3 under the Securities Exchange Act of 1934. German corporate law does not require an affirmative independence determination, meaning that the Supervisory Board need not make affirmative findings that audit committee members are independent. However, the Code contains several rules, recommendations and suggestions to ensure the supervisory board's independent advice to, and supervision of, the management board. As noted above, no member of the management board may serve on the supervisory board (and vice versa). Supervisory board members will not be bound by directions or instructions from third parties. Any advisory, service or similar contract between a member of the supervisory board and the company is subject to the supervisory board's approval. A similar requirement applies to loans granted by the company to a supervisory board member or other persons, such as certain members of a supervisory board member's family. In addition, the German Stock Corporation Act prohibits a person who within the last two years was a member of the management board from becoming a member of the supervisory board of the same company unless he or she is elected upon the proposal of shareholders holding more than 25 % of the voting rights of the company.

The Code also recommends that each member of the supervisory board inform the supervisory board of any conflicts of interest. In the case of material conflicts of interest or ongoing conflicts, the Code recommends that the mandate of the Supervisory Board member be removed by the shareholders' meeting. The Code further recommends that any conflicts of interest that have occurred be reported by the supervisory board at the annual general meeting, together with the action taken, and that potential conflicts of interest also be taken into account in the nomination process for the election of supervisory board members.

Audit Committee Procedures. Pursuant to the NYSE Manual the audit committee of a US company listed on the NYSE must have a written charter addressing its purpose, an annual performance evaluation, and the review of an auditor's report describing internal quality control issues and procedures and all relationships between the auditor and the company. The Audit Committee of Deutsche Bank operates under written terms of reference and reviews the efficiency of its activities regularly.

Disclosure of Corporate Governance Guidelines. Deutsche Bank discloses its Articles of Association, the Terms of Reference of its Management Board, its Supervisory Board, the Chairman's Committee, the Audit Committee, the Risk Committee, the Integrity Committee, the Compensation Control Committee, the Nomination Committee, the Strategy Committee and the Technology, Data and Innovation Committee, its Declaration of Conformity under the Code pursuant to Section 161 of the German Stock Corporation Act and other documents pertaining to its corporate governance on its internet website at www.db.com/ir/en/documents.htm.

Item 16H: Mine Safety Disclosure

Not applicable.

Disclosures Under Iran Threat Reduction and Syria Human Rights Act of 2012

Under Section 219 of the Iran Threat Reduction and Syria Human Rights Act of 2012, which added Section 13(r) of the US Securities Exchange Act of 1934, as amended, an issuer of securities registered under the Securities Exchange Act of 1934 is required to disclose in its periodic reports filed under the Securities Exchange Act of 1934 certain of its activities and those of its affiliates relating to Iran and to other persons sanctioned by the US under programs relating to terrorism and proliferation of weapons of mass destruction that occurred during the period covered by the report. We describe below a number of potentially disclosable activities of Deutsche Bank AG and its affiliates. Disclosure is generally required regardless of whether the activities, transactions or dealings were conducted in compliance with applicable law. Deutsche Bank also reports transactions in which other Iranian persons or entities listed on OFAC sanctions lists were involved, whether or not they are directly or indirectly owned or controlled by the Iranian government.

Legacy Contractual Obligations Related to Guarantees and Letters of Credit. Prior to 2007, we provided guarantees to a number of Iranian entities. In almost all of these cases, we issued counter-indemnities in support of guarantees issued by Iranian banks because the Iranian beneficiaries of the guarantees required that they be backed directly by Iranian banks. In 2007, we made a decision to discontinue issuing new guarantees to Iranian or Iran-related beneficiaries. Although the pre-existing guarantees stipulate that they must be either extended or honored if we receive such a demand and we are legally not able to terminate these guarantees, we decided to reject any “extend or pay” demands under such guarantees. Even though we had exited, where possible, many of these guarantees, guarantees with an aggregate face amount of approximately €7.0 million are still outstanding as of year-end 2019. The gross revenues from this business in 2019 which we received from non-Iranian parties were approximately €21,000 and the net profit we derived from these activities was less than this amount.

We also have outstanding legacy guarantees in relation to a Syrian bank sanctioned by the US under its non-proliferation program. The aggregate face amount of these legacy guarantees was approximately €9.8 million as of December 31, 2019, the gross revenues received from non-Syrian parties for these guarantees were approximately €69,000 in 2018 and the net profit we derived from these activities was less than this amount. We intend to exit these guarantee arrangements.

Payments Executed. Deutsche Bank continues to severely restrict its policy on Iran and consequently the execution of such payments.

Incoming Payments. In 2019, we received 10 payments adding up to approximately €2.0 million in favor of non-Iranian clients of which the majority were channeled through Iranian intermediary banks. Revenues for these incoming payments were less than €100. These figures include relevant transactions for Iranian Embassy-related offices not included in the section on Iranian Consulates and Embassies below and in favor of our non-Iranian clients.

Outgoing Payments. In 2019, we executed 1 payment with an amount of €100, in favor of an Iranian Embassy-related office not included in the section on Iranian Consulates and Embassies below. Revenues for this outgoing payment were less than €10.

Operations of Iranian Bank Branches and Subsidiaries in Germany. Several Iranian banks, including Bank Melli Iran, Bank Saderat, Bank Sepah, and Europäisch-Iranische Handelsbank, have branches or offices in Germany, even though their funds and other economic resources had been frozen earlier under European law. As part of the payment clearing system in Germany and other European countries, when these branches or offices needed to make payments in Germany or Europe to cover their day-to-day operations such as rent, taxes, insurance premia and salaries for their remaining staff, or for any other kind of banking-related operations, fund transfers from these Iranian banks had been accepted through Target2.

In 2019, we executed approximately €4.2 million in (almost only in-coming) transfers through Target2 across approximately 900 transactions and credited the relevant amounts to our non-Iranian clients. The gross revenues derived from these payments were approximately €4,500.

We do not consider the execution of such transactions to be significant and we expect that we will continue to execute such transactions in the future.

Maintaining of Accounts for Iranian Consulates and Embassies. In 2019, Iranian embassies and consulates in Germany held accounts with us. The purpose of these accounts is the funding of day-to-day operational costs of the embassies and consulates, such as salaries, rent and electricity. In 2019, the total volume of outgoing payments from these accounts was approximately €9.6 million which have been funded through €9.1 million of incoming payments. From these activities, we derived gross revenues of approximately €25,000 and net profits which were less than this amount. The German government has requested that we provide these services to enable the government of Iran to conduct its diplomatic relations and we intend to continue such maintenance.

Activities of Entities in Which We Have Interests. Section 13(r) requires us to provide the specified disclosure with respect to ourselves and our “affiliates,” as defined in Exchange Act Rule 12b-2. Although we have minority equity interests in certain entities that could arguably result in these entities being deemed “affiliates,” we do not have the authority or the legal ability to acquire in every instance the information from these entities that would be necessary to determine whether they are engaged in any disclosable activities under Section 13(r). In some cases, legally independent entities are not permitted to disclose the details of their activities to us because of German privacy and data protection laws or the applicable banking laws and regulations. In such cases, voluntary disclosure of such details could violate such legal and/or regulatory requirements and subject the relevant entities to criminal prosecution or regulatory investigations.

PART III

Item 17: Financial Statements

Not applicable.

Item 18: Financial Statements

The Financial Statements of this Annual Report on Form 20-F consist of the Consolidated Financial Statements including Notes 1 to 44 thereto, which are set forth as Part 2 of the Annual Report 2019, and, as described in Note 1 “Significant Accounting Policies and Critical Accounting Estimates” thereto in the third paragraph under “Basis of Accounting”, certain parts of the Management Report set forth as Part 1 of the Annual Report 2019. Such Consolidated Financial Statements have been audited by KPMG AG Wirtschaftsprüfungsgesellschaft, as described in their “Report of Independent Registered Public Accounting Firm” included in the Annual Report 2019.

Item 19: Exhibits

We have filed the following documents as exhibits to this document.

Exhibit number	Description of Exhibit
1.1	English translation of the Articles of Association of Deutsche Bank AG, furnished as Exhibit 3.2 to our Report on Form 6-K dated December 1, 2017 and incorporated by reference herein.
2.1	The total amount of long-term debt securities of us or our subsidiaries authorized under any instrument does not exceed 10 percent of the total assets of our Group on a consolidated basis. We hereby agree to furnish to the Commission, upon its request, a copy of any instrument defining the rights of holders of long-term debt of us or of our subsidiaries for which consolidated or unconsolidated financial statements are required to be filed.
2.2	Descriptions of securities registered under the Securities Exchange Act of 1934.
4.1	Equity Plan Rules 2016, furnished as Exhibit 4.6 to our 2015 Annual Report on Form 20-F and incorporated by reference herein.
4.2	Equity Plan Rules 2017, furnished as Exhibit 4.6 to our 2016 Annual Report on Form 20-F and incorporated by reference herein.
4.3	Equity Plan Rules 2018, furnished as Exhibit 4.6 to our Registration Statement on Form S-8 No. 333-223301 and incorporated by reference herein.
4.4	Equity Plan Rules 2019, furnished as Exhibit 4.5 to our 2018 Annual Report on Form 20-F and incorporated by reference herein.
4.5	Equity Plan Rules 2020.
4.6	Key Retention Plan Equity Plan Rules 2017, furnished as Exhibit 4.7 to our 2016 Annual Report on Form 20-F and incorporated by reference herein.
4.7	Restricted Share Plan Rules 2018, furnished as Exhibit 4.8 to our Registration Statement on Form S-8 No. 333-223301 and incorporated by reference herein.
4.8	Restricted Share Plan Rules 2019, furnished as Exhibit 4.8 to our 2018 Annual Report on Form 20-F and incorporated by reference herein.
4.9	Restricted Share Plan Rules 2020.
8.1	List of Subsidiaries.
12.1	Principal Executive Officer Certifications Required by 17 C.F.R. 240.13a-14(a).
12.2	Principal Financial Officer Certifications Required by 17 C.F.R. 240.13a-14(a).
13.1	Chief Executive Officer Certification Required by 18 U.S.C. Section 1350.
13.2	Chief Financial Officer Certification Required by 18 U.S.C. Section 1350.
14.1	Legal Opinion regarding confidentiality of related party customers.
15.1	Consent of KPMG AG Wirtschaftsprüfungsgesellschaft.
15.2	Letter, dated March 20, 2020, from KPMG AG Wirtschaftsprüfungsgesellschaft to the Securities and Exchange Commission.
101.1	Interactive Data File.

Signatures

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and has duly caused and authorized the undersigned to sign this annual report on its behalf.

Date: March 20, 2020

Deutsche Bank Aktiengesellschaft

/s/ CHRISTIAN SEWING

Christian Sewing
Chairman of the Management Board
Chief Executive Officer

/s/ JAMES VON MOLTKE

James von Moltke
Member of the Management Board
Chief Financial Officer

Deutsche Bank



Annual Report 2019

Deutsche Bank

The Group at a glance

	2019	2018
Group financial targets		
Post-tax return on average tangible shareholders' equity ¹	(10.9) %	(0.1) %
Adjusted costs ex. transformation charges, in €bn. ²	21.6	22.8
Cost/income ratio ³	108.2 %	92.7 %
Common Equity Tier 1 capital ratio	13.6 %	13.6 %
Leverage ratio (fully loaded)	4.2 %	4.1 %
Statement of Income		
Total net revenues, in €bn.	23.2	25.3
Provision for credit losses, in €bn.	0.7	0.5
Total noninterest expenses, in €bn.	25.1	23.5
Profit (loss) before tax, in €bn.	(2.6)	1.3
Profit (loss) attributable to Deutsche Bank shareholders, in €bn.	(5.7)	(0.1)
	Dec 31, 2019	Dec 31, 2018
Balance Sheet		
Total assets, in €bn.	1,298	1,348
Net assets (adjusted), in €bn.	946	1,010
Loans (gross of allowance for loan losses), in €bn.	434	405
Deposits, in €bn.	572	564
Allowance for loan losses, in €bn.	4	4
Shareholders' equity, in €bn.	56	62
Resources		
Risk-weighted assets, in €bn.	324	350
Thereof: Operational Risk RWA, in €bn.	73	92
Leverage exposure, in €bn.	1,168	1,273
Tangible shareholders' equity (Tangible book value), in €bn.	50	54
Liquidity reserves in €bn.	222	259
Employees (full-time equivalent)	87,597	91,737
Branches	1,931	2,064
Ratios		
Post-tax return on average shareholders' equity	(9.5) %	(0.1) %
Provision for credit losses as % of loans, in bps	17	13
Loan-to-deposit ratio	75.8 %	71.7 %
Leverage ratio (phase-in)	4.3 %	4.3 %
Liquidity coverage ratio	141 %	140 %
Per Share information		
Basic earnings per share	€(2.71)	€(0.01)
Diluted earnings per share	€(2.71)	€(0.01)
Book value per share outstanding	€26.37	€29.69
Tangible book value per share outstanding	€23.41	€25.71

¹ Based on profit (loss) attributable to Deutsche Bank shareholders after AT1 coupon assumed accruals. For further information, please refer to "Supplementary Information (Unaudited): Non-GAAP Financial Measures" of this report.

² The reconciliation of adjusted costs is provided in section "Supplementary Information (Unaudited): Non-GAAP Financial Measures: Adjusted costs" of this document.

³ Total noninterest expenses as a percentage of net interest income before provision for credit losses, plus noninterest income.

Due to rounding, numbers presented throughout this document may not sum precisely to the totals provided and percentages may not precisely reflect the absolute figures.

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Combined Management Report

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Operating and Financial Review

The following discussion and analysis should be read in conjunction with the consolidated financial statements and the related notes to them. Our Operating and Financial Review includes qualitative and quantitative disclosures on Segmental Results of Operations and Entity Wide disclosures on Net Revenue Components as required by International Financial Reporting Standard (IFRS) 8, "Operating Segments". For additional Business Segment disclosure under IFRS 8 please refer to Note 4 "Business Segments and Related Information" of the Consolidated Financial Statements. Forward-looking statements are disclosed in our Outlook section.

Executive Summary

The Global Economy

Economic growth (in %) ¹	2019 ²	2018	Main driver
Global Economy	3.1	3.8	Due to trade-related and geopolitical uncertainty, international trade and global industrial production weakened noticeably. Although trade policy and Brexit issues moved towards resolution by year-end, in the course of the year trade policy in particular undoubtedly slowed economic growth in both industrialized countries and emerging markets
Of which:			
Industrialized countries	1.6	2.2	Slowing momentum of global trade adversely affected industrialized countries. The realignment of global value chains weighed on economic activity, while domestic demand remained a solid pillar of growth
Emerging markets	4.0	4.9	Emerging markets were also negatively affected by trade tensions and the related slowdown of world trade. As a result, economic growth decelerated markedly in major emerging market regions
Eurozone Economy	1.2	1.9	Trade tensions and the lingering Brexit as well as regional political uncertainties weighed on Eurozone economic activity. Domestic demand was the driver of growth. Nevertheless, there were initial signs of negative spillovers from the externally driven weakness of the industrial sector. The European Central Bank (ECB) reinitiated net asset purchases and lowered the deposit rate, thereby further easing monetary conditions
Of which: German economy	0.6	1.5	The German manufacturing industry has fallen into recession. The slowing world trade, and idiosyncratic factors, e.g. auto sector, led to a slowdown in production and order intake. In contrast, the construction and the more domestic oriented services industries continued to expand. Private consumption was supported by a strong labor market
U.S. Economy	2.3	2.9	The U.S. economy was supported by robust private consumption and easy financial conditions. Nevertheless, trade uncertainty weighed on manufacturing output and thus reduced capex investments. The labor market remained strong, with the unemployment rate reaching a fifty-year low. The Federal Reserve Bank supported economic activity by lowering its policy rate three times in 2019
Japanese Economy	0.7	0.3	Economic activity in the manufacturing sector has weakened due to the slowdown in overseas economies. Non-manufacturing sectors remained stable. Consumption has been firm, despite an increase in the consumption tax rate by 2 percentage points in October 2019
Asian Economy³	5.2	6.2	Growth in the region has clearly been hit by the trade conflict, especially the smaller, more open economies, where investments growth declined as well
Of which: Chinese Economy	6.1	6.7	In China, growth slowed due to adverse impacts of US tariffs and weaker world trade in general, but tax cuts and infrastructure spending supported economic activity. Domestic demand growth has bottomed during the year

¹ Annual Real GDP Growth (% YoY). Sources: National Authorities unless stated otherwise.

² Sources: Deutsche Bank Research.

³ Including China, India, Indonesia, Republic of Korea, and Taiwan, ex Japan.

The Banking Industry

Dec 31, 2019

Growth year-over-year (in %)	Corporate Lending	Retail Lending	Corporate Deposits	Retail Deposits	Main driver
Eurozone	1.5	3.3	6.0	5.4	Stable loan growth; deposit growth has accelerated and is now the highest since the financial crisis.
Of which: Germany	5.7	4.5	4.2	4.8	Due to record-low and partly negative interest rates, strongest loan expansion since the financial crisis. Nevertheless, similar growth in deposits.
US	3.4	4.2	5.9 ¹	5.9 ¹	Significant slowdown in corporate lending, but pickup on the retail side. Strong deposit momentum.
China	9.4	15.5	5.4	13.4	Slight cooling in household lending. Private-sector loans now essentially equal private-sector deposits.

¹ Total US deposits as segment breakdown is not available.

Debt issuance volumes reached a record high in 2019 whereas equity issuance was weak. Mergers and acquisitions activity showed strong momentum, even though the volume of announced transactions was slightly lower than in the prior year. Corporate finance revenues as a whole were solid, albeit modestly lower than in 2018. Fees from debt issuance reached an all-time high, but fell in all other product segments. Revenues declined in all regions except Asia-Pacific. Similar to issuance dynamics, fixed income trading performed well, in contrast to shrinking equity trading volumes, while derivatives trading was flat year-over-year.

Deutsche Bank Performance

On July 7, 2019, Deutsche Bank announced a significant strategic transformation to improve long term profitability and returns to shareholders. In accordance with the strategy, our business operations were reorganized in the third quarter of 2019 under the divisional structure comprising Corporate Bank (CB), Investment Bank (IB), Private Bank (PB), Asset Management (AM), Capital Release Unit (CRU) and Corporate & Other (C&O). The key changes compared to Deutsche Bank's previously reported segmental information are outlined in Note 4 "Business segments and related information" of our Consolidated Financial Statements. As part of our longer-term strategic targets we also set new near-term objectives for 2019 on adjusted costs excluding transformation charges, CET1 capital ratio and Leverage ratio, which replace the former objectives and are discussed below.

Results were in line with, or ahead of, all 2019 near-term objectives. Deutsche Bank reported a net loss of €5.3 billion in 2019, entirely driven by transformation-related effects. Pre-tax loss was €2.6 billion in 2019 after absorbing transformation charges of €1.1 billion, goodwill impairments of €1.0 billion and restructuring and severance expenses of €805 million. The Core Bank, which excludes the Capital Release Unit, reported a pre-tax profit of €543 million in 2019. Adjusting for transformation charges of €635 million, goodwill impairments of €1.0 billion, restructuring and severance expenses of €649 million and specific revenue items of negative €108 million, pre-tax profit in the Core Bank would have been €2.8 billion, up 7 % versus 2018 on a comparable basis.

Revenues excluding specific items, Adjusted costs, Adjusted costs excluding transformation charges, Adjusted costs excluding transformation charges and the impact of the Global Prime Finance transfer to BNP Paribas, Adjusted profit (loss) before tax and Post-tax return on average tangible shareholders' equity are non-GAAP financial measures. Please refer to "Supplementary Information (Unaudited): Non-GAAP Financial Measures" of this annual report for the definitions of such measures and reconciliations to the IFRS measures on which they are based.

Group Key Performance Indicators

Near-term operating performance	Status end of 2019	Status end of 2018
Post-tax return on average tangible shareholders' equity ¹	(10.9) %	(0.1) %
Adjusted costs excl. transformation charges ²	€21.6 bn	€22.8 bn
Employees ³	87,597	91,737
Capital performance		
Common Equity Tier 1 capital ratio ⁴	13.6 %	13.6 %
Leverage ratio (fully loaded) ⁴	4.2 %	4.1 %

¹ Based on profit (loss) attributable to Deutsche Bank shareholders after AT1 coupon assumed accruals. For further information, please refer to "Supplementary Information (Unaudited): Non-GAAP Financial Measures" of this annual report.

² Excluding transformation charges but including expenses of €102 million incurred in the fourth quarter of 2019 associated with the Prime Finance platform being transferred to BNP Paribas and which are consistent with those eligible for reimbursement under the terms of the transfer agreement. Reimbursement is effective from December 1, 2019, and as a result approximately one third of the aforementioned fourth-quarter cost has been recorded as reimbursable in revenues for the month of December. For further information, please refer to "Supplementary Information (Unaudited): Non-GAAP Financial Measures" of this annual report.

³ Internal full-time equivalents.

⁴ Further detail on the calculation of this ratio is provided in the Risk Report.

Net revenues in 2019 were €23.2 billion, a decline of €2.2 billion, or 8 % from 2018. The main drivers for the decrease were the non-recurrence of revenues associated with discontinued business activities, negative mark-to-market impacts as well as hedging and de-risking costs in the Capital Release Unit (CRU). Net revenues in the Core Bank decreased by 2 % to €23.0 billion on a reported basis. Excluding the impact from specific revenue items, revenues in the Core Bank were stable year-on-year. Net revenues in the Corporate Bank (CB) of €5.3 billion were flat year-on-year despite interest rate headwinds, mainly driven by loan growth, improved flow business and repricing measures. Net revenues in the Investment Bank (IB) decreased by 7 % to €7.0 billion in 2019, impacted by lower revenues in Equity Origination and Advisory as well as negative Debt Valuation Adjustments (DVA) on certain derivative liabilities, while revenues in Debt Origination and FIC Sales & Trading were essentially flat. Full-year net revenues in the Private Bank (PB) were €8.2 billion, down 5 % year-on-year primarily reflecting the absence of a gain from a property sale in 2018 and lower positive impacts from workout activities in Sal. Oppenheim. Excluding these items, net revenues in the Private Bank remained essentially flat as growth in loan volumes and fee income partly compensated the interest rate headwinds. Net revenues in Asset Management (AM) of €2.3 billion increased by 7 % compared to the prior year driven by significantly higher performance fees in Multi-Asset and Alternatives. Revenues in Corporate and Other (C&O) were €155 million compared to negative €120 million in the prior year reflecting a favorable impact from valuation and timing differences driven by the positive mark-to-market impact of hedging activities in connection with the bank's funding arrangements, partly offset by higher funding and liquidity charges.

Provision for credit losses was €723 million in 2019, an increase of €199 million, or 38 %, compared to an exceptionally low level of provisions in 2018. The year-on-year increase was mainly a result of a small number of specific events across all segments and lower releases and recoveries compared to the prior year. At 17 basis points of loans, the level of provisioning remains low, reflecting the bank's strong underwriting standards and the low risk profile of the underlying loan portfolio.

Noninterest expenses were €25.1 billion in 2019, an increase of €1.6 billion or 7 %, from 2018 mainly driven by transformation charges of €1.1 billion, goodwill impairments of €1.0 billion and restructuring and severance expenses of €805 million. Adjusted costs excluding transformation charges were €21.6 billion, down 5 % compared to the prior year and in line with our target of €21.5 billion for 2019 if adjusted for expenses of €102 million incurred in the fourth quarter of 2019 associated with the Prime Finance platform being transferred to BNP Paribas and which are consistent with those eligible for reimbursement under the terms of the transfer agreement (reimbursement is effective from December 1, 2019, and as a result approximately one third of the aforementioned fourth-quarter cost has been recorded as reimbursable in revenues for the month of December). Compensation and benefits expenses declined year-on-year reflecting workforce reductions of over 4,100 full-time equivalents during 2019. Reductions in non-compensation costs driven by disciplined cost management were achieved across all major categories except IT expenses, which remained essentially stable during 2019, reflecting Deutsche Bank's commitment to continue spending on technology and controls in line with its transformation strategy.

Loss before tax was €2.6 billion in 2019 compared to a profit of €1.3 billion in 2018, mainly driven by lower revenues in the Capital Release Unit and the aforementioned transformation charges, goodwill impairments and restructuring and severance expenses.

Income tax expense was €2.6 billion in 2019, compared to €989 million in the prior year as 2019 included transformation related deferred tax asset valuation adjustments of €2.8 billion.

The bank reported a net loss of €5.3 billion in 2019, entirely driven by the aforementioned transformation-related effects, compared to a profit of €341 million in 2018.

The Common Equity Tier 1 (CET 1) capital ratio was 13.6 % at the end of 2019, unchanged compared to 2018. The leverage ratio improved from 4.1 % in 2018 to 4.2 % at the end of 2019 on a fully loaded basis. The leverage ratio on a phase-in basis was 4.3 % in 2019, unchanged compared to the prior year.

Deutsche Bank Group

Deutsche Bank: Our Organization

Headquartered in Frankfurt am Main, Germany, we are the largest bank in Germany and one of the largest financial institutions in Europe and the world, as measured by total assets of € 1,298 billion as of December 31, 2019. As of that date, we employed 87,597 full-time equivalent internal employees and operated in 59 countries out of 1,931 branches worldwide, of which 69 % were in Germany. We offer a wide variety of investment, financial and related products and services to private individuals, corporate entities and institutional clients around the world.

As of December 31, 2019, we were organized into the following segments:

- Corporate Bank (CB)
- Investment Bank (IB)
- Private Bank (PB)
- Asset Management (AM)
- Capital Release Unit (CRU)
- Corporate & Other (C&O)

In addition, Deutsche Bank has a country and regional organizational layer to facilitate a consistent implementation of global strategies.

We have operations or dealings with existing and potential customers in most countries in the world. These operations and dealings include working through:

- subsidiaries and branches in many countries;
- representative offices in many other countries; and
- one or more representatives assigned to serve customers in a large number of additional countries.

We have made the following significant capital expenditures or divestitures since January 1, 2017 that are not allocated to the capital expenditures or divestitures of corporate divisions:

In August 2016, Deutsche Bank Group entered into an agreement to sell Deutsche Bank S.A., its subsidiary in Argentina, to Banco Comafi S.A. The transaction is part of the Group's plan to rationalize its global footprint. In June 2017, the transaction was successfully completed.

Capital expenditures or divestitures related to the divisions are included in the respective Corporate Division Overview.

Management Structure

The Management Board has structured the Group as a matrix organization, comprising Corporate Divisions and Infrastructure Functions operating in legal entities and branches and across geographic locations.

The Management Board is responsible for the management of the company in accordance with the law, the Articles of Association and the Terms of Reference for the Management Board with the objective of creating sustainable value in the interests of the company. It considers the interests of shareholders, employees and other company-related stakeholders. The Management Board manages Deutsche Bank Group in accordance with uniform guidelines; it exercises general control over all Group companies.

The Management Board decides on all matters prescribed by law and the Articles of Association and ensures compliance with the legal requirements and internal guidelines (compliance). It also takes the necessary measures to ensure that adequate internal guidelines are developed and implemented. The Management Board's responsibilities include, in particular, the bank's strategic management and direction, the allocation of resources, financial accounting and reporting, control and risk management, as well as corporate control and a properly functioning business organization. The members of the Management Board are collectively responsible for managing the bank's business.

The allocation of functional responsibilities to the individual members of the Management Board is described in the Business Allocation Plan for the Management Board, which sets the framework for the delegation of responsibilities to senior management below the Management Board. The Management Board endorses individual accountability of senior position holders as opposed to joint decision-taking in committees. At the same time, the Management Board recognizes the importance of having comprehensive and robust information across all businesses in order to take well informed decisions and established, in addition to Infrastructure Committees, Business Executive Committees and Regional Committees, the "Group Management Committee" which aims to improve the information flow across the corporate divisions and between the Corporate Divisions and the Management Board. The Group Management Committee as a senior platform, which is not required by the German Stock Corporation Act, is composed of all Management Board members as well as most senior business representatives to exchange information and discuss business, growth and profitability.

Corporate Bank

Corporate Division Overview

The Corporate Bank (CB) comprises Global Transaction Banking as well as Commercial Banking in Germany. The division is primarily focused on serving corporate clients, including the German "Mittelstand", larger and smaller sized commercial clients in Germany as well as multinational companies. It is also a partner to financial institutions with regards to certain Transaction Banking services. Global Transaction Banking consists of the four businesses Cash Management, Trade Finance & Lending, Trust & Agency Services and Securities Services. Commercial Banking provides integrated expertise and a holistic product offering across the Deutsche Bank and Postbank brands in Germany.

In CB, we made the following significant capital divestiture since January 1, 2017:

In early October 2017, Deutsche Bank Group signed a binding agreement to sell its Alternative Fund Services business, a unit of the Global Transaction Banking division, to Apex Group Limited. The transaction was completed in the second quarter of 2018.

There have been no significant capital expenditures since January 1, 2017.

Products and Services

The Corporate Bank is a global provider of risk management solutions, cash management, lending, trade finance, trust and agency services as well as securities services. Focusing on the finance departments of corporate and commercial clients and financial institutions in Germany and across the globe, our holistic expertise and global network allows us to offer integrated solutions.

In addition to the Corporate Bank product suite, our Coverage teams provide clients with access to the expertise of the Investment Bank.

Distribution Channels and Marketing

The global coverage function in the Corporate Bank brings together the Corporate Banking Coverage unit, focusing on international Large Corporate clients, Global Subsidiary Coverage covering subsidiaries of multinational clients and Finance Solutions Group providing treasury solutions. The unit is managed regionally in APAC, Americas and EMEA to ensure close coverage of our clients. Commercial Banking coverage provides products and services to German Small and Mid-Caps.

Investment Bank

Corporate Division Overview

The Investment Bank (IB) combines Deutsche Bank's Fixed Income, Currency (FIC) Sales & Trading and Origination & Advisory, as well as Deutsche Bank Research. It focuses on its traditional strengths in financing, advisory, fixed income and currencies, bringing together wholesale banking expertise across coverage, risk management, sales and trading, investment banking and infrastructure. This enables IB to align resourcing and capital across our client and product perimeter to effectively serve the bank's clients.

In IB we made the following significant capital divestiture since January 1, 2017:

In April 2019, Tradeweb closed its initial public offering. Tradeweb is a financial services company that builds and operates over-the-counter (OTC) marketplaces for trading fixed income products and derivatives. Deutsche Bank Group has had an economic interest in Tradeweb since 2007 and participated in the initial public offering, alongside other large bank shareholders by selling a portion of its holdings.

There have been no significant capital expenditures since January 1, 2017.

Products and Services

FIC Sales & Trading brings together an institutional sales force and research with trading and structuring expertise across Foreign Exchange, Rates, Credit and Emerging Markets. The FIC Sales & Trading business are positioned strategically to respond to increasing automation, regulatory expectations and client demand for standardisation and transparency in execution across credit, fixed income and currency products in industrialized countries and emerging markets.

Origination and Advisory is responsible for our debt origination business, mergers and acquisitions (M&A), and a focused equity advisory and origination platform. It is comprised of regional and industry-focused coverage teams, co-led from the bank's hubs in Europe, the U.S. and Asia Pacific, that facilitate the delivery of a range of financial products and services to the bank's corporate clients.

Distribution Channels and Marketing

Coverage of the IB's clients is provided by the Institutional Client Group, which houses our debt sales team and works in conjunction with our Finance Solutions Group in the Corporate Bank, covering capital markets and Treasury solutions. The close cooperation between these groups help to create enhanced synergies leading to increased cross selling of products/solutions to our clients. Both groups work closely with the Investment Banking Coverage team within Origination & Advisory.

Private Bank

Corporate Division Overview

In Private Bank (PB), we serve personal and private clients, wealthy individuals, entrepreneurs and families. In our international businesses we also focus on business and commercial clients. We are organized along three core business divisions: Private Bank Germany, Private & Commercial Business International and Wealth Management. Our product range includes payment and account services, credit and deposit products as well as investment advice and selected digital offerings. With these products, we offer our customers both the coverage of all basic financial needs as well as individual, tailor-made solutions.

PB made the following significant capital divestitures since January 1, 2017:

In March 2017, Deutsche Bank Group signed a definitive agreement to sell its share in Concardis GmbH, a leading German payment service provider established in form of a joint venture of the German banking sector, to a consortium of Advent International and Bain Capital Private Equity. In July 2017, the transaction was successfully completed.

There have been no significant capital expenditures since January 1, 2017.

Products and Services

In our Private Bank Germany division, we pursue a differentiated, customer-focused approach with two strong and complementary brands – “Deutsche Bank” and “Postbank”. With our “Deutsche Bank” brand we focus on providing our private customers with banking and financial products and services that include sophisticated and individual advisory solutions. The focus of our “Postbank” brand remains on providing our retail customers with standard products and daily retail banking services. In cooperation with Deutsche Post DHL AG, we also offer postal and parcel services in the Postbank brand branches.

Our Private & Commercial Business International division provides banking and other financial services to private and commercial clients in Italy, Spain, Belgium and India with some variations in the product offering among countries that are driven by local market, regulatory and customer requirements.

Our Wealth Management division serves wealthy individuals and families as well as entrepreneurs and foundations. We support our clients in planning, managing and investing their wealth, financing their personal and business interests and servicing their institutional and corporate needs. We also provide institutional-type services for sophisticated clients and complement our offerings by closely collaborating with the Investment Bank, the Corporate Bank and Asset Management.

We also have established a Digital Ventures unit to holistically steer PB’s digital agenda across businesses and brands, focusing on new platform-based digital business models, venture capital investments as well as end-to-end process digitalization and appropriate data architecture as a basis for structured data analysis and application of Artificial Intelligence.

Distribution Channels and Marketing

We pursue an omni-channel approach and our customers can flexibly choose between different possibilities to access our services and products, such as branches, advisory centers, mobile networks of independent consultants and online/mobile banking. The expansion of digital capabilities remains a strong focus across all our businesses. We will continue to optimize our omni-channel mix in the future in order to provide our customers with the most convenient access to our products and services.

In our Private Bank Germany business and in our Private & Commercial Business International we have similar distribution channels. Those include our branch network, supported by customer call centers and self-service terminals; advisory centers of the Deutsche Bank brand in Germany, Italy and Spain, which connect our branch network with our digital offerings; online and mobile banking including our Digital Platform, through which we provide a transaction platform for banking, brokerage and self-services, combined with a multi-mobile offering for smartphones and tablets; and lastly, financial advisors, as an additional service channel in collaboration with self-employed financial advisors as well as sales and cooperation partners.

Our Wealth Management business division has a distinct client coverage team approach with Relationship and Investment Managers supported by Client Service Executives assisting clients with wealth management services and open-architecture products. In addition, in Germany, Deutsche Oppenheim Family Offices AG provides family office services, discretionary funds and advisory solutions.

Asset Management

Corporate Division Overview

With € 768 billion of assets under management as of December 31, 2019, Asset Management (AM) is one of the world's leading asset management organizations. AM serves a diverse client base of retail and institutional investors worldwide, with a strong presence in our home market in Germany. These clients include large institutions, governments, corporations and foundations as well as individual investors.

In March 2018, Deutsche Bank completed the partial initial public offering (IPO) of DWS Group GmbH & Co. KGaA ("DWS"), the holding company for AM. Since March 23, 2018, shares of DWS are listed on the Frankfurt stock exchange. We retain an 79.49 % ownership interest in DWS and AM remains a core business for Deutsche Bank.

There have been no significant capital expenditures or divestitures since January 1, 2017.

Products and Services

AM's investment offerings span all major asset classes including equity, fixed income, cash and multi asset as well as alternative investments. Our alternative investments include real estate, infrastructure, private equity, liquid real assets and sustainable investments. We also offer a range of passive investments. In addition, AM's solution strategies are targeted to client needs that cannot be addressed by traditional asset classes alone. Such services include insurance and pension solutions, asset-liability management, portfolio management solutions, asset allocation advisory, structuring and overlay.

Distribution Channels and Marketing

AM's product offerings are distributed across EMEA (Europe, Middle East and Africa), the Americas and Asia Pacific through a global distribution network comprising of investment professionals and sales professionals across 15 countries. AM also leverages third-party distribution channels, including Deutsche Bank Group.

Capital Release Unit

By establishing our new Capital Release Unit (CRU), we plan to liberate capital currently consumed by low return assets, businesses with low profitability and businesses no longer deemed strategic. This includes substantially all of our Equities Sales & Trading business, lower yielding fixed income positions, particularly in Rates, our former CIB Non-Strategic portfolio as well as the exited businesses from our Private & Commercial Bank which include our retail operations in Portugal and Poland.

CRU made the following significant capital divestitures since January 1, 2017:

On December 28, 2015, we agreed to sell our entire 19.99 % stake in Hua Xia Bank Company Limited to PICC Property and Casualty Company Limited. The share transfer was completed in the fourth quarter 2016 and all remaining closing formalities were completed in the first quarter of 2017.

In December 2017, the Group entered into an agreement to sell its Polish Private & Commercial Banking business, excluding its foreign currency denominated retail mortgage portfolio, together with DB Securities S.A., to Santander Bank Polska. The transaction was successfully completed in the fourth quarter 2018.

In March 2018, Deutsche Bank Group entered into an agreement to sell the retail banking business in Portugal to ABANCA Corporación Bancaria S.A. The parties closed the transaction in the first half of 2019.

BNP Paribas and Deutsche Bank have signed a master transaction agreement to provide continuity of service to Deutsche Bank's Prime Finance and Electronic Equities clients. Under the agreement Deutsche Bank will continue to operate the platform until clients can be migrated to BNP Paribas, which is expected to occur by the end of 2021.

Infrastructure

The Infrastructure functions perform control and service functions and, in particular, tasks relating to Group-wide, supra-divisional resource-planning, steering and control, as well as tasks relating to risk, liquidity and capital management.

The infrastructure functions are organized into the following areas of responsibility of our senior management:

- Finance, Tax, Treasury, Investor Relations
- Risk, Compliance, Anti Financial Crime
- Legal, Group Governance, Data Privacy, Government & Regulatory Affairs
- Technology, Data and Innovation
- Corporate Services, Operations (excl. Settlement Operations)
- Transformation, HR

Each such function is allocated to a member of the Management Board who does not have primary responsibility for a business division. Infrastructure also includes Communications & Corporate Social Responsibility, Research, Group Audit which report to the Chief Executive Officer.

Significant Capital Expenditures and Divestitures

Information on each Corporate Division's significant capital expenditures and divestitures for the last three financial years has been included in the above descriptions of the Corporate Divisions.

Since January 1, 2019, there have been no public takeover offers by third parties with respect to our shares and we have not made any public takeover offers for our own account in respect of any other company's shares.

Results of Operations

Consolidated Results of Operations

On January 1, 2018, the Group adopted IFRS 9 “Financial Instruments”, which replaced IAS 39, “Financial Instruments: Recognition and Measurement”. The adoption resulted in changes with regard to impairment as well as classification and measurement, leading to changes regarding the presentation of the financial statements. These changes included the introduction of specific line items in the consolidated balance sheet and consolidated income statement, respectively, for Financial Assets at Fair Value through Other Comprehensive Income and the discontinuation of specific line items for Financial Assets Available for Sale and Securities Held to Maturity for financial years commencing January 1, 2018.

You should read the following discussion and analysis in conjunction with the consolidated financial statements.

Condensed Consolidated Statement of Income

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net interest income	13,749	13,192	12,378	557	4	814	7
Provision for credit losses	723	525	525	199	38	(0)	(0)
Net interest income after provision for credit losses	13,026	12,667	11,853	359	3	815	7
Commissions and fee income ¹	9,520	10,039	11,002	(519)	(5)	(963)	(9)
Net gains (losses) on financial assets/liabilities at fair value through profit or loss ¹	193	1,332	2,926	(1,139)	(85)	(1,593)	(54)
Net gains (losses) on financial assets at fair value through other comprehensive income	260	317	N/A	(57)	(18)	317	N/M
Net gains (losses) on financial assets at amortized cost	0	2	N/A	(2)	(78)	2	N/M
Net gains (losses) on financial assets available for sale	N/A	N/A	479	N/M	N/M	(479)	N/M
Net income (loss) from equity method investments	110	219	137	(109)	(50)	82	60
Other income (loss)	(669)	215	(475)	(883)	N/M	689	N/M
Total noninterest income	9,416	12,124	14,070	(2,709)	(22)	(1,945)	(14)
Total net revenues²	22,441	24,791	25,922	(2,350)	(9)	(1,131)	(4)
Compensation and benefits	11,142	11,814	12,253	(672)	(6)	(439)	(4)
General and administrative expenses	12,253	11,286	11,973	966	9	(687)	(6)
Impairment of goodwill and other intangible assets	1,037	0	21	1,037	N/M	(21)	N/M
Restructuring activities	644	360	447	283	79	(86)	(19)
Total noninterest expenses	25,076	23,461	24,695	1,615	7	(1,234)	(5)
Profit (loss) before tax	(2,634)	1,330	1,228	(3,965)	N/M	103	8
Income tax expense (benefit)	2,630	989	1,963	1,641	166	(974)	(50)
Profit (loss)	(5,265)	341	(735)	(5,606)	N/M	1,077	N/M
Profit (loss) attributable to noncontrolling interests	125	75	15	50	68	59	N/M
Profit (loss) attributable to Deutsche Bank shareholders and additional equity components	(5,390)	267	(751)	(5,657)	N/M	1,017	N/M
Profit (loss) attributable to additional equity components	328	319	325	9	3	(6)	(2)
Profit (loss) attributable to Deutsche Bank shareholders	(5,718)	(52)	(1,076)	(5,666)	N/M	1,024	(95)

N/M – Not meaningful

¹ For further detail please refer to Note 1 “Significant Accounting Policies and Critical Accounting Estimates” of this annual report.

² After provision for credit losses.

Net Interest Income

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Total interest and similar income	25,149	24,793	23,542	356	1	1,251	5
Total interest expenses	11,400	11,601	11,164	(201)	(2)	437	4
Net interest income	13,749	13,192	12,378	557	4	814	7
Average interest-earning assets ¹	951,287	990,670	1,021,697	(39,383)	(4)	(31,028)	(3)
Average interest-bearing liabilities ¹	711,574	745,904	790,488	(34,330)	(5)	(44,584)	(6)
Gross interest yield ²	2.54 %	2.39 %	2.18 %	0.15 ppt	6	0.21 ppt	10
Gross interest rate paid ³	1.47 %	1.41 %	1.25 %	0.06 ppt	4	0.16 ppt	13
Net interest spread ⁴	1.08 %	0.98 %	0.93 %	0.09 ppt	9	0.05 ppt	6
Net interest margin ⁵	1.45 %	1.33 %	1.21 %	0.11 ppt	9	0.12 ppt	10

ppt – Percentage points

¹ Average balances for each year are calculated in general based upon month-end balances.

² Gross interest yield is the average interest rate earned on our average interest-earning assets.

³ Gross interest rate paid is the average interest rate paid on our average interest-bearing liabilities.

⁴ Net interest spread is the difference between the average interest rate earned on average interest-earning assets and the average interest rate paid on average interest-bearing liabilities.

⁵ Net interest margin is net interest income expressed as a percentage of average interest-earning assets.

2019

Net interest income was € 13.7 billion in 2019 compared to € 13.2 billion in 2018, an increase of € 557 million, or 4 %. The increase was primarily driven by a € 24 billion, or 6%, growth in average loan volumes, lower volumes of negative yielding deposits with banks and central banks, mainly in Germany, as well as a favorable interest rate development in the U.S. in the first half of 2019. These positive effects were partly offset by lower interest income associated with discontinued business activities following the execution of the bank's transformation strategy announced in July 2019. Interest income included € 93 million related to EU government grants under the Targeted Longer-Term Refinancing Operations II (TLTRO II) program, which remained unchanged compared to 2018. Overall, the bank's net interest margin improved by 11 basis points compared to the prior year to 1.45 %, in 2019.

2018

Net interest income was € 13.2 billion in 2018 compared to € 12.4 billion in 2017, an increase of € 814 million, or 7 %. The increase in net interest income was primarily driven by higher average rates, resulting in an improved net interest spread compared to 2017. Interest income increased primarily due to higher average rates on loans and deposits with banks, mainly in the U.S. and Asia, while total interest expenses also increased, but to a lesser extent. Also contributing to the increase in net interest income was a more pronounced reduction of average interest-bearing liabilities than average interest-earning assets. The decline in balance sheet volume occurred mostly in IB reflecting the division's strategic repositioning. Interest income included € 93 million related to EU government grants under the TLTRO II program, compared to € 116 million in 2017. Overall, the bank's net interest margin improved by 12 basis points compared to the prior year to 1.33 % in 2018.

Net Gains (Losses) on Financial Assets/Liabilities at Fair Value through Profit or Loss

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Trading income	197	52	3,374	145	N/M	(3,322)	(98)
Net gains (losses) on non-trading financial assets mandatory at fair value through profit or loss	377	212	N/A	165	78	212	N/M
Net gains (losses) on financial assets/liabilities designated at fair value through profit or loss	(381)	1,069	(448)	(1,449)	N/M	1,517	N/M
Total net gains (losses) on financial assets/liabilities at fair value through profit or loss	193	1,332	2,926	(1,139)	(85)	(1,593)	(54)

N/M – Not meaningful

2019

Net gains on financial assets/liabilities at fair value through profit or loss were € 193 million in 2019, compared to € 1.3 billion in 2018. The decrease of € 1.1 billion, or 85 %, was primarily driven by the non-recurrence of revenues associated with discontinued business activities following the execution of the bank's transformation strategy announced in July 2019, negative mark-to-market impacts as well as de-risking costs in the Capital Release Unit (CRU).

2018

Net gains on financial assets/liabilities at fair value through profit or loss were € 1.3 billion in 2018, compared to € 2.9 billion in 2017. The decrease of € 1.6 billion, or 54 %, was primarily driven by mark-to-market losses due to higher U.S. interest rates. These losses were partly offset by related positive effects in net interest income. Net gains on financial assets/liabilities at fair value through profit or loss in 2018 were also impacted by lower deal volumes resulting from challenging market conditions.

Net Interest Income and Net Gains (Losses) on Financial Assets/Liabilities at Fair Value through Profit or Loss

Our trading and risk management businesses include significant activities in interest rate instruments and related derivatives. Under IFRS, interest and similar income earned from trading instruments and financial instruments designated at fair value through profit or loss (i.e., coupon and dividend income) and the costs of funding net trading positions are part of net interest income. Our trading activities can periodically shift income between net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss depending on a variety of factors, including risk management strategies.

In order to provide a more business-focused discussion, the following table presents net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss by corporate division.

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net interest income	13,749	13,192	12,378	557	4	814	7
Total net gains (losses) on financial assets/liabilities at fair value through profit or loss	193	1,332	2,926	(1,139)	(85)	(1,593)	(54)
Total net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss	13,943	14,524	15,304	(582)	(4)	(779)	(5)
Breakdown by Corporate Division:¹							
Corporate Bank	2,660	2,480	2,498	180	7	(18)	(1)
Investment Bank	5,421	5,202	5,886	219	4	(684)	(12)
Private Bank	4,094	4,859	5,422	(765)	(16)	(562)	(10)
Asset Management	87	(88)	31	175	N/M	(119)	N/M
Capital Release Unit	146	1,409	1,405	(1,263)	(90)	4	0
Corporate & Other	1,535	662	63	873	132	599	N/M
Total net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss	13,943	14,524	15,304	(582)	(4)	(779)	(5)

N/M – Not meaningful

¹ This breakdown reflects net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss only. For a discussion of the corporate divisions' total revenues by product please refer to Note 4 "Business Segments and Related Information".

2019

Total net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss were € 13.9 billion in 2019, compared to € 14.5 billion in 2018, a decrease of € 582 million, or 4 %. The decrease was primarily driven by the CRU reflecting the non-recurrence of revenues associated with discontinued business activities, negative mark-to-market impacts as well as de-risking costs. In PB, total net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss decreased versus the prior year mainly due to the continued negative impact of the low interest rate environment on deposit margins and negative mark-to-market impacts from interest rate hedging activities. This is offset by positive mark-to-market impacts in C&O and by growth in loan volumes in IB, CB and PB. Net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss in AM also increased compared to the prior year reflecting a favorable impact from the valuation of consolidated guaranteed mutual funds which has a corresponding offset in Other Income.

2018

Total net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss were € 14.5 billion in 2018, compared to € 15.3 billion in 2017, a decrease of € 779 million, or 5 %. The decrease was primarily driven by IB mainly reflecting the strategic repositioning, muted client activity and geo-political uncertainty across a number of regions. In addition, total net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss in PB decreased versus the prior year driven by the negative impact from a low interest rate environment on deposits and lower income from interest rate risk hedges partly offset by growth in loan revenues, positive valuation effects from home savings liabilities and positive year-on-year impact from mortgage loans previously measured at fair value and measured at amortized cost basis since the adoption of IFRS 9. Further, decreases in AM were mainly driven by the valuation of consolidated guaranteed mutual funds which has a related offset in Other Income.

Provision for Credit Losses

2019

Provision for credit losses was €723 million in 2019, an increase of €199 million, or 38 %, compared to 2018. The return to a more normalized level was a result of the overall weakened macroeconomic environment with a number of specific events across all segments as well as lower releases and recoveries compared to the prior year. Provision for credit losses in 2019 included a net positive effect of €18 million arising from changes in estimates of €183 million, stemming from model refinements and the annual recalibration of the forward looking information in our IFRS 9 model, which offset a negative impact of €165 million from the update of macroeconomic variables. Provision for credit losses was 17 basis points of loans reflecting the bank's strong underwriting standards and risk management as well as the low-risk nature of our portfolios. Please refer to the sections "Segment Results of Operations" and "Risk Report" for further details on provision for credit losses.

2018

Provision for credit losses was €525 million in 2018, same level as in the prior year. Provision for credit losses in CB increased by €104 million reflecting the non-recurrence of a provision release related to a single credit exposure in the Commercial Client portfolio in 2017 and an adjustment to the calculation methodology for certain loans on which we hold insurance protection. Provision for credit losses in PB slightly increased by €22 million, reflecting loan growth and higher releases in the prior year. The CRU reported a release of €36 million in 2018 compared to a €110 million charge in the prior year, mainly from de-risking activities in the shipping portfolio. The low level of provisions for credit losses at 13 basis points of loans reflected our strong underwriting standards, the low risk nature of our portfolios and the benign operating environment.

Remaining Noninterest Income

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Commissions and fee income ¹	9,520	10,039	11,002	(519)	(5)	(963)	(9)
Net gains (losses) on financial assets at fair value through other comprehensive income	260	317	N/A	(57)	(18)	317	N/M
Net gains (losses) on financial assets at amortized cost	0	2	N/A	(2)	(78)	2	N/M
Net gains (losses) on financial assets available for sale	N/A	N/A	479	N/M	N/M	(479)	N/M
Net income (loss) from equity method investments	110	219	137	(109)	(50)	82	60
Other income (loss)	(669)	215	(475)	(883)	N/M	689	N/M
Total remaining noninterest income	9,222	10,792	11,144	(1,570)	(15)	(352)	(3)
¹ includes:							
Commissions and fees from fiduciary activities:							
Commissions for administration	327	303	338	24	8	(35)	(10)
Commissions for assets under management	3,298	3,130	3,603	168	5	(473)	(13)
Commissions for other securities business	317	290	379	27	9	(88)	(23)
Total	3,943	3,724	4,320	219	6	(596)	(14)
Commissions, broker's fees, mark-ups on securities underwriting and other securities activities:							
Underwriting and advisory fees	1,501	1,629	1,825	(128)	(8)	(196)	(11)
Brokerage fees	637	936	1,160	(299)	(32)	(224)	(19)
Total	2,137	2,565	2,985	(427)	(17)	(420)	(14)
Fees for other customer services	3,440	3,751	3,698	(311)	(8)	53	1
Total commissions and fee income	9,520	10,039	11,002	(519)	(5)	(963)	(9)

N/M – Not meaningful

Commissions and fee income

2019

Commissions and fee income was €9.5 billion in 2019, a decrease of €519 million, or 5 %, compared to the prior year. The decrease included €427 million lower underwriting and advisory fees as well as brokerage fees, primarily in the CRU, associated with discontinued business activities following the execution of the bank's transformation strategy announced in July 2019. Fees for other customer services declined by €311 million primarily driven by a reduction in the global fee pool and issuances, lower leveraged loan fees and capital markets fees. These decreases were partly offset by higher commissions for assets under management in AM, mainly driven by a non-recurring alternatives and multi asset performance fee recognized in 2019.

2018

Commissions and fee income was €10.0 billion in 2018, a decrease of €963 million, or 9 %, compared to the prior year. The decrease included €473 million lower commissions for assets under management, primarily in AM due to lower fees from actively managed funds following net outflows and management fee margin compression as well as the absence of fees for a specific Alternatives fund received in 2017, partly offset by higher fees from passively managed funds due to higher Assets under Management. Underwriting and advisory fees as well as brokerage fees declined by €420 million primarily driven by lower market volumes and lower level of client activities in IB as well as lower revenues from investment products in PB following the implementation of the MiFID II regulations.

Net gains (losses) on financial assets at fair value through other comprehensive income

2019

Net gains on financial assets at fair value through other comprehensive income were €260 million in 2019, a decrease of €57 million, or 18 % compared to 2018 driven mainly by lower gains from sale of municipal bonds in the U.S., government bonds and securities from our strategic liquidity reserve.

2018

Total Net gains (losses) on financial assets at fair value through other comprehensive income, introduced as new income category in 2018, following the adoption of IFRS 9 were €317 million, primarily related to a realized gain on sales of municipal bonds in the U.S., government bonds and securities from our strategic liquidity reserve.

Net gains (losses) on financial assets at amortized cost

2019

Net gains (losses) on financial assets at amortized cost were nil in 2019 and €2 million in 2018, which included primarily an impact of early redemption of certain bonds.

2018

Net gains (losses) on financial assets at amortized cost, introduced as new income category in 2018, following the adoption of IFRS 9, were €2 million in 2018, primarily reflecting the impact of an early redemption of certain bonds.

Net gains (losses) on financial assets available for sale

2019

Net gains (losses) on financial assets available for sale ceased to exist in 2018, following the adoption of IFRS 9.

2018

Net gains (losses) on financial assets available for sale ceased to exist in 2018, following the adoption of IFRS 9. Net gains (losses) on financial assets available for sale in 2017 were €479 million.

Net income (loss) from equity method investments

2019

Net gains from equity method investments were €110 million in 2019 compared to €219 million in 2018, a decrease of €109 million, or 50 %, primarily due to the absence of a prior year gain from the valuation of an investment and lower equity pickup from Huarong Rongde Asset Management Company Limited.

2018

Net gains from equity method investments were €219 million in 2018 compared to €137 million in 2017, an increase of €82 million, or 60 %, primarily due to the valuation of an investment.

Other income (loss)

2019

Other income (loss) was €(669) million in 2019 compared to €215 million in 2018. The decrease was driven by the impact of hedge ineffectiveness together with bond sales and fair value hedge accounting adjustments following the unwinding of the municipal bond portfolio in the U.S. in 2018. The decrease was also impacted by the absence of a prior year gain from the sale of real estate assets in 2018 and lower positive impacts from workout activities related to legacy positions in Sal. Oppenheim in 2019. Furthermore, other income includes a negative impact from a valuation adjustment on liabilities of guaranteed mutual funds in AM that offsets the positive impact from the valuation of consolidated guaranteed mutual funds in net gains (losses) on financial assets/liabilities at fair value through profit or loss.

2018

Other income (loss) was €215 million in 2018 compared to a loss of €475 million in 2017. The increase was primarily driven by de-designation in fair value hedge accounting, gains from property sales in PB, interest rate hedges and the termination of certain swaps. Additionally, other income included a positive impact from a valuation adjustment on liabilities of guaranteed mutual funds in AM, which offset the negative effect from the valuation of consolidated guaranteed mutual funds in net gains (losses) on financial assets/liabilities at fair value through profit or loss. Other income also benefitted from the absence of negative prior year effects related to the termination of a legacy trust preferred security and the realization of a negative currency translation adjustment associated with the sale of our non-strategic subsidiary in Argentina as well as a lower negative impacts from the sales transactions in Poland and Portugal compared to the prior year. These effects were partly offset by a lower income from workout activities related to legacy positions in Sal. Oppenheim in 2018.

Noninterest Expenses

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Compensation and benefits	11,142	11,814	12,253	(672)	(6)	(439)	(4)
General and administrative expenses ¹	12,253	11,286	11,973	966	9	(687)	(6)
Impairment of goodwill and other intangible assets	1,037	0	21	1,037	N/M	(21)	N/M
Restructuring activities	644	360	447	283	79	(86)	(19)
Total noninterest expenses	25,076	23,461	24,695	1,615	7	(1,234)	(5)
N/M – Not meaningful							
1 includes:							
IT costs	4,814	3,822	3,816	992	26	6	0
Occupancy, furniture and equipment expenses	1,720	1,723	1,849	(4)	(0)	(126)	(7)
Regulatory, tax & insurance ²	1,413	1,545	1,489	(132)	(9)	57	4
Professional service fees	1,324	1,530	1,750	(207)	(14)	(220)	(13)
Banking and transaction charges	786	753	744	32	4	9	1
Communication and data services	619	636	686	(17)	(3)	(50)	(7)
Travel expenses ³	256	288	334	(32)	(11)	(46)	(14)
Marketing expenses ³	251	299	329	(48)	(16)	(30)	(9)
Other expenses ^{3,4}	1,071	690	975	381	55	(285)	(29)
Total general and administrative expenses	12,253	11,286	11,973	966	9	(687)	(6)

² Includes bank levy of €622 million in 2019, €690 million in 2018 and €596 million in 2017.

³ Prior year numbers have been restated to reflect the shift of representation expenses from travel expenses to marketing and other expenses.

⁴ Includes litigation related expenses of €473 million in 2019, €88 million in 2018 and €213 million in 2017.

Compensation and benefits

2019

Compensation and benefits decreased by €672 million, or 6 %, to €11.1 billion in 2019 compared to €11.8 billion in 2018. The decrease was primarily driven by lower fixed and variable compensation expenses which reflects overall affordability and performance at the Group level and the reduction in headcount.

2018

Compensation and benefits decreased by €439 million, or 4 %, to €11.8 billion in 2018 compared to €12.3 billion in 2017. The decrease was primarily driven by the reduction in headcount and related compensation expenses.

General and administrative expenses

2019

General and administrative expenses increased by €966 million, or 9 %, to €12.3 billion in 2019 compared to €11.3 billion in 2018. The increase was driven by €1.1 billion transformation charges mainly related to the impairment of software and real estate assets, as well as higher litigation expenses. Excluding these effects, general and administrative expenses decreased compared to the prior year following a disciplined cost management with reductions across all major cost categories except IT expenses, which remained essentially stable during 2019, reflecting Deutsche Bank's commitment to continue spending on technology and controls in line with its transformation strategy.

2018

General and administrative expenses decreased by €687 million, or 6 %, to €11.3 billion in 2018 compared to €12.0 billion in 2017. The decrease was across most expense categories primarily reflecting management actions to optimize spending.

Impairment of goodwill and other intangible assets

2019

Impairment of goodwill and other intangible assets was € 1.0 billion in 2019. The announcement of the strategic transformation in July 2019 triggered the impairment review of Deutsche Bank's goodwill. A worsening macro-economic outlook, including interest rate curves, industry-specific market growth corrections, as well as the impact related to the implementation of the transformation strategy resulted in the full impairment of the Wealth Management goodwill of € 545 million in PB and the GTB & CF goodwill of € 492 million in CB in the second quarter 2019.

2018

No impairment charges were reported for 2018. Impairments of goodwill and other intangible assets of € 21 million were reported for 2017.

Restructuring

2019

Expenses for restructuring activities were € 644 million in 2019 compared to € 360 million in 2018. The increase was primarily related to the execution of the bank's transformation strategy which led to new provisions in all segments in 2019.

2018

Expenses for restructuring activities were € 360 million in 2018 compared to € 447 million in 2017. The decrease was mainly driven by lower restructuring expenses in PB related to the strategy execution including the reorganization and integration measures in Germany in 2017 partially offset by higher expenses in IB reflecting the higher spend from strategic repositioning.

Income Tax Expense

2019

Income tax expense in 2019 was € 2.6 billion compared to € 989 million in 2018. The effective tax rate of (100) % (2018: 74 %) mainly resulted from € 2.8 billion transformation related deferred tax assets valuation adjustments and non-deductible goodwill impairments.

2018

Income tax expense in 2018 was € 989 million compared to € 2.0 billion in 2017. The effective tax rate of 74 % (2017: 160 %) was mainly impacted by changes in recognition and measurement of deferred tax assets and share based payment related tax effects.

Net income (loss)

2019

The net loss was € 5.3 billion in 2019, compared to a net income of € 341 million in the prior year, primarily driven by the aforementioned € 2.8 billion transformation related deferred tax assets valuation adjustments, € 1.0 billion impairment of goodwill, € 1.1 billion of transformation charges, mainly impairments of software and real estate assets, as well as restructuring and severance expenses of € 805 million. The loss attributable to Deutsche Bank shareholders was € 5.7 billion, compared to a loss of € 52 million in 2018.

2018

The net income was € 341 million in 2018, compared to a net loss of € 735 million in 2017, primarily driven by the non-recurrence of a one-time tax charge resulting from the U.S. tax reform in 2017 and lower noninterest expenses. The loss attributable to Deutsche Bank shareholders was € 52 million in 2018, compared to a loss of € 1.1 billion in 2017.

Segment Results of Operations

The following is a discussion of the results of our business segments. See Note 4 “Business Segments and Related Information” to the consolidated financial statements for information regarding:

- changes in the format of our segment disclosure and
- the framework of our management reporting systems.

The Group’s segment reporting follows the organizational structure as reflected in its internal management reporting systems, which are the basis for assessing the financial performance of the business segments and for allocating resources to the business segments. The criterion for segmentation into divisions is our organizational structure as it existed at December 31, 2019. Prior period comparables were restated due to changes in the divisional structure.

	2019						
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total Consolidated
Net revenues¹	5,264	6,961	8,245	2,332	208	155	23,165
Provision for credit losses	286	109	342	1	(14)	0	723
Noninterest expenses							
Compensation and benefits	1,044	2,468	3,519	832	443	2,836	11,142
General and administrative expenses	3,169	3,763	3,978	851	2,811	(2,320)	12,253
Impairment of goodwill and other intangible assets	492	0	545	0	0	0	1,037
Restructuring activities	137	169	126	29	143	40	644
Total noninterest expenses	4,842	6,401	8,168	1,711	3,397	556	25,076
Noncontrolling interests	0	20	(0)	152	1	(173)	0
Profit (loss) before tax	137	433	(265)	468	(3,177)	(229)	(2,634)
Cost/income ratio	92 %	92 %	99 %	73 %	N/M	N/M	108 %
Assets²	227,703	502,821	282,773	9,936	259,224	15,217	1,297,674
Additions to non-current assets	9	497	405	27	2	381	1,322
Risk-weighted assets	56,522	118,622	75,442	9,527	45,874	18,029	324,015
Leverage exposure (fully loaded)	262,505	439,354	292,028	4,643	126,905	42,605	1,168,040
Average allocated shareholders’ equity	9,280	23,639	12,241	4,836	10,174	0	60,170
Post-tax return on average shareholders’ equity ³	0 %	1 %	(2) %	7 %	(23)%	N/M	(10) %
Post-tax return on average tangible shareholders’ equity ³	0 %	1 %	(2) %	18 %	(23)%	N/M	(11) %
¹ includes:							
Net interest income	2,579	2,685	5,133	(39)	76	3,315	13,749
Net income (loss) from equity method investments	3	32	14	49	12	1	110
² includes:							
Equity method investments	66	412	82	276	90	4	929

N/M – Not meaningful

³ The post-tax return on average tangible shareholders’ equity and average shareholders’ equity at the Group level reflects the reported effective tax rate for the Group, which was (100) % for the year ended December 31, 2019. For the post-tax return on average tangible shareholders’ equity and average shareholders’ equity of the segments, the Group effective tax rate was adjusted to exclude the impact of permanent differences not attributed to the segments, so that the segment tax rates were 28 % for the year ended December 31, 2019.

							2018
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total Consolidated
Net revenues¹	5,263	7,467	8,641	2,187	1,878	(120)	25,316
Provision for credit losses	145	70	347	(1)	(36)	1	525
Noninterest expenses							
Compensation and benefits	1,035	2,666	3,613	787	635	3,079	11,814
General and administrative expenses	2,780	3,650	3,932	929	2,652	(2,656)	11,286
Impairment of goodwill and other intangible assets	0	0	0	0	0	0	0
Restructuring activities	31	200	49	19	62	(1)	360
Total noninterest expenses	3,846	6,517	7,593	1,735	3,349	421	23,461
Noncontrolling interests	0	24	(0)	85	1	(109)	0
Profit (loss) before tax	1,273	856	701	368	(1,435)	(433)	1,330
Cost/income ratio	73 %	87 %	88 %	79 %	N/M	N/M	93 %
Assets ²	215,177	458,191	288,513	10,030	370,363	5,864	1,348,137
Additions to non-current assets	13	500	584	43	1	506	1,647
Risk-weighted assets	58,162	124,410	69,308	10,365	72,144	16,045	350,432
Leverage exposure (fully loaded)	247,137	419,313	299,577	5,044	281,109	20,746	1,272,926
Average allocated shareholders' equity	9,987	23,155	12,231	4,659	12,577	0	62,610
Post-tax return on average shareholders' equity ³	9 %	2 %	4 %	6 %	(9)%	N/M	(0) %
Post-tax return on average tangible shareholders' equity ³	9 %	2 %	4 %	17 %	(9)%	N/M	(0) %
¹ includes:							
Net interest income	2,327	2,138	5,217	(51)	259	3,302	13,192
Net income (loss) from equity method investments	3	157	2	41	10	6	219
² includes:							
Equity method investments	63	406	78	240	87	5	879

N/M – Not meaningful

³ The post-tax return on average tangible shareholders' equity and average shareholders' equity at the Group level reflects the reported effective tax rate for the Group, which was 74 % for the year ended December 31, 2018. For the post-tax return on average tangible shareholders' equity and average shareholders' equity of the segments, the Group effective tax rate was adjusted to exclude the impact of permanent differences not attributed to the segments, so that the segment tax rates were 28 % for the year ended December 31, 2018.

							2017
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total Consolidated
Net revenues¹	5,376	8,303	8,732	2,532	2,044	(539)	26,447
Provision for credit losses	41	51	325	(1)	110	(0)	525
Noninterest expenses							
Compensation and benefits	1,104	2,866	3,635	812	758	3,078	12,253
General and administrative expenses	2,746	3,821	4,138	978	2,788	(2,497)	11,973
Impairment of goodwill and other intangible assets	6	0	12	3	0	0	21
Restructuring activities	20	40	358	6	21	1	447
Total noninterest expenses	3,876	6,727	8,143	1,799	3,567	582	24,695
Noncontrolling interests	0	26	(12)	1	0	(16)	0
Profit (loss) before tax	1,459	1,498	275	732	(1,633)	(1,105)	1,228
Cost/income ratio	72 %	81 %	93 %	71%	N/M	N/M	93 %
Assets ²	248,335	471,539	278,014	8,050	462,212	6,582	1,474,732
Additions to non-current assets	2	124	655	60	3	960	1,803
Risk-weighted assets ³	57,760	120,316	70,138	8,432	72,243	15,322	344,212
Leverage exposure (fully loaded)	275,580	426,311	289,314	2,870	384,435	16,378	1,394,886
Average allocated shareholders' equity	10,143	22,553	11,886	4,505	14,087	752	63,926
Post-tax return on average shareholders' equity ⁴	9 %	4 %	1 %	11 %	(8)%	N/M	(2) %
Post-tax return on average tangible shareholders' equity ⁴	10 %	4 %	1 %	59 %	(9)%	N/M	(2) %
¹ includes:							
Net interest income	2,433	2,122	5,120	(19)	667	2,055	12,378
Net income (loss) from equity method investments	6	70	3	44	5	9	137
² includes:							
Equity method investments	62	409	91	211	82	10	866

N/M – Not meaningful

³ Risk-weighted assets are based upon CRR/CRD 4 fully-loaded.

⁴ The post-tax return on average tangible shareholders' equity and average shareholders' equity at the Group level reflects the reported effective tax rate for the Group, which was 160 % for the year ended December 31, 2017. For the post-tax return on average tangible shareholders' equity and average shareholders' equity of the segments, the Group effective tax rate was adjusted to exclude the impact of permanent differences not attributed to the segments, so that the segment tax rates were 33 % for the year ended December 31, 2017.

Corporate Bank

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues							
Global Transaction Banking	3,842	3,901	4,030	(59)	(2)	(129)	(3)
Commercial Banking	1,422	1,362	1,346	60	4	16	1
Total net revenues	5,264	5,263	5,376	1	0	(113)	(2)
Provision for credit losses	286	145	41	141	97	104	N/M
Noninterest expenses							
Compensation and benefits	1,044	1,035	1,104	9	1	(69)	(6)
General and administrative expenses	3,169	2,780	2,746	389	14	34	1
Impairment of goodwill and other intangible assets	492	0	6	492	N/M	(6)	N/M
Restructuring activities	137	31	20	106	N/M	11	53
Total noninterest expenses	4,842	3,846	3,876	996	26	(30)	(1)
Noncontrolling interests	0	0	0	0	N/M	0	N/M
Profit (loss) before tax	137	1,273	1,459	(1,136)	(89)	(186)	(13)
Total assets (in € bn) ¹	228	215	248	13	6	(33)	(13)
Loans (gross of allowance for loan losses, in € bn)	118	113	112	5	5	1	1
Employees (full-time equivalent)	7,428	7,353	7,649	75	1	(296)	(4)

N/M – Not meaningful

¹ Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances

2019

Profit before tax of the Corporate Bank was € 137 million for the full year 2019, a decrease of 89 % compared to € 1.3 billion in the prior year. The year-on-year decrease was driven by higher general and administrative expenses, including transformation charges, an impairment of goodwill as well as higher restructuring costs. Adjusted for transformation charges, restructuring and severance expenses, goodwill impairments and specific revenue items, profit before tax was € 939 million in 2019, versus € 1.3 billion in 2018.

Net revenues for the full year 2019 were € 5.3 billion, stable compared to the prior year.

Global Transaction Banking reported net revenues of € 3.8 billion in 2019, a decrease of € 59 million, or 2 %, compared to € 3.9 billion in the prior year. Cash Management revenues were essentially flat as the negative impact from a lower interest rate environment was largely compensated by the positive effects from a shift in the currency mix of deposits from Euro to higher-yielding US dollar deposits as well as the implementation of ECB tiering in the fourth quarter of 2019. Trade Finance revenues increased slightly as growth in the flow business following a good performance specifically in Asia and Germany offset a slowdown in structured products. Revenues in Trust & Agency Services slightly increased driven by higher net interest revenues and commissions and fees. Securities Services revenues were significantly lower as a result of a change in business perimeter following the disposal of the Alternative Funds Services business including a related gain on disposal in 2018, further non-recurring items in 2018 and the exit of the Equities business in 2019.

Net revenues in Commercial Banking were € 1.4 billion, an increase of € 60 million or 4 % compared to the prior year driven by a slightly higher net interest income following growth in loan volume and higher commission and fee income mainly as a result of repricing measures. These effects more than offset the adverse impact of the low interest rate environment.

Provision for credit losses was € 286 million, an increase from € 145 million in 2018, a year with an exceptionally low level of provisions by historical standards. The increase reflects the weakened macroeconomic environment and geopolitical uncertainties with a small number of specific events and lower releases and recoveries. The overall level of provisioning remains low at 24 basis points of loans, reflecting the bank's strong underwriting standards and the low risk profile of the portfolio.

Noninterest expenses in 2019 were € 4.8 billion, an increase of € 996 million or 26 % compared to € 3.8 billion in the prior year, driven by the execution of the transformation strategy, which triggered an impairment of goodwill, higher restructuring costs and € 160 million transformation charges mainly related to IT impairments in the current year. Furthermore, costs were negatively impacted by changes in internal cost allocations following the resegmentation in 2019.

Adjusted costs excluding transformation charges were € 4 billion, up 7 % year-on-year. The increase reflects higher spend on controls and technology, as well as the aforementioned changes in allocation of costs of internal services.

2018

Profit before tax for the full year 2018 was €1.3 billion or 13 % lower compared to €1.5 billion in the prior year. The decrease was mainly driven by lower revenues and an increase in provision for credit losses. Higher restructuring costs and general and administrative expenses were offset by lower compensation and benefits.

Net revenues for the full year 2018 were €5.3 billion, a decrease of €113 million or 2 % compared to €5.4 billion in full year 2017.

Net revenues in Global Transaction Banking were €3.9 billion, a decrease of €129 million or 3 % compared to €4.0 billion in 2017. Cash Management revenues were slightly lower, as a result of client perimeter reductions in 2017 and continued negative interest rates in Europe. However the business saw sequential revenue growth quarter-on-quarter through 2018. Trade Finance revenues were essentially flat with decreases specifically in structured products due to ongoing margin compression, while the underlying flow business showed a positive development. Trust & Agency Services and Securities Services revenues were higher driven by a gain from sale of the Alternative Funds Services business in the second quarter of 2018 and benefitted from higher interest rates in the U.S.

Net revenues in Commercial Banking was €1.4 billion, a slight increase of €16 million or 1 % compared to €1.3 billion in the prior year mainly due to a slight increase in net interest income compared to 2017, driven by growth in loan revenues.

Provision for credit losses were €145 million compared to €41 million in 2017, reflecting the non-recurrence of prior year's release of provisions related to a single credit exposure and a one-off adjustment to the calculation methodology on certain loans on which we hold insurance protection in 2018.

Noninterest expenses in 2018 were €3.8 billion, a decrease of €30 million or 1 % compared to €3.9 billion in the prior year. The decrease was driven by lower compensation and benefits costs across both fixed and variable compensation reflecting strategic headcount reductions. General and administrative expenses were almost stable compared to 2017 as lower non-compensation costs resulting from a continued cost discipline were offset by higher litigation expenses following provision releases in 2017.

Adjusted costs were €3.8 billion in 2018, a decrease of €213 million or 5 % compared to €4.0 billion in 2017. The decrease mainly resulted from lower compensation and non-compensation costs following strategic headcount reductions and a continued cost discipline.

Investment Bank

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues							
Fixed Income, Currency (FIC) Sales & Trading	5,534	5,646	6,679	(111)	(2)	(1,033)	(15)
Equity Origination	123	184	178	(61)	(33)	6	3
Debt Origination	1,117	1,145	1,407	(27)	(2)	(262)	(19)
Advisory	366	456	477	(90)	(20)	(21)	(4)
Origination & Advisory	1,606	1,784	2,061	(178)	(10)	(277)	(13)
Other	(179)	37	(438)	(217)	N/M	475	N/M
Total net revenues	6,961	7,467	8,303	(506)	(7)	(836)	(10)
Provision for credit losses	109	70	51	38	54	19	37
Noninterest expenses							
Compensation and benefits	2,468	2,666	2,866	(199)	(7)	(200)	(7)
General and administrative expenses	3,763	3,650	3,821	113	3	(171)	(4)
Impairment of goodwill and other intangible assets	0	0	0	0	N/M	0	N/M
Restructuring activities	169	200	40	(31)	(15)	160	N/M
Total noninterest expenses	6,401	6,517	6,727	(116)	(2)	(210)	(3)
Noncontrolling interests	20	24	26	(4)	(18)	(2)	(8)
Profit (loss) before tax	433	856	1,498	(423)	(49)	(642)	(43)
Total assets (in € bn) ¹	503	458	472	45	10	(13)	(3)
Loans (gross of allowance for loan losses, in € bn)	75	65	53	10	16	12	23
Employees (full-time equivalent)	10,095	9,960	10,674	135	1	(714)	(7)

N/M – Not meaningful

¹ Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances

2019

Profit before tax was € 433 million in 2019, a decrease of € 423 million or 49 % compared to € 856 million in the prior year. The decrease was mainly driven by lower revenues, a higher provision for credit losses as well as higher general and administrative expenses, partly offset by lower compensation and benefits. The setup of the division during the second half of 2019 following Deutsche Bank's strategic transformation announcement created a short-term negative revenue impact and drove transformation charges that impacted the full year profitability. Adjusted for transformation charges, restructuring and severance expenses as well as specific revenue items, profit before tax in 2019 was € 863 million, compared to € 823 million in 2018.

Net revenues were € 7.0 billion in 2019, a decrease of € 506 million or 7 % compared to 2018.

Revenues in FIC Sales & Trading were € 5.5 billion, a decrease of € 111 million or 2 %. Rates revenues were slightly lower, with the business impacted in the short term by the operational set up of the division. Foreign Exchange revenues were lower, largely driven by the continued low market volatility. Credit revenues were higher driven by a strong performance in flow trading and increased net interest income due to higher loan balances, partially offset by lower revenues in distressed debt. Revenues in Emerging Markets were higher as a result of significantly improved performance in flow trading.

Origination and Advisory net revenues were € 1.6 billion, a € 178 million or 10 % decrease compared to the prior year. Debt Origination revenues were € 1.1 billion, essentially flat compared to the prior year as higher revenues in both High Yield and Investment Grade bonds were offset by a decline in leveraged loans. Advisory revenues of € 366 million were lower in a reduced fee pool environment. Equity Origination revenues of € 123 million were significantly lower, reflecting our repositioned franchise.

Other revenues were negative € 179 million, compared to a gain of € 37 million in 2018. The year-on-year decrease was driven by a loss of € 140 million (2018: a gain of € 126 million) relating to the impact of DVA on certain derivative liabilities.

Provision for credit losses was € 109 million, an increase of € 38 million compared to the prior year, however, provisions remained at 14 basis points of loans, or relatively low levels, reflecting the bank's strong underwriting standards and risk management.

Noninterest expenses in 2019 were € 6.4 billion, a decrease of € 116 million or 2 % compared to the prior year, despite € 214 million of transformation charges. Adjusted costs excluding transformation charges decreased by 6 % driven by reduction in front office employees and related compensation, lower service cost allocations and disciplined management of non-compensation costs.

2018

Profit before tax for the full year 2018 was €856 million, a decrease of €642 million or 43 % compared to €1.5 billion in the prior year. The decrease was mainly driven by lower revenues and higher restructuring costs, partly offset by lower compensation and benefits as well as reduced general and administrative expenses.

Net revenues for the full year 2018 were €7.5 billion, a decrease of €836 million or 10 % compared to €8.3 billion in 2017.

Net revenues in FIC Sales & Trading were €5.6 billion, a decrease of €1 billion or 15 %. Rates revenues were significantly lower compared to the prior year, in particular in Europe with lower levels of client activity and the impact of the strategic reshaping in the U.S. Credit revenues were lower compared to a strong prior year. In Foreign Exchange revenues were slightly lower. Revenues in Emerging Markets were lower due to underperformance in Latin America, specifically in the flow business, in addition to lower revenues in Japan and Australia. These were partly offset by improved revenues in Asia, Eastern Europe, Middle East and Africa.

Net revenues in Origination and Advisory were €1.8 billion, a decrease of €277 million or 13 % compared to the prior year. Debt Origination revenues were €262 million or 19 % lower in a significantly reduced fee pool environment, despite significant market share gains in leveraged loans. Equity Origination revenues were essentially flat, while Advisory revenues were slightly lower compared to 2017.

Other revenues were €37 million, compared to negative €438 million in 2017. The year-on-year improvement was driven by a gain of €126 million (2017: a loss of €348 million) relating to the impact of DVA on certain derivative liabilities.

Provision for credit losses was €70 million compared to €51 million in the prior year.

Noninterest expenses in 2018 were €6.5 billion, a decrease of €210 million or 3 % compared to €6.7 billion in the prior year. The decrease was driven by lower compensation and benefits costs across both fixed and variable compensation reflecting lower headcount. General and administrative expenses were also lower due to continued cost discipline. These cost reductions were partially offset by increased restructuring costs.

Adjusted costs were €6.2 billion in 2018, a decrease of €279 million or 4 % compared to €6.5 billion in 2017 reflecting lower compensation and non-compensation costs following the headcount reduction and a continued cost discipline.

Private Bank

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues:							
Private Bank Germany	5,116	5,453	5,253	(337)	(6)	200	4
Private & Commercial Business International ¹	1,442	1,441	1,457	1	0	(16)	(1)
Wealth Management	1,687	1,748	2,022	(61)	(3)	(274)	(14)
Total net revenues	8,245	8,641	8,732	(396)	(5)	(91)	(1)
Of which:							
Net interest income	5,133	5,217	5,120	(84)	(2)	97	2
Commissions and fee income	2,925	2,826	2,994	99	4	(169)	(6)
Remaining income	187	598	617	(411)	(69)	(19)	(3)
Provision for credit losses	342	347	325	(5)	(1)	22	7
Noninterest expenses:							
Compensation and benefits	3,519	3,613	3,635	(93)	(3)	(23)	(1)
General and administrative expenses	3,978	3,932	4,138	46	1	(206)	(5)
Impairment of goodwill and other intangible assets	545	0	12	545	N/M	(12)	N/M
Restructuring activities	126	49	358	77	155	(309)	(86)
Total noninterest expenses	8,168	7,593	8,143	575	8	(550)	(7)
Noncontrolling interests	(0)	(0)	(12)	(0)	N/M	12	(100)
Profit (loss) before tax	(265)	701	275	(966)	N/M	426	155
Total assets (in € bn) ²	283	289	278	(6)	(2)	10	4
Loans (gross of allowance for loan losses, in € bn)	230	221	215	9	4	6	3
Assets under Management (in € bn) ³	487	451	480	36	8	(29)	(6)
Net flows (in € bn)	4	(2)	3	7	N/M	(5)	N/M
Employees (full-time equivalent)	37,266	38,415	39,272	(1,149)	(3)	(857)	(2)

N/M – Not meaningful

¹ Covers operations in Italy, Spain, Belgium and India.

² Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances.

³ We define assets under management as (a) assets we hold on behalf of customers for investment purposes and/or (b) client assets that are managed by us. We manage assets under management on a discretionary or advisory basis, or these assets are deposited with us. Deposits are considered assets under management if they serve investment purposes. In our Private Bank Germany and Private & Commercial Business International, this includes all time deposits and savings deposits. In Wealth Management, we assume that all customer deposits are held with us primarily for investment purposes.

2019

In 2019, Private Bank reported a loss before tax of €265 million, compared to a profit before tax of €701 million in the prior year. The decrease was attributable to lower gains from asset sales as well as an aggregate impact of approximately €900 million related to the execution of the transformation strategy in 2019. This included an impairment of €545 million for the full write-down of Wealth Management's goodwill, transformation charges of €191 million, comprised mainly of software and real estate impairments as well as restructuring and severance costs. Adjusted for these charges as well as specific revenue items, profit before tax improved, despite ongoing headwinds from the low interest rate environment, from €445 million in 2018 to €524 million in 2019, supported by volume growth in loans and assets under management as well as incremental cost synergies from the integration of our German businesses.

Net revenues were €8.2 billion in 2019 a decrease of €396 million or 5 % compared to the prior year driven by the absence of a €156 million gain from a property sale in 2018 and lower positive impacts from workout activities in Sal. Oppenheim. Excluding these items, revenues remained essentially flat compared to the prior year as growth in volumes and fee income partly compensated the headwinds from the low interest rate environment.

Net revenues in the Private Bank Germany of €5.1 billion declined by €337 million, or 6 %, compared to the prior year period mainly following lower asset sale gains including a €156 million gain from a property sale in 2018. The ongoing headwinds from the low interest rate environment were partly offset by growth in loan revenues, resulting in an essentially flat net interest income compared to 2018. Lower revenues from postal services subsequent to a contract alignment were more than offset by higher revenues from investment products as well as higher fee income from current accounts reflecting repricing measures. Commission and fee income therefore slightly increased year-on-year.

In the Private & Commercial Business International, net revenues of €1.4 billion remained essentially flat compared to the prior year period. Net interest income was essentially flat with higher loan revenues compensating the negative impact from the ongoing low interest rate environment. Commission and fee income was also essentially flat year-on-year with revenue growth in investment products and repricing measures related to current accounts largely offsetting the negative impact of a change in the treatment of loan fees in Italy. Remaining income declined, as revenues in 2018 benefitted from smaller asset sales.

Net revenues in Wealth Management (WM) were €1.7 billion, a decrease of €61 million, or 3 %, driven by a €107 million lower impact from workout activities related to legacy positions in Sal. Oppenheim. Excluding this effect, net revenues remained essentially flat compared to the prior year period. Net interest income remained essentially flat as higher loan revenues mainly in WM Americas and WM Europe compensated the negative impact from the ongoing low interest rate environment on deposits. Commission and fee income increased slightly year-on-year following higher assets under management.

Provision for credit losses of €342 million, or 15 basis points of loans, remained essentially flat compared to the prior year period reflecting the conservative nature of our portfolios, strong underwriting standards and also a positive impact from portfolio sales and model refinements. These positive impacts offset the increase in provision for credit losses in line with the growth in our loan businesses.

Noninterest expenses were €8.2 billion an increase of €575 million, or 8 %, compared to 2018. The increase included the aforementioned aggregated impact of approximately €900 million related to the impairment of goodwill, transformation related charges as well as restructuring and severance expenses.

Adjusted costs excluding transformation charges were €7.3 billion, a decrease of 4% compared to the prior year, reflecting strict cost discipline as well as executed reorganization measures including incremental cost synergies related to the merger of the German businesses completed in 2018.

Assets under Management of €487 billion increased by €36 billion compared to December 31, 2018. The increase was mainly attributable to €31 billion of market appreciation, €4 billion net inflows and €2 billion of foreign exchange rate movements. Net inflows of €4 billion during 2019 were primarily in investment products mainly in the Private Bank Germany and in the Wealth Management businesses.

2018

In 2018, the Private Bank had successfully completed the legal merger of Deutsche Bank Privat- und Geschäftskunden AG and Postbank, the integration of Sal. Oppenheim and further optimized its branch network. The Private Bank generated a profit before tax of €701 million in 2018, an increase of €426 million, or 155 %, compared to a profit before tax of €275 million in the prior year, which was achieved while sustaining continued investment in our strategic initiatives and despite the ongoing headwinds from low interest rate environment. The increase was primarily driven by a decline in noninterest expenses as well as loan growth in 2018.

Net revenues of €8.6 billion remained essentially flat compared to the prior year period.

Net revenues in the Private Bank Germany of €5.5 billion increased by €200 million, or 4 %, compared to the prior year period. Net interest income remained essentially flat compared to 2017, driven by growth in loan revenues, positive valuation effects from home savings liabilities and a positive year-on-year impact from mortgage loans previously measured at fair value and measured at amortized cost basis since the adoption of the reporting standard IFRS 9. These effects more than offset the impact of the low interest rate environment on deposit margins. Deposit revenues also included a positive impact from the growth in volumes. Remaining income increased significantly mainly reflecting higher asset sales including a €156 million gain from a property sale, partly offset by lower income from interest-rate-risk hedges. The prior year period included a negative impact of €118 million from the termination of a legacy Trust Preferred Security, which largely offset a positive impact of €108 million from the sale of shares in Concardis GmbH. Commission and fee income slightly decreased year-on-year. Lower revenues from postal services subsequent to a contract alignment as well as lower revenues from investment products, in part impacted by MiFID II implementation, were partly offset by higher fee income from current accounts reflecting repricing actions.

In the Private & Commercial Business International, net revenues decreased by €16 million, or 1 %, compared to the prior year period. The decrease was mainly driven by positive effects related to an asset sale transaction in 2017, reported in remaining income. Net interest income remained essentially flat compared to the prior year period, with negative impacts from the ongoing low interest rate environment on deposit revenues offset by higher loan revenues. Commission and fee income was essentially flat compared to the prior year as growth in commercial product revenues offset the decline in investment product revenues due to the challenging market environment.

Net revenues in Wealth Management were €1.7 billion in 2018, a decrease of €274 million, or 14 %, compared to the prior year, driven by a €197 million lower impact from workout activities related to legacy positions in Sal. Oppenheim. Net revenues were also impacted by unfavorable foreign exchange rate movements. Excluding these effects, net revenues were essentially flat compared to the prior year period. Revenue growth in the Emerging Markets was offset by lower client revenues in Europe partly impacted by the MiFID II implementation and strategic business decisions as well as volatile capital markets and lower client activity.

Provision for credit losses was €347 million, an increase of €22 million, or 7 %, compared to the prior year period. This increase reflected higher releases in the prior year period as well as loan growth. Both periods included positive impacts from portfolio sales.

Noninterest expenses were €7.6 billion in 2018, a decrease of €550 million, or 7 %, compared to 2017. The decrease was mainly driven by €309 million lower restructuring expenses related to the strategy execution, including the reorganization and integration measures in Germany, as well as lower litigation costs.

Adjusted costs were €7.6 billion in 2018 a decrease of €124 million or 2 % from €7.7 billion in 2017. The reduction was mainly driven by savings following a strict cost discipline as well as executed reorganization measures, partly offset by incremental investment spending related to the merger of Deutsche Bank Privat- und Geschäftskunden AG and Postbank as well as investments in our businesses in Italy and Spain.

Assets under Management of €451 billion decreased by €29 billion compared to December 31, 2017. The decline was mainly attributable to €29 billion market depreciation, and €2 billion net outflows partly compensated by positive €4 billion foreign exchange rate movements. Net inflows in the Private Bank Germany primarily in deposits were offset by net outflows in Wealth Management, primarily in Europe and Americas while Wealth Management in Emerging Markets reported net inflows.

Asset Management

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues							
Management Fees	2,141	2,115	2,247	26	1	(132)	(6)
Performance and transaction fees	201	91	199	111	122	(109)	(55)
Other	(10)	(19)	86	9	(48)	(104)	N/M
Total net revenues	2,332	2,187	2,532	146	7	(346)	(14)
Provision for credit losses	1	(1)	(1)	2	N/M	(0)	67
Noninterest expenses							
Compensation and benefits	832	787	812	45	6	(25)	(3)
General and administrative expenses	851	929	978	(78)	(8)	(49)	(5)
Impairment of goodwill and other intangible assets	0	0	3	0	N/M	(3)	N/M
Restructuring activities	29	19	6	10	51	13	N/M
Total noninterest expenses	1,711	1,735	1,799	(23)	(1)	(64)	(4)
Noncontrolling interests	152	85	1	68	80	83	N/M
Profit (loss) before tax	468	368	732	99	27	(364)	(50)
Total assets (in € bn) ¹	10	10	8	(0)	(1)	2	25
Assets under Management (in € bn)	768	664	702	103	16	(37)	(5)
Net flows (in € bn)	25	(23)	16	48	N/M	(38)	N/M
Employees (full-time equivalent)	3,924	4,013	4,002	(88)	(2)	11	0

N/M – Not meaningful

¹ Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances.

2019

In 2019 the market conditions were less volatile compared to 2018, helping to improve investor risk appetite. All major equity indices traded at higher levels in 2019 and the U.S. dollar appreciated against the Euro. Overall market conditions were more favourable compared to 2018, with positive effects on net inflows and significant growth in Assets under Management.

In 2019 AM reported a profit before tax of € 468 million, an increase of € 99 million or 27 % compared to € 368 million in the prior year, primarily driven by significantly higher performance fees. Adjusted for transformation charges as well as restructuring and severance expenses, profit before tax was € 539 million in 2019 compared to € 413 million in 2018.

Net revenues were € 2.3 billion, an increase of € 146 million or 7 % compared to the prior year.

Management fees were € 2.1 billion in 2019, essentially flat compared to the prior year as effects from the positive market performance and growth in Passive and Alternatives were partly offset by declining management fee margins.

Performance and transaction fees of € 201 million in 2019 significantly increased by € 111 million or 122 % compared to the full year 2018, mainly driven by a non-recurring Alternatives and a Multi Asset performance fee recognized in 2019.

Other revenues were € 10 million negative compared to negative € 19 million in 2018 with both years impacted by the fair value of guarantees for the guaranteed products.

Noninterest expenses were € 1.7 billion, a decrease of € 23 million, or 1 % compared to the prior year. General and administrative expenses were lower driven by a significant decline in professional service fees, marketing cost and the absence of litigation expenses relating to a sold legacy business, partially offset by transformation charges relating to a real estate impairment. Compensation and benefits were higher mainly driven by performance related compensation.

Adjusted costs excluding transformation charges were € 1.6 billion in 2019, a slight decrease of € 13 million, or 1 % compared to € 1.7 billion in 2018 as higher compensation expenses were offset by savings in professional service fees and marketing expenses.

Assets under Management were € 768 billion, an increase of € 103 billion, or 16 %, versus December 31, 2018. The increase was driven by € 74 billion related to favorable market development, € 25 billion net inflows and € 7 billion resulting from positive foreign exchange effects. The net inflows were primarily in the targeted growth areas of Passive, Alternatives and Multi Asset products. The development in Assets under Management was also impacted by the outperformance of flagship funds and targeted strategies, an increase in the number of funds rated 4 or 5 stars by Morningstar and product innovations.

The following table provides the development of Assets under Management during 2019, broken down by product type as well as the respective management fee margins:

in € bn.	Active Equity	Active Fixed Income	Active Multi Asset	Active SQI	Active Cash	Passive	Alternatives	Assets under Management
Balance as of December 31, 2018	77	227	46	63	58	112	81	664
Inflows	15	58	16	20	447	65	20	642
Outflows	(17)	(66)	(9)	(18)	(449)	(46)	(11)	(617)
Net Flows	(2)	(8)	7	2	(2)	19	9	25
FX impact	0	3	0	0	1	1	1	7
Performance	20	13	5	8	1	23	4	74
Other	(1)	(1)	(0)	(2)	(0)	1	1	(3)
Balance as of December 31, 2019	96	234	58	71	57	156	96	768
Management fee margin (in bps)	76	12	35	27	4	21	54	30

2018

The initial public offering of DWS was successfully completed during the first quarter of 2018. Market conditions were challenging in 2018 with the impact of the U.S. tax reform and lower demand for European retail funds posing challenges to AM and the wider asset management industry. In 2018 AM reported a profit before tax of € 368 million, a decrease of € 364 million or 50 % compared to € 732 million in 2017. The decline was principally driven by lower revenues which were negatively impacted by unfavorable net flows and lower performance fees. Higher noncontrolling interest attributable to minority shareholders for nine months in 2018 following the initial public offering of DWS, which did not arise in the prior year, were partially offset by lower noninterest expenses.

Net revenues were € 2.2 billion, a decrease of € 346 million or 14 % compared to the prior year.

Management fees were € 132 million, or 6 % lower compared to the prior year, driven by net outflows and management fee margin compression in actively managed products, decreased fees in Alternatives following lower Assets under Management and the absence of revenues from sold and discontinued businesses. The decline was partly compensated by the strong performance of Passive business from higher Assets under Management.

Performance and transaction fees of € 91 million were significantly lower by € 109 million or 55 % in comparison with 2017, due to the absence of fees for a specific Alternatives fund received in 2017 and lower performance fees from Active products.

Other revenues were negative € 19 million compared to € 86 million in the prior year. The decline was primarily due to the impact of sold and discontinued businesses in both 2017 and 2018 and the absence of a non-recurring recovery relating to a real-estate fund legal matter recorded in 2017.

Noninterest expenses of € 1.7 billion were € 64 million, or 4 % lower compared to the prior year. Compensation and benefits were essentially flat with lower variable compensation costs offset by higher severance payments. General and administrative expenses were slightly lower driven by a significant decline in cost of services provided by Deutsche Bank Group to DWS, partially offset by litigation expenses relating to a sold legacy business, higher MiFID II driven external research costs and higher costs for DWS operating as a stand-alone company.

Adjusted costs were € 1.7 billion in 2018, a decrease of € 117 million, or 7 % compared to € 1.8 billion in 2017. The decrease was mainly driven by lower variable compensation costs and a significant decline in cost of services provided by Deutsche Bank Group to DWS. This was partly offset by MiFID II driven external research costs and higher costs for DWS operating as a stand-alone company.

Assets under Management were € 664 billion, a decrease of € 37 billion, or 5 %, versus December 31, 2017. The decrease was driven by € 28 billion unfavorable market development and € 23 billion net outflows, partly offset by € 13 billion positive foreign exchange effects. The outflows were primarily driven by outsourced insurance assets and the impact of U.S. companies repatriating assets following U.S. tax reforms. The development in Assets under Management was also impacted by volatile markets and weaker investor sentiment together with underperformance in some flagship funds. Passive had strong inflows particularly in European Exchange Traded Products and mandates.

The following table provides the development of Assets under Management during 2018, broken down by product type as well as the respective management fee margins:

in € bn.	Active Equity	Active Fixed Income	Active Multi Asset	Active SQI	Active Cash	Passive	Alternatives	Assets under Management
Balance as of December 31, 2017	94	239	54	67	59	112	76	702
Inflows	14	59	8	18	490	55	11	655
Outflows	(21)	(75)	(12)	(18)	(493)	(47)	(11)	(678)
Net Flows	(7)	(17)	(4)	0	(3)	8	0	(23)
FX impact	1	6	0	0	1	3	1	13
Performance	(10)	(2)	(3)	(3)	0	(10)	0	(28)
Other	(0)	0	(1)	(1)	(0)	0	3	1
Balance as of December 31, 2018	77	227	46	63	58	112	81	664
Management fee margin (in bps)	76	13	36	30	6	23	54	31

Capital Release Unit

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues	208	1,878	2,044	(1,670)	(89)	(166)	(8)
Provision for credit losses	(14)	(36)	110	22	(61)	(146)	N/M
Noninterest expenses							
Compensation and benefits	443	635	758	(192)	(30)	(123)	(16)
General and administrative expenses	2,811	2,652	2,788	159	6	(135)	(5)
Impairment of goodwill and other intangible assets	0	0	0	0	N/M	0	N/M
Restructuring activities	143	62	21	81	132	40	189
Total noninterest expenses	3,397	3,349	3,567	49	1	(218)	(6)
Noncontrolling interests	1	1	0	1	136	0	58
Profit (loss) before tax	(3,177)	(1,435)	(1,633)	(1,742)	121	198	(12)
Total assets (in € bn) ¹	259	370	462	(111)	(30)	(92)	(20)
Employees (full-time equivalent)	1,205	2,534	4,348	(1,329)	(52)	(1,814)	(42)

N/M – Not meaningful

¹ Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances

2019

By establishing our new Capital Release Unit (CRU), we plan to liberate capital currently consumed by low return assets, businesses with low profitability and businesses no longer deemed strategic. This includes substantially all of our Equities Sales & Trading business, lower yielding fixed income positions, particularly in Rates, our former CIB Non-Strategic portfolio as well as the exited businesses from our Private & Commercial Bank which include our retail operations in Portugal and Poland. CRU incurred a loss before tax of €3.2 billion in 2019, compared to a loss before tax of €1.4 billion in prior year. However, management actions enabled the division to significantly reduce risk-weighted assets and leverage exposure in line with the strategic intent in 2019. The increase in loss over the prior year was mainly driven by lower revenues, higher restructuring costs and higher general and administrative expenses partly offset by lower compensation and benefits and provision for credit losses.

Net revenues were €208 million, a decrease of €1.7 billion or 89 % compared to 2018. Revenues were impacted by the decision in the third quarter to exit Equities, the closing of the transaction in the first half of 2019 to sell the retail banking business in Portugal and costs associated with de-risking of assets. Revenues in Prime Finance were significantly lower compared to the prior year reflecting lower average balances during the year and reduced margins. Revenues included a loss of €116 million from specific items relating to the model parameter updates and DVA.

Provision for credit losses was a €14 million release in 2019 compared to a release of €36 million in the prior year. While the net release in 2018 was mainly driven by sales activities in our retail and shipping business, 2019 was dominated by a small number of specific events across several portfolios.

Noninterest expenses were €3.4 billion, an increase of €49 million or 1 % compared to the prior year. 2019 included restructuring expenses of €143 million, an increase of €81 million compared to the prior year and transformation charges of €510 million, mainly related to impairments of software.

Adjusted costs excluding transformation charges were €2.6 billion, a decrease of €725 million, or 22 % compared to the prior year following lower compensation and benefits costs across both fixed and variable compensation and reduced non-compensation costs mainly driven by lower professional fees as well as communication and data services.

Leverage exposure was €127 billion at the end of 2019, €13 billion ahead of the 2019 target. This represents a full-year reduction of 55% versus €281 billion at the end of 2018.

Risk weighted assets (RWAs) were €46 billion at the end of 2019, €6 billion below the year-end target of €52 billion, and down by 36% versus €72 billion at the end of 2018.

2018

Loss before tax in 2018 was €1.4 billion compared to a loss before tax of €1.6 billion in the prior year. A reduction in revenues was partly offset by reduced noninterest expenses and a lower provision for credit losses.

Net revenues were €1.9 billion, a decrease of €166 million or 8 % compared to the prior year. Revenues in Prime Finance were slightly lower. Equity Derivatives revenues were slightly lower due to reduced client flow across both Europe and Asia Pacific, partly offset by a solid performance in the U.S., which benefited from increased volatility in the first quarter of 2018. Cash Equity revenues were lower due to facilitation losses in the U.S. and the non-recurrence of gains on asset sales in the previous year. Revenues in Legacy FIC were higher than the previous year due to the absence of valuation losses.

Provision for credit losses was a net release of €36 million in 2018 compared to a charge of €110 million in 2017. The lower level of provisions for credit losses mainly benefited from successful de-risking activities in the shipping portfolio.

Noninterest expenses were €3.3 billion, a decrease of €218 million or 6 % compared to €3.6 billion in the prior year. The decrease was driven by lower compensation and benefits costs across both fixed and variable compensation reflecting headcount reductions. General and administrative expenses were also reduced mainly driven by lower professional service fees, communication and data services and travel costs due to continued cost discipline. The cost reductions were partially offset by higher restructuring expenses.

Adjusted costs were €3.3 billion, a decrease of €190 million, or 5 % compared to €3.5 billion in the prior year, mainly driven by lower compensation and benefits costs following the headcount reductions, lower professional service fees and costs for communication and data services as well as lower travel costs due to continued cost discipline.

Leverage exposure was €281 billion at the end of 2018, a reduction of €103 billion, or 27 % compared to €384 billion at the end of 2017.

Risk weighted assets (RWAs) were €72 billion at the end of 2018, stable compared to 2017.

Corporate & Other (C&O)

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues	155	(120)	(539)	274	N/M	420	(78)
Provision for credit losses	0	1	(0)	(0)	(84)	1	N/M
Noninterest expenses							
Compensation and benefits	2,836	3,079	3,078	(242)	(8)	1	0
General and administrative expenses	(2,320)	(2,656)	(2,497)	336	(13)	(159)	6
Impairment of goodwill and other intangible assets	0	0	0	0	N/M	0	N/M
Restructuring activities	40	(1)	1	41	N/M	(2)	N/M
Total noninterest expenses	556	421	582	135	32	(161)	(28)
Noncontrolling interests	(173)	(109)	(16)	(64)	58	(93)	N/M
Profit (loss) before tax	(229)	(433)	(1,105)	204	(47)	672	(61)
Employees (full-time equivalent)	27,679	29,463	31,590	(1,784)	(6)	(2,127)	(7)

N/M – Not meaningful

2019

C&O reported a loss before tax of € 229 million in 2019 compared to a loss before tax of € 433 million in the prior year, a decrease of 47 %, mainly driven by higher positive effects from valuation and timing differences and by higher reversals of noncontrolling interests, mainly related to DWS, deducted from profit before tax of the divisions in 2019.

Net revenues were € 155 million in 2019, compared to negative € 120 million in 2018. Revenues related to valuation and timing differences were € 573 million in 2019, compared to € 107 million in 2018 driven by the positive mark-to-market impact of hedging activities in connection with the bank's funding arrangements. Net revenues relating to funding and liquidity were negative € 186 million in 2019, down from negative € 59 million in the prior year mainly due to the implementation of a new internal Funds Transfer Pricing framework in the third quarter of 2019. Costs related to the introduction of the new framework were held in C&O while the new framework is phased in. These costs will be amortized over time reflecting the long-dated nature of our liabilities.

Noninterest expenses were € 556 million in 2019, an increase of € 135 million, or 32 %, compared to prior year, mainly driven by litigation expenses of € 238 million in 2019, compared to € 51 million in 2018. Expenses associated with shareholder activities as defined in the OECD Transfer Pricing guidelines not allocated to the business divisions increased from € 422 million in 2018 to € 476 million in 2019. Positive effects from the release of legacy balances were also recognized in the third quarter of 2019.

Noncontrolling interests are deducted from the profit before tax of the divisions and reversed in C&O. The increase from € 109 million in 2018 to € 173 million in 2019 was mainly related to higher profits in DWS.

2018

C&O reported a loss before tax of € 433 million in 2018 compared to a loss before tax of € 1.1 billion in the prior year, a decrease of 61 %, mainly driven by the realisation of a negative currency translation adjustment in 2017, lower noninterest expenses as well as higher reversals of noncontrolling interests in 2018 primarily resulting from the initial public offering of DWS.

Net revenues were negative € 120 million in 2018, compared to negative € 539 million in 2017. Net revenues in 2017 were impacted by the realization of a currency translation adjustment of negative € 164 million associated with the disposal of a non-strategic subsidiary in Argentina. Revenues related to maintaining funding and liquidity buffers in excess of business-based liquidity requirements amounted to negative € 59 million in 2018, compared to negative € 119 million in the prior year. Revenues from valuation and timing differences were € 107 million in 2018, compared to € 51 million in 2017.

Noninterest expenses were € 421 million in 2018, a decrease of € 161 million, or 28 %, compared to prior year, driven by lower than planned Infrastructure expenses in 2018. From 2018 onwards, Infrastructure expenses are allocated to the corporate divisions based on the planned allocations. Any difference between planned and actual allocations is captured within C&O. This was partly offset by expenses associated with shareholder activities as defined in the OECD Transfer Pricing guidelines not allocated to the business divisions of € 422 million in 2018, compared to € 371 million in the prior year.

Noncontrolling interests are deducted from the profit before tax of the divisions and reversed in C&O. The increase from € 16 million in 2017 to € 109 million in 2018 was primarily a result of the aforementioned IPO of DWS.

Financial Position

Assets

in € m. (unless stated otherwise)	Dec 31, 2019	Dec 31, 2018	Absolute Change	Change in %
Cash, central bank and interbank balances	147,228	197,613	(50,385)	(25)
Central bank funds sold, securities purchased under resale agreements and securities borrowed	14,229	11,618	2,611	22
Financial assets at fair value through profit or loss	530,713	573,344	(42,630)	(7)
Of which: Trading assets	110,875	152,738	(41,863)	(27)
Of which: Positive market values from derivative financial instruments	332,931	320,058	12,873	4
Of which: Non-trading financial assets mandatory at fair value through profit and loss	86,901	100,444	(13,543)	(13)
Financial assets at fair value through other comprehensive income	45,503	51,182	(5,678)	(11)
Loans at amortized cost	429,841	400,297	29,544	7
Remaining assets	130,161	114,085	16,076	14
Of which: Brokerage and securities related receivables	63,401	66,675	(3,273)	(5)
Total assets	1,297,674	1,348,137	(50,463)	(4)

Liabilities and Equity

in € m. (unless stated otherwise)	Dec 31, 2019	Dec 31, 2018	Absolute Change	Change in %
Deposits	572,208	564,405	7,803	1
Central bank funds purchased, securities sold under repurchase agreements and securities loaned	3,374	8,226	(4,852)	(59)
Financial liabilities at fair value through profit or loss	404,448	415,680	(11,232)	(3)
Of which: Trading liabilities	37,065	59,924	(22,858)	(38)
Of which: Negative market values from derivative financial instruments	316,506	301,487	15,019	5
Of which: Financial liabilities designated at fair value through profit or loss	50,332	53,757	(3,425)	(6)
Other short-term borrowings	5,218	14,158	(8,940)	(63)
Long-term debt	136,473	152,083	(15,611)	(10)
Remaining liabilities	113,795	124,848	(11,054)	(9)
Of which: Brokerage and securities related payables	71,287	90,708	(19,421)	(21)
Total liabilities	1,235,515	1,279,400	(43,885)	(3)
Total equity	62,160	68,737	(6,578)	(10)
Total liabilities and equity	1,297,674	1,348,137	(50,463)	(4)

Movements in Assets and Liabilities

As of December 31, 2019, the total balance sheet decreased by €50.5 billion (or 4 %) compared to year-end 2018. Several strategic decisions had considerable repercussions on our balance sheet.

As a result of the continued optimization of the bank's funding, cash and central bank balances decreased by €50.4 billion, reflecting our previously announced plans to reduce surplus liquidity and shift of liquidity reserves from cash to securities. Long-term debt decreased by €15.6 billion, largely driven by a partial repayment of funds received as part of the TLTRO program and net maturities in our issuance book consistent with our deleveraging and announced intention to reduce surplus liquidity.

Our strategic decision to exit the Equities business represented the main driver for decreases in trading assets and trading liabilities of €41.9 billion and €22.9 billion, respectively, as well as decreases in brokerage and securities related payables and receivables of €19.4 billion and €3.3 billion, respectively.

Non-trading financial assets mandatory at fair value through profit or loss decreased by €13.5 billion, mainly driven by positions sold during the year.

Following the decision to sell our Global Prime Finance business, other short-term borrowings decreased by €8.9 billion, predominantly due to unwinding of positions, whilst remaining liabilities excluding brokerage and securities related payables increased by €8.4 billion, primarily due to the reclassification of certain items into held-for-sale (associated with the Prime Finance platform being transferred to BNP Paribas).

These decreases were partly offset by increases in loans at amortized cost by €29.5 billion, mainly contributed by new deals and increased drawdowns in our core businesses, and deposits by €7.8 billion. Deposit movement was driven by growth primarily in our Private Bank, partially offset by reductions late in the year following the introduction of negative interest charged on select customer deposits in the Corporate Bank and Private Bank.

Remaining assets excluding brokerage and securities related receivables were up by €19.3 billion, primarily driven by increase in held-to-collect securities used for interest rate risk management purposes.

In addition to the above, positive market value of derivative financial instruments increased by €12.9 billion, with a corresponding increase of €15.0 billion in negative market value of derivative financial instruments due to market movements, primarily in interest rates.

The overall movement of the balance sheet included an increase of €18.0 billion due to foreign exchange rate movements, mainly driven by strengthening of the U.S. Dollar versus the Euro. The effects from foreign exchange rate movements are embedded in the movement of the balance sheet line items discussed in this section.

Liquidity

Liquidity reserves amounted to €222 billion as of December 31, 2019 (compared to €259 billion as of December 31, 2018). We maintained a positive liquidity stress result as of December 31, 2019 (under the combined scenario).

Equity

Total equity as of December 31, 2019 decreased by €6.6 billion compared to December 31, 2018. The decline in equity was driven by a net loss attributable to Deutsche Bank shareholders and additional equity components of €5.4 billion, primarily related to transformation-related effects. Total equity was also impacted by remeasurement losses related to defined benefit plans of €987 million, net of tax, coupons paid on additional equity components of €330 million, as well as cash dividends paid to Deutsche Bank shareholders of €227 million and a negative impact due to the adoption of IFRS 16 of €137 million, net of tax. The declines in equity were partly offset by a positive net change in share awards of €118 million in additional paid-in capital and gains from foreign currency translation of €108 million, net of tax, mainly resulting from the strengthening of the US dollar against the euro, as well as unrealized net gains of financial assets at fair value through other comprehensive income of €79 million, net of tax.

Own Funds

Our Common Equity Tier 1 (CET 1) capital and Risk weighted assets (RWA) under the CRR/CRD which have been lastly amended in June 2019 show no difference between CRR/CRD and fully loaded CRR/CRD. Our CET 1 capital as of December 31, 2019 decreased by €3.3 billion to €44.1 billion, compared to €47.5 billion as of December 31, 2018. The RWA decreased by €26.4 billion to €324.0 billion as of December 31, 2019, compared to €350.4 billion as of December 31, 2018. Due to the decreased CET 1 capital and RWA, the CET 1 capital ratio as of December 31, 2019 remains unchanged at 13.6% compared to December 31, 2018.

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Tabular Disclosure of Contractual Obligations

Cash payment requirements outstanding as of December 31, 2019.

Contractual obligations in € m.	Total	Payment due by period			
		Less than 1 year	1–3 years	3–5 years	More than 5 years
Long-term debt obligations ¹	148,052	40,706	45,686	26,033	35,626
Trust preferred securities ^{1,2}	2,085	2,085	0	0	0
Long-term financial liabilities designated at fair value through profit or loss ³	4,916	976	484	643	2,813
Future cash outflows not reflected in the measurement of Lease liabilities ⁴	5,662	17	291	525	4,830
Lease liabilities ¹	3,609	730	961	961	957
Purchase obligations	3,106	502	1,670	331	603
Long-term deposits ¹	26,708	0	11,059	5,199	10,450
Other long-term liabilities	1,431	532	181	374	343
Total	195,568	45,548	60,332	34,065	55,623

¹ Includes interest payments.

² Contractual payment date or first call date.

³ Long-term debt and long-term deposits designated at fair value through profit or loss.

⁴ For further detail please refer to Note 22 "Leases".

Purchase obligations for goods and services include future payments for, among other things, information technology services and facility management. Some figures above for purchase obligations represent minimum contractual payments and actual future payments may be higher. Long-term deposits exclude contracts with a remaining maturity of less than one year. Under certain conditions future payments for some long-term financial liabilities designated at fair value through profit or loss may occur earlier. See the following notes to the consolidated financial statements for further information: Note 5 "Net Interest Income and Net Gains (Losses) on Financial Assets/Liabilities at Fair Value through Profit or Loss", Note 22 "Leases", Note 26 "Deposits" and Note 30 "Long-Term Debt and Trust Preferred Securities".

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Risk Report

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Introduction

Disclosures in line with IFRS 7

The following Risk Report provides qualitative and quantitative disclosures about credit, market and other risks in line with the requirements of International Financial Reporting Standard 7 (IFRS 7) Financial Instruments: Disclosures. It also considers the underlying classification and measurement and impairment requirements in IFRS 9 with further details to be found in the “Credit Risk Management and Model” section, in the “Credit risk mitigation” section, in the “Asset quality” section and in Note 1 “Significant accounting policies and critical accounting estimates” to the consolidated financial statements. Information which forms part of and is incorporated by reference into the financial statements of this report is marked by a bracket in the margins throughout this Risk Report.

Disclosures according to Pillar 3 of the Basel 3 Capital Framework

Most disclosures according to Pillar 3 of the Basel 3 Capital Framework, which are implemented in the European Union by the Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms (Capital Requirements Regulation or CRR), including recent amendments; and supported by EBA Implementing Technical Standards or the “Final Report on the Guidelines on Disclosure Requirements under Part Eight of Regulation (EU) No 575/2013” (“EBA Guideline”, EBA/GL/2016/11, version 2*) and related guidelines applicable to Pillar 3 disclosures, are published in our additional Pillar 3 report, which can be found on our website. In cases where disclosures in this Risk Report also support Pillar 3 disclosure requirements these are highlighted by references from the Pillar 3 Report into the Risk Report.

Disclosures according to principles and recommendations of the Enhanced Disclosure Task Force (EDTF)

In 2012 the Enhanced Disclosure Task Force (“EDTF”) was established as a private sector initiative under the auspices of the Financial Stability Board (“FSB”), with the primary objective to develop fundamental principles for enhanced risk disclosures and to recommend improvements to existing risk disclosures. As a member of the EDTF we adhere to the disclosure recommendations in this Risk Report and also in our additional Pillar 3 report.

Risk and capital overview

Key risk metrics

The following selected key risk ratios and corresponding metrics form part of our holistic risk management across individual risk types. The Common Equity Tier 1 Ratio (CET 1), Economic Capital Adequacy Ratio (ECA), Leverage Ratio (LR), Total loss absorbing capacity (TLAC), Minimum Requirement for Own Funds and Eligible Liabilities (MREL), Liquidity Coverage Ratio (LCR), and Stressed Net Liquidity Position (sNLP) serve as high level metrics and are fully integrated across strategic planning, risk appetite framework, stress testing (except LCR, TLAC and MREL), and recovery and resolution planning practices, which are reviewed and approved by our Management Board at least annually. The CET 1, LR, Leverage Exposure, TLAC, MREL, LCR and Risk-Weighted-Assets ratios and metrics, which are regulatory defined, are based on the Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms (Capital Requirements Regulation or "CRR") and the directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (Capital Requirements Directive or "CRD"), including recent amendments. MREL is based on the Single Resolution Mechanism (SRM) regulation as well as respective communication by the Single Resolution Board (SRB). ECA, Economic Capital and sNLP are Deutsche Bank-specific internal risk metrics in addition to the above described regulatory metrics.

Common Equity Tier 1 Ratio		Total Risk-Weighted Assets	
31.12.2019	13.6 %	31.12.2019	€ 324.0 bn
31.12.2018	13.6 %	31.12.2018	€ 350.4 bn
Economic Capital Adequacy Ratio		Total Economic Capital	
31.12.2019	163 %	31.12.2019	€ 29.2 bn
31.12.2018	196 %	31.12.2018	€ 26.1 bn
Leverage Ratio (fully-loaded)		Leverage Exposure	
31.12.2019	4.2 %	31.12.2019	€ 1,168 bn
31.12.2018	4.1 %	31.12.2018	€ 1,273 bn
Total loss absorbing capacity (TLAC)		Minimum requirement for own funds and eligible liabilities (MREL)	
31.12.2019 (Risk Weighted Asset based)	34.67 %	31.12.2019	11.57 %
31.12.2019 (Leverage Exposure based)	9.62 %	31.12.2018	11.14 %
Liquidity Coverage Ratio		Stressed Net Liquidity Position (sNLP)	
31.12.2019	141 %	31.12.2019	€ 24.3 bn
31.12.2018	140 %	31.12.2018	€ 48.1 bn

¹ Formerly reported as "Internal Capital Adequacy Ratio". The definition of capital supply for the purpose of calculating the economic capital adequacy ratio aims at maintaining the continuity of Deutsche Bank on an ongoing basis. More information is provided in section "Economic Capital Adequacy".

For further details please refer to sections "Risk profile", "Risk appetite and capacity", "Risk and capital plan", "Stress testing", "Recovery and resolution planning", "Risk and capital management", "Capital, leverage ratio, TLAC and MREL" (for phase-in and fully loaded figures), "Liquidity coverage ratio", and "Stress testing and scenario analysis".

Overall risk assessment

Key risk types as reflected in Deutsche Bank's risk type taxonomy include credit risk (including default, migration, transaction, settlement, exposure, country, mitigation and concentration risks), market risk (including interest rate, foreign exchange, equity, credit spread, commodity and cross-asset risks), liquidity risk (including short term liquidity and funding risk), business risk (including strategic and tax risk), cross risk, reputational risk and operational risk (with important sub-categories like compliance, legal, model, information security & technology, fraud, and money laundering risks). We manage the identification, assessment and mitigation of top and emerging risks through an internal governance process and the use of risk management tools and processes. Our approach to identification and impact assessment aims to ensure that we mitigate the impact of these risks on our financial results, long-term strategic goals and reputation. Please refer to the section "Risk and capital management" for detailed information on the management of our material risks.

As part of our regular analysis, sensitivities of the key portfolio risks are reviewed using bottom-up risk assessment, complemented by top-down macro-economic and political scenario analysis. This two-pronged approach allows us to capture risk drivers that have an impact across our risk portfolios and business divisions as well as those relevant to specific portfolios.

Global economic activity slowed significantly in 2019 primarily due to the drag from rising protectionism on international trade, manufacturing activity and business sentiment and despite highly accommodative monetary policy and overall easy monetary conditions. World real GDP growth declined from 3.8 % in 2018 to 3.1 % in 2019. Over the turn of the year market concerns about a potential recession in the U.S. or Europe have diminished and the global macro outlook has improved as major downside risks have not materialized. Most notably the "Phase One" trade deal between the U.S. and China has reduced the risk of further trade war escalation for now, and political developments in the UK have partly removed the Brexit-related uncertainty. However, the economic disruption caused by the rapid spread of the novel coronavirus (COVID 19) is likely to weigh at least temporarily on global GDP growth.

Key macroeconomic downside risks are still dominated by the potential escalation of the global trade conflict, as important trade negotiations will likely continue to take center-stage in 2020. Failure to start further ("Phase Two") U.S.-China trade negotiations, an unwinding of the existing deal or an escalating trade conflict with Europe including higher U.S. import tariffs on autos would add to the damage already done to global trade and growth.

Brexit uncertainty has declined as the UK left EU at the end of January 2020, starting a short transition period which the new UK government has ruled out to prolong until after the end-2020 deadline. Without sufficient time to negotiate a comprehensive trade deal, the future UK-EU relationship may still revert to a "no-deal" Brexit, weighing on the economic and trade outlook for Europe overall.

Political uncertainty is elevated in a number of other countries, for instance in the run-up to the presidential elections in the U.S., or in Italy where the incumbent coalition government faces increasing pressure from opposition parties. Geopolitical risk also remains elevated, as recently demonstrated by the military escalation between the U.S. and Iran or the protests in Hong Kong. Furthermore, the COVID 19 outbreak is likely to result in a sharp slowdown in global GDP growth in the first half of 2020. If the outbreak is prolonged this could lead to negative demand and supply chain effects and a more pronounced impact on global growth.

Negative (geo) political events could trigger rapid market corrections. Particularly in developed markets' equity markets which are trading close to record highs, or other highly valued risk asset markets which are continuously supported by the very low interest rate environment. Major central bank policy rates are seen on hold and long-term benchmark yields have picked up only slightly from the cyclical or even record lows observed in the third quarter 2019, posing the risk of an upside shock to interest rates e.g. if inflationary pressure increased substantially more and/or faster than expected.

In addition to the "low for longer" interest rate environment which can impact our net interest income and other rate sensitive businesses activities as well as other macro risks described above, we are exposed to a variety of financial risks, including but not limited to counterparty default risks or sudden market shocks impacting our credit and market risk profiles and non-financial risks including but not limited to operational and IT infrastructure, transaction processing and third party vendor risks.

The potential impacts of these risks on our balance sheet and profitability are assessed through portfolio reviews and stress tests. Stress tests are also used to test the resilience of Deutsche Bank's strategic plans. The results of these tests indicate that the currently available capital and liquidity reserves, in combination with available mitigation measures, would allow us to absorb the impact of these risks if they were to materialize as envisaged. Information about risk and capital positions for our portfolios can be found in the "Risk and capital performance" section.

Risk profile

The table below shows our overall risk position as measured by the economic capital demand calculated for credit, market, operational and business risk for the dates specified. To determine our overall economic risk position, we generally consider diversification benefits across risk types.

Overall risk position as measured by economic capital demand by risk type

in € m. (unless stated otherwise)	Dec 31, 2019	Dec 31, 2018	2019 increase (decrease) from 2018	
			in € m.	in %
Credit risk	10,757	10,610	147	1
Market risk	11,767	10,341	1,426	14
Trading market risk	3,592	4,046	(454)	(11)
Nontrading market risk	8,175	6,295	1,880	30
Operational risk	5,813	7,359	(1,546)	(21)
Business risk	6,374	4,758	1,616	34
Diversification benefit ¹	(5,535)	(6,960)	1,425	(20)
Total economic capital demand	29,176	26,108	3,068	12

¹ Diversification benefit across credit, market, operational and strategic risk (largest part of business risk).

As of December 31, 2019, our economic capital demand amounted to € 29.2 billion, which was € 3.1 billion or 12 % higher than € 26.1 billion economic capital demand as of December 31, 2018.

The economic capital demand for credit risk as of December 31, 2019 was € 0.1 billion or 1 % higher compared to year-end 2018 mainly due to higher transfer and settlement risk components with offsetting effects from a lower counterparty risk component.

The economic capital demand for trading market risk decreased to € 3.6 billion as of December 31, 2019, compared to € 4.0 billion at year-end 2018. The decrease was primarily driven by the de-risking of portfolios that were moved to the business division Capital Release Unit, most notably from Equities and also Emerging Market Debt businesses. The economic capital demand for nontrading market risk increased by € 1.9 billion or 30 % compared to December 31, 2018. The increase in economic capital demand was mainly driven by increased economic value interest rate risk exposure built-up to reduce earnings risk exposure.

The operational risk economic capital demand totaled € 5.8 billion as of December 31, 2019, which was € 1.5 billion or 21 % lower than the € 7.4 billion economic capital demand as of December 31, 2018. In line with the development of our RWA for operational risk, the decrease was mainly driven by a lighter loss profile feeding into our capital model as well as a number of model improvements driven by new regulations, such as the Advanced Measurement Approach Regulatory Technical Standards, de-risking before and during the Group's transformation, and an improved capture of our risk profile. For a detailed description see the section "Operational Risk Management".

Our business risk economic capital methodology captures strategic risk, which also implicitly includes elements of non-standard risks including refinancing and reputational risk, a tax risk component and a capital charge for IFRS deferred tax assets on temporary differences. The business risk increased to € 6.4 billion as of December 31, 2019 which was € 1.6 billion or 34 % higher compared to € 4.8 billion as of December 31, 2018. The increase was due to a higher economic capital demand for the strategic risk component of € 1.5 billion mainly due to impacts from Deutsche Bank's transformation and the revised earnings outlook for the bank. Compared to previous year-end, the economic capital demand from IFRS deferred tax assets on temporary differences was € 0.1 billion higher than as of December 31, 2018.

The inter-risk diversification benefit of the economic capital demand across credit, market, operational and strategic risk decreased by € 1.4 billion mainly due to model recalibration and shifts in the strategic risk profile related to our bank's transformation.

Our mix of business activities results in diverse risk taking by our business divisions. We also measure the key risks inherent in their respective business models through the total economic capital metric, which mirrors each business division's risk profile and takes into account cross-risk effects at group level.

Risk profile of our business divisions as measured by economic capital

								Dec 31, 2019	
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total	Total (in %)	
Credit Risk	2,417	4,064	2,190	71	859	1,155	10,757	37	
Market Risk	539	3,563	1,863	456	464	4,883	11,767	40	
Operational Risk	585	2,122	666	366	2,074	0	5,813	20	
Business Risk	195	4,914	71	0	20	1,174	6,374	22	
Diversification Benefit ¹	(510)	(2,460)	(654)	(224)	(1,075)	(612)	(5,535)	(19)	
Total EC	3,226	12,203	4,137	668	2,343	6,599	29,176	100	
Total EC in %	11	42	14	2	8	23	100	N/M	

N/M – Not meaningful

¹ Diversification benefit across credit, market, operational and strategic risk (largest part of business risk).

								Dec 31, 2018 ¹	
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total	Total (in %)	
Credit Risk	1,861	3,804	3,214	52	1,007	672	10,610	41	
Market Risk	269	3,605	1,132	370	930	4,035	10,341	40	
Operational Risk	771	2,386	711	401	3,090	0	7,359	28	
Business Risk	141	2,315	29	0	1,065	1,208	4,758	18	
Diversification Benefit ²	(577)	(3,021)	(833)	(231)	(1,882)	(416)	(6,960)	(27)	
Total EC	2,465	9,089	4,253	592	4,211	5,499	26,108	100	
Total EC in %	9	35	16	2	16	21	100	N/M	

N/M – Not meaningful

¹ Risks amounts allocated to the business segments have been restated to reflect comparatives according to the structure as of December 31, 2019.

² Diversification benefit across credit, market, operational and strategic risk (largest part of business risk).

The Corporate Bank's risk profile is dominated by its trade finance, commercial banking and cash management products and services offered. Credit risk in Corporate Bank is predominantly driven by the Trade Finance and Commercial Clients businesses. The economic capital demand for credit risk as of December 31, 2019 was €0.6 billion or 30 % higher compared to year-end 2018 as there was a portfolio transfer of German small and medium sized enterprises from Private Bank to Corporate Bank. The increase in market risk economic capital demand for Corporate Bank year-on-year was driven by lower diversification effects with other business divisions. The decrease in operational risk economic capital demand was mainly due to model improvements and lighter loss profile feeding into our capital model. The economic capital demand for strategic risk in Corporate Bank is broadly flat compared to the year-end 2018.

The Investment Bank's risk profile is dominated by its trading activities to support origination, structuring and market making activities, which give rise to all major risk types. Credit risk in Investment Bank is broadly distributed across business units but most prominent in Global Credit Trading, Rates and Leveraged Debt Capital Markets. The economic capital demand for credit risk as of December 31, 2019 was €0.2 billion or 7 % higher compared to year-end 2018 mainly due to strong fixed income trading activity in the second half of the year, resulting in higher economic capital demand for counterparty risk and settlement risk. Operational risk economic capital demand decreased by €0.3 billion or 11% compared to the year-end 2018, driven by a lighter loss profile feeding into our capital model and a model enhancement driven by Improved capture of our risk profile. Market risk arises mainly from its trading and market making activities, and was materially unchanged year-on-year. The remainder of Investment Bank's risk profile is derived from business risk reflecting earnings volatility risk. Business risk economic capital demand increased by €2.6 billion year-on-year primarily due to an updated strategic plan, which was driven by the bank's transformation and the revised earnings outlook.

The Private Bank's risk profile comprises business with German retail, international retail and business clients as well as wealth management clients generating credit risks as well as nontrading market risks from investment risk, modelling of client deposits and credit spread risk. The economic capital demand for credit risk as of December 31, 2019 decreased compared to year-end 2018 as there was a portfolio transfer of German small and medium-sized enterprises from the Private Bank to the Corporate Bank. Additional changes were due to portfolio growth and model re-parametrization to reflect the granularity of the retail lending portfolio. Market risk increased by €0.7 billion compared to 2018 due to lower diversification effects with other divisions. There was no significant change for economic capital demand for operational and strategic risk compared to the prior year-end.

Asset Management, as a fiduciary asset manager, invests money on behalf of clients. As such, risks are generally of a fiduciary nature and hence operationally driven. The economic capital demand for market risk is mainly driven by nontrading market risk component, which arises on guarantee products and co-investments in our funds. Of particular note in 2019 was the volatility of Euro long term interest rates where the reduction adversely impacted the guarantee products. Overall, economic capital demand remained relatively stable over 2019.

Capital Release Unit's risk profile is driven by its trading activity to manage risk and ultimately run down the non-strategic assets and businesses transferred into the unit in third quarter of 2019. In line with the de-risking achieved through the year, the economic capital demand declined significantly compared to year-end 2018 contribution of the assets and businesses subsequently transferred into this unit.

Corporate & Other mainly comprises non-trading market risk for structural foreign exchange risk, pension risk and equity compensation risk. The economic capital demand for nontrading market risk increased compared to year-end 2018 mainly due to increased economic value interest rate risk exposures and IFRS deferred tax assets from temporary differences.

Risk and capital framework

Risk management principles

The diversity of our business model requires us to identify, assess, measure, aggregate and manage our risks, and to allocate our capital among our businesses. Our aim is to help reinforce our resilience by encouraging a holistic approach to the management of risk and return throughout our organization as well as the effective management of our risk, capital, liquidity and reputational profile. We actively take risks in connection with our business.

Risks are actively monitored and managed to balance risk and reward and stay within risk appetite. Risk and capital are managed via a framework of principles, organizational structures and measurement and monitoring processes that are closely aligned with the activities of the divisions and business units:

- Core risk management tasks are the responsibility of the Management Board and delegated to senior risk managers and senior risk management committees responsible for execution and oversight.
- We operate a Three Lines of Defense (“3LoD”) risk management model, in which risk, control and reporting responsibilities are defined.
 - The 1st Line of Defense (“1st LoD”) refers to those roles in the Bank whose activities generate risks, whether financial or non-financial, and who own and are accountable for the risks that are generated in their respective organizations. The 1st LoD manages these risks within the defined risk appetite at the appropriate granularity and ensures that organization, governance and structures are in place to identify, monitor, assess and accept or mitigate the risks they generate or are exposed to.
 - The 2nd Line of Defense (“2nd LoD”) refers to the roles in the Bank who facilitate the implementation of a sound risk management framework throughout the organization as risk type controllers, or for specific topics, as subject matter experts. The 2nd LoD defines the risk appetite and risk management and control standards for their risk type or portfolio, and independently oversees and challenges the risk taking and risk management activities of the 1st LoD.
 - The 3rd Line of Defense (“3rd LoD”) is Group Audit, which is accountable for providing independent and objective assurance on the effectiveness of 1st and 2nd LoD interaction, risk management, internal controls and governance processes.
- An integrated strategic planning process is conducted annually, which lays out the future strategic direction and provides a holistic perspective on capital, funding and risk under risk-return considerations and based on our defined risk appetite.
- Cross-risk analyses are conducted across the Group to validate that sound risk management practices and a holistic awareness of risk exist.
- All material risk types, including credit risk, market risk, operational risk, liquidity risk, business risk and reputational risk, are managed via risk management processes. Modeling and measurement approaches for quantifying risk and capital demand are implemented across the material risk types. For more details, refer to section “Risk and Capital Management” for the management processes of our material risks.
- Monitoring, stress testing tools and escalation processes are in place for key capital and liquidity thresholds and metrics.
- Systems, processes and policies are critical components of our risk management capability.
- In the context of recovery and contingency planning, the escalation path for crisis management is defined and senior management is supplied with a set of actions designed to improve the capital and liquidity positions in a stress event.
- We apply an integrated risk management approach that aims at Group-wide consistency in risk management standards, while allowing for adaptation to local or legal entity specific requirements.

We promote a strong risk culture where employees at all levels are responsible for the management and escalation of risks and are empowered and encouraged to act as risk managers. We expect employees to exhibit behaviors that support a strong risk culture in line with our Code of Conduct. To promote this, our policies require that risk-related behavior is taken into account during our performance assessment and compensation processes. This expectation continues to be reinforced through communications campaigns and mandatory training courses for all DB employees. In addition, our Management Board members and senior management frequently communicate the importance of a strong risk culture to support a consistent tone from the top.

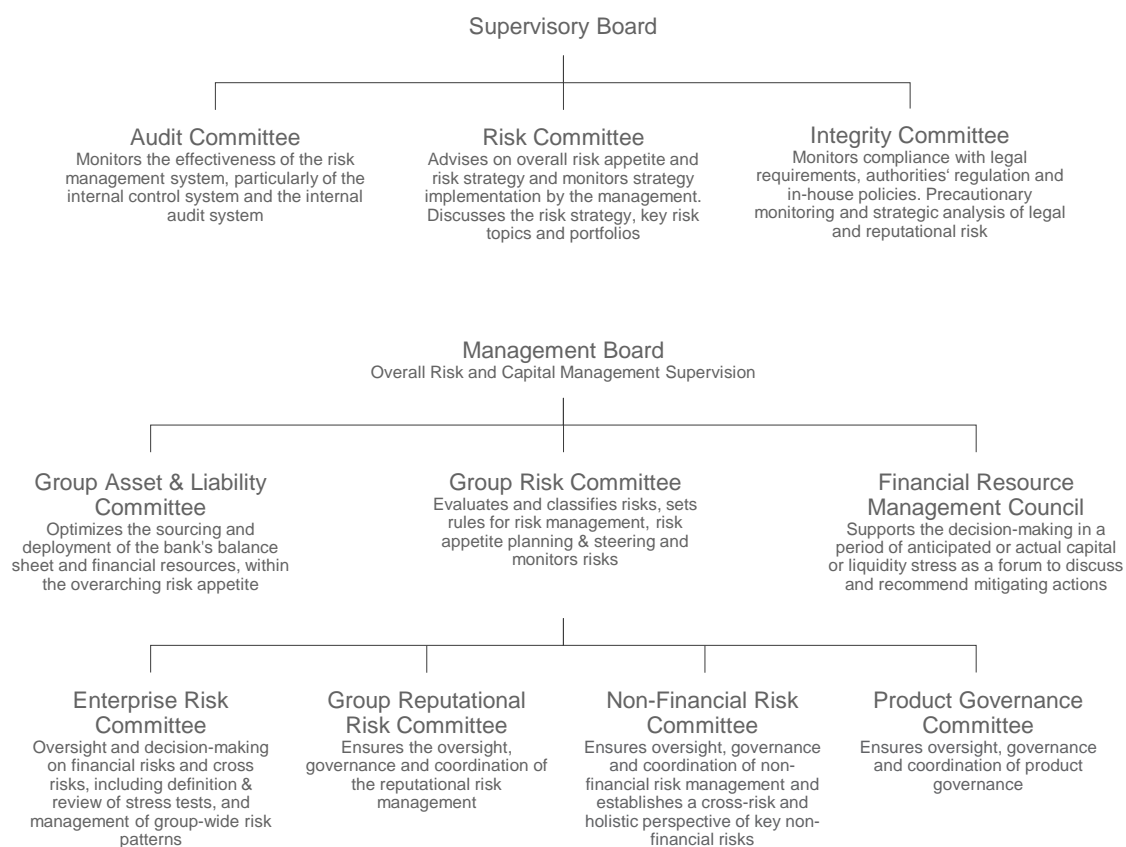
Risk governance

Our operations throughout the world are regulated and supervised by relevant authorities in each of the jurisdictions in which we conduct business. Such regulation focuses on licensing, capital adequacy, liquidity, risk concentration, conduct of business as well as organizational and reporting requirements. The European Central Bank (the “ECB”) in connection with the competent authorities of EU countries which joined the Single Supervisory Mechanism via the Joint Supervisory Team act in cooperation as our primary supervisors to monitor our compliance with the German Banking Act and other applicable laws and regulations.

Several layers of management provide cohesive risk governance:

- The Supervisory Board is informed regularly on our risk situation, risk management and risk controlling, as well as on our reputation and material litigation cases. It has formed various committees to handle specific tasks (for a detailed description of these committees, please see the “Corporate Governance Report” under “Management Board and Supervisory Board”, “Standing Committees”).
 - At the meetings of the Risk Committee, the Management Board reports on key risk portfolios, on risk strategy and on matters of special importance due to the risks they entail. It also reports on loans requiring a Supervisory Board resolution pursuant to law or the Articles of Association. The Risk Committee deliberates with the Management Board on issues of the overall risk appetite, aggregate risk position and the risk strategy and supports the Supervisory Board in monitoring the implementation of this strategy.
 - The Integrity Committee, among other responsibilities, advises and monitors the Management Board with regard to the management’s commitment to an economically sound, sustainable development of the company, monitors the Management Board’s measures that promote the company’s compliance with legal requirements, authorities’ regulations and the company’s own in-house policies, including risk policies. It also reviews the Bank’s Code of Conduct and Ethics, and, upon request, supports the Risk Committee in monitoring and analyzing the Bank’s legal and reputational risks.
 - The Audit Committee, among other matters, monitors the effectiveness of the risk management system, particularly the internal control system and the internal audit system.
- The Management Board is responsible for managing Deutsche Bank Group in accordance with the law, the Articles of Association and its Terms of Reference with the objective of creating sustainable value in the interest of the company, thus taking into consideration the interests of the shareholders, employees and other company related stakeholders. The Management Board is responsible for establishing a proper business organization, encompassing appropriate and effective risk management, as well as compliance with legal requirements and internal guidelines. The Management Board established the Group Risk Committee (“GRC”) as the central forum for review and decision on material risk and capital-related topics. The GRC generally meets once a week. It has delegated some of its duties to individuals and sub-committees. The GRC and its sub-committees are described in more detail below.

Risk management governance structure of the Deutsche Bank Group



The following functional committees are central to the management of risk at Deutsche Bank:

- The Group Risk Committee (GRC) has various duties and dedicated authority, including approval of new or materially changed risk and capital models and review of the inventory of risks, high-level risk portfolios, risk exposure developments, and internal and regulatory Group-wide stress testing results. In addition, the GRC reviews and recommends items for Management Board approval, such as key risk management principles, the Group Risk Appetite Statement, the Group Recovery Plan and the Contingency Funding Plan, over-arching risk appetite parameters, and recovery and escalation indicators. The GRC also supports the Management Board during Group-wide risk and capital planning processes.
 - The Non-Financial Risk Committee (NFRC) oversees, governs and coordinates the management of non-financial risks in Deutsche Bank Group and establishes a cross-risk and holistic perspective of the key non-financial risks of the Group, including conduct and financial crime risk. It is tasked to define the non-financial risk appetite tolerance framework, to monitor and control the effectiveness of the non-financial risk operating model (including interdependencies between business divisions and control functions), and to monitor the development of emerging non-financial risks relevant for the Group.
 - The Group Reputational Risk Committee (GRRC) is responsible for the oversight, governance and coordination of reputational risk management and provides for a look-back and a lessons learnt process. It reviews and decides all reputational risk issues escalated by the Regional Reputational Risk Committees (RRRCs) and RRRC decisions which have been appealed by the business divisions, infrastructure functions or regional management. It provides guidance on Group-wide reputational risk matters, including communication of sensitive topics, to the appropriate levels of Deutsche Bank Group. The RRRCs which are sub-committees of the GRRC, are responsible for the oversight, governance and coordination of the management of reputational risk in the respective regions on behalf of the Management Board.
 - The Enterprise Risk Committee (ERC) has been established with a mandate to focus on enterprise-wide risk trends, events and cross-risk portfolios, bringing together risk experts from various risk disciplines. As part of its mandate, the ERC approves the enterprise risk inventory, certain country and industry threshold increases, and scenario design outlines for more severe group-wide stress tests as well as reverse stress tests. It reviews group-wide stress test results in accordance with risk appetite, reviews the risk outlook, emerging risks and topics with enterprise-wide risk implications.
 - The Product Governance Committee has the mandate to ensure that there is appropriate oversight, governance and coordination of Product Governance in the Group by establishing a cross-risk and holistic perspective of key financial and non-financial risks associated with products and transactions throughout the lifecycle.

- The Financial Resource Management Council (FRMC) is an ad-hoc governance body, chaired by the Chief Financial Officer and Chief Risk Officer with delegated authority from the Management Board, to oversee financial crisis management at the bank. The FRMC provides a single forum to oversee execution of both the Contingency Funding Plan and the Group Recovery Plan. The council recommends upon mitigating actions to be taken in a time of anticipated or actual capital or liquidity stress. Specifically, the FRMC is tasked with analyzing the bank's capital and liquidity position, in anticipation of a stress scenario recommending proposals for capital and liquidity related matters, and ensure execution of decisions.
- The Group Asset & Liability Committee has been established by the Management Board. Its mandate is to optimize the sourcing and deployment of the bank's balance sheet and financial resources within the overarching risk appetite set by the Management Board.

Our Chief Risk Officer (CRO), who is a member of the Management Board, has Group-wide, supra-divisional responsibility for the management of all credit, market, liquidity and operational risks as well as for the continuing development and enhancement of methods for risk measurement. In addition, the CRO is responsible for monitoring, analyzing and reporting risk on a comprehensive basis.

The CRO has direct management responsibility for the Chief Risk Office. Risk management & control duties in the Chief Risk Office are generally assigned to specialized risk management units focusing on the management of

- Specific risk types
- Risks within a specific business
- Risks in a specific region.

These specialized risk management units generally handle the following core tasks:

- Foster consistency with the risk appetite set by the GRC within a framework established by the Management Board and applied to Business Divisions;
- Determine and implement risk and capital management policies, procedures and methodologies that are appropriate to the businesses within each division;
- Establish and approve risk limits;
- Conduct periodic portfolio reviews to keep the portfolio of risks within acceptable parameters; and
- Develop and implement risk and capital management infrastructures and systems that are appropriate for each division.

Chief Risk Officers for each corporate division, having a holistic view of the respective business, challenge and influence the divisions' strategies, risk awareness and ownership as well as their adherence to risk appetite.

The Enterprise Risk Management (ERM) function sets a bank-wide risk management framework seeking to ensure that all risks at the Group and Divisional level are identified, owned and assessed for materiality. ERM is also responsible for aggregating and analyzing enterprise-wide risk information and concentrations, including review of the risk/return profiles of portfolios to support informed strategic decision-making regarding the effective application of the Bank's resources. ERM has the mandate to:

- Manage enterprise risk appetite at Group level, including the framework and methodology as to how appetite is applied across risk types, divisions, businesses and legal entities;
- Integrate and aggregate risks to provide greater enterprise risk transparency to support decision making;
- Commission forward-looking stress tests and manage Group recovery plans; and
- Govern and improve the effectiveness of the risk management framework.

Compliance protects the Bank's licenses to operate by establishing a framework to promote and enforce adherence with rules and regulations. They provide an independent and objective assurance to the Management Board on the adequacy of the design and effectiveness of the Compliance Risk control framework for the areas for which they have been allocated responsibility.

Anti-Financial-Crime (AFC) sets the framework to prevent money laundering, countering terrorist financing and other criminal activities (including but not limited to fraud, and bribery and corruption activities) and to ensure compliance with financial and trade sanctions.

The functions described above have a reporting line to the CRO.

While operating independently from each other and the business divisions, our Finance and Risk functions have the joint responsibility to quantify and verify the risk that we assume.

Risk appetite and capacity

Risk appetite expresses the aggregate level of risk that we are willing to assume to achieve our strategic objectives, as defined by a set of quantitative metrics and qualitative statements. Risk capacity is defined as the maximum level of risk we can assume given our capital and liquidity base, risk management and control capabilities, and our regulatory constraints.

Risk appetite is an integral element in our business planning processes via our risk strategy and plan, to promote the appropriate alignment of risk, capital and performance targets, while at the same time considering risk capacity and appetite constraints from both financial and non-financial risks. Compliance of the plan with our risk appetite and capacity is also tested under stressed market conditions. Top-down risk appetite serves as the limit for risk-taking for the bottom-up planning from the business functions.

The Management Board reviews and approves our risk appetite and capacity on an annual basis, or more frequently in the event of unexpected changes to the risk environment, with the aim of ensuring that they are consistent with our Group's strategy, business and regulatory environment and stakeholders' requirements.

In order to determine our risk appetite and capacity, we set different group level triggers and thresholds on a forward looking basis and define the escalation requirements for further action. We assign risk metrics that are sensitive to the material risks to which we are exposed and which are able to function as key indicators of financial health. In addition to that, we link our risk and recovery management governance framework with the risk appetite framework.

Reports relating to our risk profile as compared to our risk appetite and strategy and our monitoring thereof are presented regularly up to the Management Board. In the event that our desired risk appetite is breached, a predefined escalation governance matrix is applied so these breaches are highlighted to the respective committees.

Risk and capital plan

Strategic and capital plan

We conduct annually an integrated strategic planning process which lays out the development of our future strategic direction for us as a Group and for our business areas. The strategic plan aims to create a holistic perspective on capital, funding and risk under risk-return considerations. This process translates our long-term strategic targets into measurable short- to medium-term financial targets and enables intra-year performance monitoring and management. Thereby we aim to identify growth options by considering the risks involved and the allocation of available capital resources to drive sustainable performance. Risk-specific portfolio strategies complement this framework and allow for an in-depth implementation of the risk strategy on portfolio level, addressing risk specifics including risk concentrations.

The strategic planning process consists of two phases: a top-down target setting and a bottom-up substantiation.

In a first phase – the top-down target setting – our key targets for profit and loss (including revenues and costs), capital supply, capital demand as well as leverage, funding and liquidity are discussed for the group and the key business areas. In this process, the targets for the next five years are based on our global macro-economic outlook and the expected regulatory framework. Subsequently, the targets are approved by the Management Board.

In a second phase, the top-down objectives are substantiated bottom-up by detailed business unit plans, which consist of a month by month operative plan; years two and three are planned per quarter and years four and five are annual plans. The proposed bottom-up plans are reviewed and challenged by Finance and Risk and are discussed individually with the business heads. Thereby, the specifics of the business are considered and concrete targets decided in line with our strategic direction. The bottom-up plans include targets for key legal entities to review local risk and capitalization levels. Stress tests complement the strategic plan to also consider stressed market conditions.

The resulting Strategic and Capital Plan is presented to the Management Board for discussion and approval. The final plan is presented to the Supervisory Board.

The Strategic and Capital Plan is designed to support our vision of being a leading German bank with strong European roots and a global network and aims to ensure:

- Balanced risk adjusted performance across business areas and units;
- High risk management standards with focus on risk concentrations;
- Compliance with regulatory requirements;

- Strong capital and liquidity position; and
- Stable funding and liquidity strategy allowing for business planning within the liquidity risk appetite and regulatory requirements.

The Strategic and Capital Planning process allows us to:

- Set earnings and key risk and capital adequacy targets considering the bank's strategic focus and business plans;
- Assess our capital adequacy with regard to internal and external requirements (i.e., economic capital and regulatory capital); and
- Apply appropriate stress test analyses' to assess the impact on capital demand, capital supply and liquidity.

All externally communicated financial targets are monitored on an ongoing basis in appropriate management committees. Any projected shortfall versus targets is discussed together with potential mitigating strategies with the aim to ensure that we remain on track to achieve our targets. Amendments to the strategic and capital plan must be approved by the Management Board. Achieving our externally communicated solvency targets ensures that we also comply with the solvency ratio-related Group Supervisory Review and Evaluation Process (SREP) requirements as articulated by our home supervisor.

Deutsche Bank was informed by the ECB of its decision regarding prudential minimum capital requirements for 2020 that apply from January 1, 2020 onwards, following the results of the 2019 SREP. The decision requires Deutsche Bank to maintain a CET 1 ratio of at least 11.58 % on a consolidated basis. This CET 1 capital requirement comprises the Pillar 1 minimum capital requirement of 4.50 %, the Pillar 2 requirement (SREP add-on) of 2.50 %, the capital conservation buffer of 2.50 %, the countercyclical buffer (subject to changes throughout the year) of 0.08 % and the G-SII buffer of 2.00 %. The new CET 1 capital requirement of 11.58 % for 2020 is lower than the CET 1 capital requirement of 11.83 %, which was applicable to Deutsche Bank in 2019, reflecting the lowered Pillar 2 requirement. Correspondingly, 2020 requirements for Deutsche Bank's Tier 1 capital ratio are at 13.08 % and for its total capital ratio at 15.08 %. Also, the ECB communicated to Deutsche Bank an individual expectation to hold a further "Pillar 2" CET 1 capital add-on, commonly referred to as the "Pillar 2" guidance'. The capital add-on pursuant to the "Pillar 2" guidance is separate from and in addition to the Pillar 2 requirement. The ECB has stated that it expects banks to meet the "Pillar 2" guidance although it is not legally binding, and failure to meet the "Pillar 2" guidance does not lead to automatic restrictions of capital distributions. In addition, the ECB has defined a level within the Pillar 2 guidance at which the bank must provide a capital restoration plan and execute measures to re-build CET 1 capital.

Internal Capital Adequacy Assessment Process

Deutsche Bank's internal capital adequacy assessment process (ICAAP) consists of several well-established components which ensure that Deutsche Bank maintains sufficient capital to cover the risks to which the bank is exposed on an ongoing basis:

- Risk identification and assessment: The risk identification process forms the basis of the ICAAP and results in an inventory of risks for the Group. All risks identified are assessed for their materiality. Further details can be found in section "Risk identification and assessment".
- Capital demand/risk measurement: Risk measurement methodologies and models are applied to quantify the regulatory and economic capital demand which is required to cover all material risks except for those which cannot be adequately limited by capital e.g. liquidity risk. Further details can be found in sections "Risk profile" and "Capital, Leverage Ratio, TLAC and MREL".
- Capital supply: Capital supply quantification refers to the definition of available capital resources to absorb unexpected losses. Further details can be found in sections "Capital, Leverage Ratio, TLAC and MREL" and "Economic Capital Adequacy".
- Risk appetite: Deutsche Bank has established a set of qualitative statements, quantitative metrics and thresholds which express the level of risk that we are willing to assume to achieve our strategic objectives. Threshold breaches are subject to a dedicated governance framework triggering management actions aimed to safeguard capital adequacy. Further details can be found in sections "Risk appetite and capacity" and "Key risk metrics".
- Capital planning: The risk appetite thresholds for capital adequacy metrics constitute boundaries which have to be met in the strategic plan to safeguard capital adequacy on a forward-looking basis. Further details can be found in section "Strategic and capital plan".
- Stress testing: Capital plan figures are also considered under various stress test scenarios to prove resilience and overall viability of the bank. Regulatory and economic capital adequacy metrics are also subject to regular stress tests throughout the year to constantly evaluate Deutsche Bank's capital position in hypothetical stress scenarios and to detect vulnerabilities under stress. Further details can be found in section "Stress testing".
- Capital adequacy assessment: Although capital adequacy is constantly monitored throughout the year, the ICAAP concludes with a dedicated annual capital adequacy assessment (CAS). The assessment consists of a Management Board statement about Deutsche Bank's capital adequacy, which is linked to specific conclusions and management actions to be taken to safeguard capital adequacy on a forward-looking basis.

As part of its ICAAP, Deutsche Bank distinguishes between a normative and economic internal perspective. The normative internal perspective refers to a multi-year assessment of the ability to fulfil all capital-related legal requirements and supervisory demands on an ongoing basis under a baseline and adverse scenario. The economic internal perspective refers to an internal process aimed at capital adequacy using internal economic capital demand models and an internal economic capital supply definition. Both perspectives focus on maintaining the continuity of Deutsche Bank on an ongoing basis.

Stress testing

Deutsche Bank has implemented a stress test framework to satisfy internal as well as external stress test requirements. The internal stress tests are based on in-house developed methods and inform a variety of risk management use cases (risk type specific as well as cross risk). Internal stress tests form an integral part of our risk management framework complementing traditional risk measures. The cross-risk stress test framework, the Group Wide Stress Test Framework (GWST), serves a variety of bank management processes, in particular the strategic planning process, the ICAAP, the risk appetite framework and capital allocation. Capital plan stress testing is performed to assess the viability of our capital plan in adverse circumstances and to demonstrate a clear link between risk appetite, business strategy, capital plan and stress testing. The regulatory stress tests, e.g. the EBA stress test and the US-based CCAR (Comprehensive Capital Analysis and Review) stress tests, are strictly following the processes and methodologies as prescribed by the regulatory authorities.

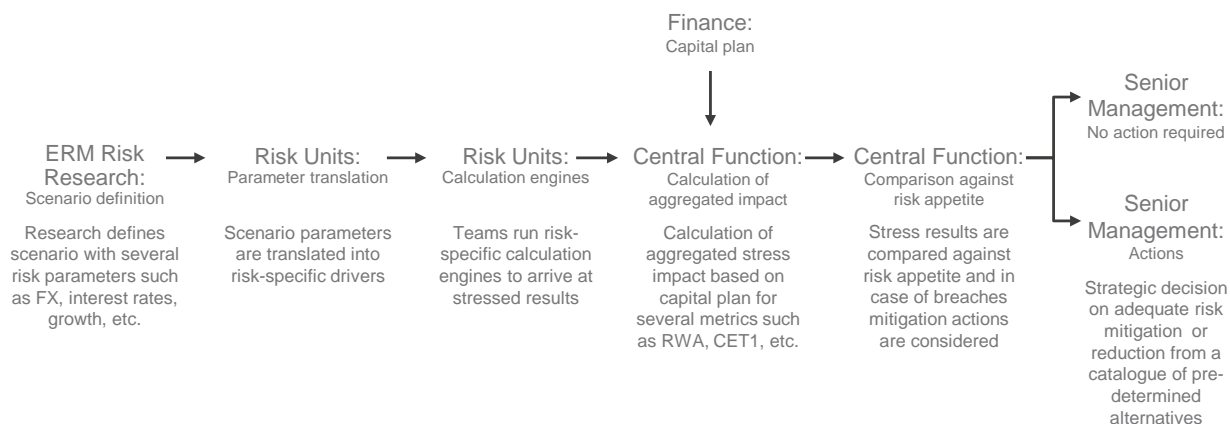
Our internal stress tests are performed on a regular basis in order to assess the impact of a severe economic downturn as well as adverse bank-specific events on our risk profile and financial position. Our stress testing framework comprises regular sensitivity-based and scenario-based approaches addressing different severities and localizations. We include all material risk types into our stress testing activities. These activities are complemented by portfolio- and country-specific downside analysis as well as further regulatory requirements, such as annual reverse stress tests and additional stress tests requested by our regulators on group or legal entity level. Our methodologies undergo regular scrutiny from Deutsche Bank's internal validation team (Model Risk Management) whether they correctly capture the impact of a given stress scenario.

The initial phase of our cross-risk stress test (GWST) consists of defining a macroeconomic downturn scenario by ERM Risk Research in cooperation with business specialists. ERM Risk Research monitors the political and economic development around the world and maintains a macro-economic heat map that identifies potentially harmful scenarios. Based on quantitative models and expert judgments, economic parameters such as foreign exchange rates, interest rates, GDP growth or unemployment rates are set accordingly to reflect the impact on our business. The scenario parameters are translated into specific risk drivers by subject matter experts in the risk units. Based on our internal models framework for stress testing, the following major metrics are calculated under stress: risk-weighted assets, impacts on profit and loss and economic capital by risk type. These results are aggregated at the Group level, and key metrics such as the CET 1 ratio, ECA ratio and Leverage Ratio under stress are derived. Stress impacts on the Liquidity Coverage Ratio (LCR) and the Liquidity Reserve are also considered. In the reporting year, we have introduced an assessment of impacts against the MREL ratio. The time-horizon of internal stress tests is between one and five years, depending on the use case and scenario assumptions. In 2019, we have further strengthened our framework to calculate the stress impacts of a multi-year stress horizon. The Enterprise Risk Committee (ERC) reviews the final stress results. After comparing these results against our defined risk appetite, the ERC also discusses specific mitigation actions to remediate the stress impact in alignment with the overall strategic and capital plan if certain limits are breached. The results also feed into the recovery planning which is crucial for the recoverability of the Bank in times of crisis. The outcome is presented to senior management up to the Management Board to raise awareness on the highest level as it provides key insights into specific business vulnerabilities and contributes to the overall risk profile assessment of the bank. The group wide stress tests performed in 2019 indicated that the bank's capitalization together with available mitigation measures as defined in the Group Recovery Plan allow it to reach the internally set stress exit level. The cross-risk reverse stress test leverages the GWST framework and is performed annually in order to challenge our business model by determining scenarios which would cause us to become unviable. Such a reverse stress test is based on a hypothetical macroeconomic scenario enriched by idiosyncratic events based on the top risks monitored by each risk type. Comparing the hypothetical scenario resulting in the Bank's non-viability to the current economic environment, we consider the probability of occurrence of such a hypothetical stress scenario as extremely low. Given this, we do not believe that our business continuity is at risk.

In addition to the GWST that includes all material risk types and major revenue streams for the use cases as indicated above, we have individual stress test programs in place for all relevant risk metrics in line with regulatory requirements. For the relevant stress test programs we refer to the sections describing the individual risk management methods.

Deutsche Bank also took part in two major regulatory stress tests performed in 2019, i.e. the ECB's liquidity stress test exercise as well as the U.S.-based CCAR stress test. The ECB Liquidity Stress Test 2019 (LiST) is a sensitivity analysis of the Bank's liquidity profile based on two idiosyncratic liquidity scenarios over a 6-month horizon defined by the ECB and was successfully completed. In the U.S., the Federal Reserve (FRB) publicly indicated that it did not object to the capital plans submitted by DB USA Corporation and DWS USA Corporation.

GWST framework of Deutsche Bank Group



Risk measurement and reporting systems

Our risk measurement systems support regulatory reporting and external disclosures, as well as internal management reporting across credit, market, liquidity, cross, business, operational and reputational risks. The risk infrastructure incorporates the relevant legal entities and business divisions and provides the basis for reporting on risk positions, capital adequacy and limit, threshold or target utilization to the relevant functions on a regular and ad-hoc basis. Established units within Finance and the Risk-Function assume responsibility for measurement, analysis and reporting of risk while promoting sufficient quality and integrity of risk-related data. Our risk management systems are reviewed by Group Audit following a risk-based audit approach.

Deutsche Bank's reporting is an integral part of Deutsche Bank's risk management approach and as such aligns with the organizational setup by delivering consistent information on Group level and for material legal entities as well as breakdowns by risk types, business division and material business units.

The following principles guide Deutsche Bank's "risk reporting and monitoring" practices:

- Deutsche Bank monitors risks taken against risk appetite and risk-reward considerations on various levels across the Group, e.g. Group, business divisions, material business units, material legal entities, risk types, portfolio and counterparty levels.
- Risk reporting is required to be accurate, clear, useful and complete and must convey reconciled and validated risk data to communicate information in a concise manner to ensure, across material Financial and Non-Financial Risks, the bank's risk profile is clearly understood.
- Senior risk committees, such as the Enterprise Risk Committee (ERC) and the Group Risk Committee (GRC), as well as the Management Board who are responsible for risk and capital management receive regular reporting (as well as ad-hoc reporting as required).
- Dedicated teams within Deutsche Bank proactively manage material Financial and Non-Financial Risks and must ensure that required management information is in place to enable proactive identification and management of risks and avoid undue concentrations within a specific Risk Type and across risks (Cross-Risk view).

In applying the previously mentioned principles, Deutsche Bank maintains a common basis for all risk reports and aims to minimize segregated reporting efforts to allow Deutsche Bank to provide consistent information, which only differs by granularity and audience focus.

The Bank identifies a large number of metrics within its risk measurement systems which support regulatory reporting and external disclosures, as well as internal management reporting across risks and for material risk types. Deutsche Bank designates a subset of those as “Key Risk Metrics” that represent the most critical ones for which the Bank places an appetite, limit, threshold or target at Group level and / or are reported routinely to senior management for discussion or decision making. The identified Key Risk Metrics include Capital Adequacy and Liquidity metrics; further details can be found in the section “Key risk metrics”.

While a large number of reports are used across the Bank, Deutsche Bank designates a subset of these as “Key Risk Reports” that are critical to support Deutsche Bank’s Risk Management Framework through the provision of risk information to senior management and therefore enable the relevant governing bodies to monitor, steer and control the Bank’s risk taking activities effectively.

The main reports on risk and capital management that are used to provide Deutsche Bank’s central governance bodies with information relating to the Group risk profile are the following:

- The monthly Risk and Capital Profile (RCP) report is a Cross-Risk report, provides a comprehensive view of Deutsche Bank’s risk profile and is used to inform the ERC, the GRC as well as the Management Board and subsequently the Risk Committee of the Supervisory Board. The RCP includes Risk Type specific and Business-Aligned overviews and Enterprise-wide risk topics. It also includes updates on Key Group Risk Appetite Metrics and other Key Portfolio Risk Type Control Metrics as well as updates on Key Risk Developments, highlighting areas of particular interest with updates on corresponding risk management strategies.
- The Weekly Risk Report (WRR) is a weekly briefing covering high-level topical issues across key risk areas and is submitted every Friday to the Members of the ERC, the GRC and the Management Board and subsequently to the Members of the Risk Committee of the Supervisory Board. The WRR is characterised by the ad-hoc nature of its commentary as well as coverage of themes and focuses on more volatile risk metrics.
- Group-wide macroeconomic stress tests are typically performed twice per quarter (or more frequently if required). They are reported to and discussed in the ERC and escalated to the GRC if deemed necessary. The stressed key performance indicators are benchmarked against the Group Risk Appetite thresholds.

While the above reports are used at a Group level to monitor and review the risk profile of Deutsche Bank holistically, there are other, supplementing standard and ad-hoc management reports that Risk Type or Business Aligned Risk Management functions use to monitor and control the risk profile.

Recovery and resolution planning

The Banking Recovery and Resolution Directive (BRRD) was introduced in 2014 to reduce the likelihood of financial crisis, enhance the resilience of institutions under stress, and eventually support the long term stability of the financial systems without exposing taxpayers’ money to losses.

In line with the BRRD and relevant German law MaSan (BaFin circular on minimum requirements for the contents of recovery plans), we developed and maintain a recovery and resolution planning framework designed to anticipate, identify, mitigate and manage in a timely and coordinated manner the impact of adverse events on the Group and its ability to continue as a going concern.

The Group recovery plan lays out a set of tools and actions available to restore our financial strength and viability during an extreme stress situation and it builds on four key pillars:

- Recovery metrics and related limits/thresholds with the purpose to enable prompt decision making when a breach occur;
- Recovery governance, define clear escalation path to expedite decision making;
- Stress testing framework to test ex-ante the ability to withstand severe stress and assess the recovery capacity; and
- Countermeasures designed to mitigate different types of stress events, through e.g. expense reductions, business reductions, business disposal, liquidity/capital raising actions.

The 2019 recovery plan is the eighth annual iteration and builds on a well-established framework with targeted enhancements to: reflect the new strategy announced in July 2019, provide an update on the countermeasure capacity and address regulatory feedback and developments. The key outcomes of this iteration include the following:

- The Recovery governance reflects the changes in the infrastructure functions and the new business divisions, to facilitate a swift communication and transition between “business-as-usual” and “crisis” governing bodies;
- All recovery metrics levels have been aligned to the new plan and regulatory minima and new early warning metrics have been added to further improve our capacity to anticipate severe crisis, e.g. new metrics focusing on profitability, legal entities coverage and more granular assessment of liquidity risk;
- The countermeasure capacity has been updated and is deemed sufficient to withstand severe capital and liquidity stress scenarios as per BRRD requirement.

Similarly to previous years, the 2019 Recovery Plan has been prepared with the joint effort of Risk, Finance and the business Divisions teams, with the oversight of the Management Board who is responsible for its approval and submission to the authority.

The Group resolution plan on the other hand is prepared by the resolution authorities, rather than by the bank itself. We work closely with the Single Resolution Board (SRB) and the Bundesanstalt für Finanzdienstleistungsaufsicht (“BaFin”) who establish the Group resolution plan for Deutsche Bank, which is currently based on a single point of entry (SPE) bail-in as the preferred resolution strategy. Under the SPE bail-in strategy, the parent entity Deutsche Bank AG would be recapitalized through a write-down and/or conversion to equity of capital instruments (Common Equity Tier 1, Additional Tier 1, Tier 2) and other eligible liabilities in order to stabilize the Group. Within one month after the application of the bail-in tool to recapitalize an institution, the BRRD (as implemented in the SAG) requires such institution to establish a business reorganization plan addressing the causes of failure and aiming to restore the institution’s long-term viability. To further improve operational continuity of the bank for resolution planning purposes, DB takes additional ex-ante preparations, inter alia, by adding termination stay clauses into client financial agreements governed by non-EU law and including continuity provisions into key service agreements. Financial contracts and service agreements governed by EU law are already covered by statutory laws which prevent termination solely due to any resolution measure.

The BRRD requires banks in EU member states to maintain minimum requirements for own funds and eligible liabilities (MREL) to make resolution credible by establishing sufficient loss absorption and recapitalization capacity. Apart from MREL-requirements, Deutsche Bank, as a global systemically important bank, is subject to global minimum standards for Total Loss-Absorbing Capacity (TLAC), which set out strict requirements for the amount and eligibility of instruments to be maintained for bail-in purposes. In particular, TLAC instruments must be subordinated (including so-called senior “non-preferred” debt, but also in the form of regulatory capital instruments) to other senior liabilities. This ensures that a bail-in would be applied first to equity and TLAC instruments, which must be exhausted before a bail-in may affect other senior (“preferred”) liabilities such as deposits, derivatives, debt instruments that are “structured” and senior preferred plain vanilla bonds.

In the United States, Deutsche Bank AG is required under Title I of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the “Dodd-Frank Act”), as amended, to prepare and submit periodically to the Federal Reserve Board and the Federal Deposit Insurance Corporation (“FDIC”) a plan for the orderly resolution of its subsidiaries and operations in the event of future material financial distress or failure (the “U.S. Resolution Plan”). For foreign-based companies subject to these resolution planning requirements such as Deutsche Bank AG, the U.S. Resolution Plan relates only to subsidiaries, branches, agencies and businesses that are domiciled in or whose activities are carried out in whole or in material part in the United States.

Deutsche Bank AG filed its most recent U.S. Resolution Plan in July 2018. The U.S. Resolution Plan describes the single point of entry strategy for our U.S. operations and prescribes that DB USA Corporation, our single U.S. IHC as of December 31, 2017, would provide liquidity and capital support to its U.S. Material Entity subsidiaries and ensure their solvent wind-down outside of applicable resolution proceedings. In December 2018, Deutsche Bank received regulatory feedback from the Federal Reserve and FDIC, which found that Deutsche Bank’s U.S. Resolution Plan had no deficiencies but identified one shortcoming in the plan, associated with governance mechanisms and related escalation triggers. Deutsche Bank submitted a response to its December 2018 feedback letter on April 1, 2019, in which Deutsche Bank discussed its proposed remediation of the shortcoming as well as enhancements of its resolution capabilities. Deutsche Bank is required to make a submission to the Federal Reserve Board and FDIC by July 1, 2020 explaining how it remediated the shortcoming and providing an update on the enhancement of its resolutions capabilities. Following this submission, Deutsche Bank’s next targeted U.S. Resolution Plan is due on or before July 1, 2021.

Risk and Capital Management

Capital management

Our Treasury function manages solvency, capital adequacy, leverage and bail-in capacity ratios at Group level and locally in each region, as applicable. Treasury implements our capital strategy, which itself is developed by the Group Risk Committee and approved by the Management Board. Treasury, directly or through the Group Asset and Liability Committee, which was established in 2018, manages, among other things, issuance and repurchase of shares and capital instruments, hedging of capital ratios against foreign exchange swings, setting capacities for key financial resources, design of shareholders' equity allocation, and regional capital planning. We are fully committed to maintaining our sound capitalization both from an economic and regulatory perspective. We continuously monitor and adjust our overall capital demand and supply in an effort to achieve an appropriate balance of the economic and regulatory considerations at all times and from all perspectives. These perspectives include book equity based on IFRS accounting standards, regulatory and economic capital as well as specific capital requirements from rating agencies.

Treasury manages the issuance and repurchase of capital instruments, namely Common Equity Tier 1, Additional Tier 1 and Tier 2 capital instruments as well as TLAC/MREL eligible debt instruments. Treasury constantly monitors the market for liability management trades. Such trades represent a countercyclical opportunity to create Common Equity Tier 1 capital by buying back our issuances below par.

Our core currencies are Euro, US Dollar, Chinese Renminbi and Pound Sterling. Treasury manages the sensitivity of our capital ratios against swings in core currencies. The capital invested into our foreign subsidiaries and branches in the other non-core currencies is largely hedged against foreign exchange swings. Treasury determines which currencies are to be hedged, develops suitable hedging strategies in close cooperation with Risk Management and finally executes these hedges.

Resource limit setting

Usage of key financial resources is influenced through the following governance processes and incentives.

Target resource capacities are reviewed in our annual strategic plan in line with our CET 1 and Leverage Ratio ambitions. In a quarterly process, the Group Asset and Liability Committee, which insofar as it replaced the Group Risk Committee as decision body, approves divisional resource limits for Total Capital Demand and leverage exposure that are based on the strategic plan but adjusted for market conditions and the short-term outlook. Limits are enforced through a close monitoring process and an excess charging mechanism.

Overall regulatory capital requirements are principally driven by either our CET 1 ratio (solvency) or leverage ratio (leverage) requirements, whichever is the more binding constraint. For the internal capital allocation, the combined contribution of each segment to the Group's Common Equity Tier 1 ratio, the Group's Leverage ratio and the Group's Capital Loss under Stress are weighted to reflect their relative importance and level of constraint to the Group. Contributions to the Common Equity Tier 1 ratio and the Leverage ratio are measured through Risk-Weighted Assets (RWA) and Leverage Ratio Exposure (LRE). The Group's Capital Loss under Stress is a measure of the Group's overall economic risk exposure under a defined stress scenario. Goodwill and other intangible assets are directly allocated to the respective segments, supporting the calculation of the allocated tangible shareholders equity and the respective rate of return. In our performance measurement, our methodology also applies different rates for the cost of equity for each of the business segments, reflecting in a more differentiated way the earnings volatility of the individual business models. This enables improved performance management and investment decisions.

Regional capital plans covering the capital needs of our branches and subsidiaries across the globe are prepared on an annual basis and presented to the Group Investment Committee. Most of our subsidiaries are subject to legal and regulatory capital requirements. In developing, implementing and testing our capital and liquidity, we fully take such legal and regulatory requirements into account.

Further, Treasury is represented on the Investment Committee of the largest Deutsche Bank pension fund which sets the investment guidelines for this fund. This representation is intended to ensure that pension assets are aligned with pension liabilities, thus protecting our capital base.

Risk Identification and Assessment

Our business activities generate credit risks, market risks, business risks, liquidity risks, cross risks, operational risks and reputational risks. We regularly identify risks to our business' and infrastructure's operations, also under stressed conditions, and assess the materiality of identified risks with respect to their severity and likelihood of materialization. The process incorporates input from both first line and second line of defense. The assessment of current risks is complemented by a view on emerging risks applying a forward-looking perspective. This risk identification and assessment process results in our risk inventory which captures the material risks across relevant businesses and entities. Regular updates to the risk inventory are reported to senior management together with the risk profile and inform our risk management processes.

This framework provides the basis, on which we can aggregate risks for the Group across businesses and entities. The resulting inventory of risks, after review and challenge by senior management, informs key risk management processes including the development of stress scenarios tailored to Deutsche Bank's risk profile, the calibration of risk appetite and the risk profile monitoring and reporting.

Credit Risk Management

Credit Risk framework

Credit Risk arises from all transactions where actual, contingent or potential claims against any counterparty, borrower, obligor or issuer (which we refer to collectively as "counterparties") exist, including those claims that we plan to distribute. These transactions are typically part of our non-trading lending activities (such as loans and contingent liabilities) as well as our direct trading activity with clients (such as OTC derivatives). These also include traded bonds and debt securities. Carrying values of equity investments are also disclosed in our Credit Risk section. We manage the respective positions within our market risk and credit risk frameworks.

Based on the annual risk identification and materiality assessment, Credit Risk is grouped into five categories, namely default/migration risk, country risk, transaction/settlement risk (exposure risk), mitigation (failure) risk and concentration risk.

- Default/Migration Risk as the main element of credit risk, is the risk that a counterparty defaults on its payment obligations or experiences material credit quality deterioration increasing the likelihood of a default.
- Country Risk is the risk that otherwise solvent and willing counterparties are unable to meet their obligations due to direct sovereign intervention or policies.
- Transaction/Settlement Risk (Exposure Risk) is the risk that arises from any existing, contingent or potential future positive exposure.
- Mitigation Risk is the risk of higher losses due to risk mitigation measures not performing as anticipated.
- Concentration Risk is the risk of an adverse development in a specific single counterparty, country, industry or product leading to a disproportionate deterioration in the risk profile of Deutsche Bank's credit exposures to that counterparty, country, industry or product.

OWe manage our credit risk using the following philosophy and principles:

- Our Credit Risk Management function is independent from our business divisions and in each of our divisions, credit decision standards, processes and principles are consistently applied.
- A key principle of credit risk management is client credit due diligence. Our client selection is achieved in collaboration with our business division counterparts who stand as a first line of defense.
- We aim to prevent undue concentration and tail-risks (large unexpected losses) by maintaining a diversified credit portfolio. Client, industry, country and product-specific concentrations are assessed and managed against our risk appetite.
- We maintain underwriting standards aiming to avoid large undue credit risk on a counterparty and portfolio level. In this regard we assume unsecured cash positions and actively use hedging for risk mitigation purposes. Additionally, we strive to secure our derivative portfolio through collateral agreements and may additionally hedge concentration risks to further mitigate credit risks from underlying market movements.
- Every new credit facility and every extension or material change of an existing credit facility (such as its tenor, collateral structure or major covenants) to any counterparty requires credit approval at the appropriate authority level. We assign credit approval authorities to individuals according to their qualifications, experience and training, and we review these periodically.
- We manage all our credit exposures to each obligor across our consolidated Group on the basis of the “one obligor principle” (as required under CRR Article 4(1)(39)), under which all facilities to a group of borrowers which are linked to each other (for example by one entity holding a majority of the voting rights or capital of another) are consolidated under one group.
- We have established within Credit Risk Management – where appropriate – specialized teams for deriving internal client ratings, analyzing and approving transactions, monitoring the portfolio or covering workout clients. Within our transaction approval pillar, structured credit risk management teams are in place, aligned to specific lending businesses.
- Where required, we have established processes to report credit exposures at legal entity level.

Measuring Credit Risk

Credit Risk is measured by credit rating, regulatory and internal capital demand and key credit metrics mentioned below.

The credit rating is an essential part of the Bank’s underwriting and credit process and builds the basis for risk appetite determination on a counterparty and portfolio level, credit decision and transaction pricing as well the determination of regulatory capital for credit risk. Each counterparty must be rated and each rating has to be reviewed at least annually. Ongoing monitoring of counterparties helps keep ratings up-to-date. There must be no credit limit without a credit rating. For each credit rating the appropriate rating approach has to be applied and the derived credit rating has to be established in the relevant systems. Different rating approaches have been established to best reflect the specific characteristics of exposure classes, including central governments and central banks, institutions, corporates and retail.

Counterparties in our non-homogenous portfolios are rated by our independent Credit Risk Management function. Country risk related ratings are provided by ERM Risk Research.

Our rating analysis is based on a combination of qualitative and quantitative factors. When rating a counterparty we apply in-house assessment methodologies, scorecards and our 21-grade rating scale for evaluating the credit-worthiness of our counterparties.

Changes to existing credit models and introduction of new models are approved by the Regulatory Credit Risk Model Committee (RCRMC) chaired by the Head of CRM before the models are used for credit decisions and capital calculation for the first time or before they are significantly changed. Separately, an approval by the Head of Model Risk Management is required. Where appropriate, less significant changes can be approved by a delegate of either function under a delegated authority. Proposals with high impact are recommended for approval to the Group Risk Committee. Regulatory approval may also be required. The model validation is performed independently of model development by Model Risk Management. The results of the regular validation processes as stipulated by internal policies have to be brought to the attention of the Regulatory Credit Risk Model Forum (RCRMF) and the RCRMC, even if the validation results do not lead to a change. The validation plan for rating methodologies is presented to RCRMC at the beginning of the calendar year.

For DB Privat- und Firmenkundenbank AG (PFK AG), the responsibility for implementation and monitoring of effectiveness of the internal rating systems is with DB PFK AG’s Risk Controlling function with validation by the Non-Financial Risk & Validation function. The Model and Validation committee, chaired by DB PFK AG’s Head of Non-Financial Risk & Validation monitors this. In addition, all major rating systems are subject to approval by DB PFK AG’s Bank Risk Committee chaired by the Chief Risk Officer. Furthermore, DB Group’s IRBA Governance will be extended to all DB PFK AG models as part of the merger and the granted capital waiver. The effectiveness of rating systems and rating results is reported to the DB PFK AG Management Board on a regular basis. Joint governance is ensured by mutual committee membership within the framework of integrated risk management.

We measure risk-weighted assets to determine the regulatory capital demand for credit risk using “advanced”, “foundation” and “standard” approaches of which advanced and foundation are approved by our regulator.

The advanced Internal Ratings Based Approach (IRBA) is the most sophisticated approach available under the regulatory framework for credit risk and allows us to make use of our internal credit rating methodologies as well as internal estimates of specific further risk parameters. These methods and parameters represent long-used key components of the internal risk measurement and management process supporting the credit approval process, the economic capital and expected loss calculation and the internal monitoring and reporting of credit risk. The relevant parameters include the probability of default (PD), the loss given default (LGD) and the maturity (M) driving the regulatory risk-weight and the credit conversion factor (CCF) as part of the regulatory exposure at default (EAD) estimation. For the majority of derivative counterparty exposures as well as securities financing transactions (SFT), we make use of the internal model method (IMM) in accordance with CRR and SolvV to calculate EAD. For most of our internal rating systems more than seven years of historical information is available to assess these parameters. Our internal rating methodologies aim at point-in-time rather than a through-the-cycle rating, but in line with regulatory solvency requirements, they are calibrated based on long-term averages of observed default rates.

The foundation IRBA is an approach available under the regulatory framework for credit risk allowing institutions to make use of their internal rating methodologies while using pre-defined regulatory values for all other risk parameters. Parameters subject to internal estimates include the PD while the LGD and the CCF are defined in the regulatory framework. Foundation IRBA remains in place for some exposures stemming from ex-Postbank; in the course of the on-going integration programs it is planned to further reduce the number of these credit exposures eligible under foundation IRBA and move them to advanced IRBA.

We apply the standardized approach to a subset of our credit risk exposures. The standardized approach measures credit risk either pursuant to fixed risk weights, which are predefined by the regulator, or through the application of external ratings. We assign certain credit exposures permanently to the standardized approach in accordance with Article 150 CRR. These are predominantly exposures to the Federal Republic of Germany and other German public sector entities as well as exposures to central governments of other European Member States that meet the required conditions. These exposures make up the majority of the exposures carried in the standardized approach and receive predominantly a risk weight of zero percent. For internal purposes, however, these exposures are subject to an internal credit assessment and fully integrated in the risk management and economic capital processes.

In addition to the above described regulatory capital demand, we determine the internal capital demand for credit risk via an economic capital model.

We calculate economic capital for the default risk, country risk and settlement risk as elements of credit risk. In line with our economic capital framework, economic capital for credit risk is set at a level to absorb with a probability of 99.9 % very severe aggregate unexpected losses within one year. Our economic capital for credit risk is derived from the loss distribution of a portfolio via Monte Carlo Simulation of correlated rating migrations. The loss distribution is modeled in two steps. First, individual credit exposures are specified based on parameters for the probability of default, exposure at default and loss given default. In a second step, the probability of joint defaults is modeled through the introduction of economic factors, which correspond to geographic regions and industries. The simulation of portfolio losses is then performed by an internally developed model, which takes rating migration and maturity effects into account. Effects due to wrong-way derivatives risk (i.e., the credit exposure of a derivative in the default case is higher than in non-default scenarios) are modeled by applying our own alpha factor when deriving the exposure at default for derivatives and securities financing transactions under the CRR. We allocate expected losses and economic capital derived from loss distributions down to transaction level to enable management on transaction, customer and business level.

Besides the credit rating which is the key credit risk metric we apply for managing our credit portfolio, including transaction approval and the setting of risk appetite, we establish internal credit limits for all credit exposures. Credit limits set forth maximum credit exposures we are willing to assume over specified periods. In determining the credit limit for a counterparty, we consider the counterparty's credit quality by reference to our internal credit rating. Credit limits and credit exposures are both measured on a gross and net basis where net is derived by deducting hedges and certain collateral from respective gross figures. For derivatives, we look at current market values and the potential future exposure over the relevant time horizon which is based upon our legal agreements with the counterparty. We generally also take into consideration the risk-return characteristics of individual transactions and portfolios. Risk-Return metrics explain the development of client revenues as well as capital consumption. In this regard we also look at the client revenues in relation to the balance sheet consumption.

IFRS 9 impairment approach

We determine credit loss allowances in accordance with IFRS 9 as follows:

- Stage 1 reflects financial instruments where it is assumed that credit risk has not increased significantly after initial recognition.
- Stage 2 contains all financial assets, that are not defaulted, but have experienced a significant increase in credit risk since initial recognition.
- Stage 3 consists of financial assets of clients which are defaulted in accordance of Capital Requirements Regulation (CRR) under Art. 178. The Group defines these financial assets as impaired.
- Significant increase in Credit Risk is determined using quantitative and qualitative information based on the Group's historical experience, credit risk assessment and forward-looking information.
- POCI are Purchased or Originated Credit Impaired financial assets in Stage 3 where at the time of initial recognition there is objective evidence of impairment.

The IFRS 9 impairment approach is an integral part of the Group's Credit Risk Management. The estimation of ECL (Expected Credit Loss) which is the basis for the Group's credit loss allowance is either done via the Group's ECL engine or by Credit Officers on a case-by-case basis. In both cases, the calculation takes place for each financial asset individually. The Group ECL engine is used to calculate the credit loss allowance for all financial assets in the homogeneous portfolio as well as for all financial assets in the non-homogenous portfolios in Stage 1 and Stage 2. The credit loss allowance for our financial assets in our non-homogeneous portfolio in Stage 3 is determined by Credit Officers on a case by case basis.

For a more detailed description of these expressions and the approach, please refer to Note 1 - Significant Accounting Policies and Critical Accounting Estimates of the Consolidated Financial Statements and in the following sections.

Stage Determination

At initial recognition, financial assets which are not POCI are reflected in Stage 1. If there is a significant increase in credit risk, the financial asset is transferred to Stage 2. Significant increase in credit risk is determined by using rating-related and process-related indicators. In contrast, the assignment of a financial instrument to Stage 3 is based on the status of the obligor being in default.

Rating-related indicators: Based on a dynamic change in counterparty PDs that is linked to all transactions with the counterparty, the Group compares lifetime PD at the reporting date, with expectations at the date of initial recognition. Based on historically observed migration behavior and available forward-looking information, an expected forward rating distribution is obtained. A quantile of this distribution, which is defined for each counterparty class, is chosen as the threshold. If the remaining lifetime PD of a transaction according to current expectations exceeds the PD of the relevant threshold rating, the financial asset experienced a significant increase in credit risk. The thresholds used to determine Stage 2 indicators are determined using expert judgment and validated annually.

Process-related Indicators: Process-related indicators are derived via usage of existing risk management indicators, which allow the Group to identify whether the credit risk of financial assets has significantly increased. These include obligors being added mandatorily to a credit watchlist, being mandatorily transferred to workout status, payments being 30 days or more overdue or in forbearance.

On an ongoing basis, as long as the condition for one or more of the indicators is fulfilled and the financial asset is not recognized as defaulted, the asset will remain in Stage 2. If none of the indicator conditions is any longer fulfilled and the financial asset is not defaulted, the asset transfers back to Stage 1. In case of a default, the financial asset is allocated to Stage 3. In the case that a previously defaulted financial asset ceases to be classified as defaulted, it transfers back to Stage 2 or Stage 1.

Expected Lifetime

The expected lifetime of a financial asset is a key factor in determining the lifetime expected credit losses (LTECL). Lifetime expected credit losses represent default events over the expected life of a financial asset. The Group measures expected credit losses considering the risk of default over the maximum contractual period (including any borrower's extension options) over which it is exposed to credit risk.

Retail overdrafts, credit card facilities and certain corporate revolving facilities typically include both a loan and an undrawn commitment component. The expected lifetime of such on-demand facilities exceeds their contractual life as they are typically cancelled only when the Group becomes aware of an increase in credit risk. The expected lifetime is estimated by taking into consideration historical information and the Group's Credit Risk Management actions such as credit limit reductions and facility cancellation. Where such facilities are subject to an individual review by Credit Risk Management, the lifetime for calculating expected credit losses is 12 months. For facilities not subject to individual review by Credit Risk Management, Deutsche Bank applies a lifetime for calculating expected credit losses of 24 months.

Forward-looking information

Under IFRS 9, the allowance for credit losses is based on reasonable and supportable forward looking information obtainable without undue cost or effort, which takes into consideration past events, current conditions and forecasts of future economic conditions.

To incorporate forward-looking information into Deutsche Bank's allowance for credit losses, the Group uses two key elements:

- As its base scenario, the Group uses external survey-based macro forecasts (e.g. consensus view on GDP and unemployment rates) supplemented by market-implied projections of interest and FX rates. In addition, our scenario expansion model, which has been initially developed for stress testing, is used for forecasting macroeconomic variables that are not covered by external consensus or market sources. All forecasts are assumed to reflect the most likely development of the respective variables, typically over a two year period and are updated quarterly.
- Statistical techniques are then applied to transform the base scenario into a multiple scenario analysis. The scenarios specify deviations from the baseline forecasts and are used for deriving multi-year PD curves for different rating and counterparty classes, which are applied in the calculation of expected credit losses and in the identification of significant deterioration in credit quality of financial assets as described previously

The general use of forward-looking information, including macro-economic factors, as well as adjustments taking into account extraordinary factors, are monitored by the Group's Risk and Finance Credit Loss Provision Forum. In certain situations, Credit Risk officers and senior management may have additional information in relation to specific portfolios to indicate that the statistical distribution used in the ECL calculation is not appropriate. In such situations, the Group would apply a judgmental overlay.

The following table provides an overview of forward-looking information used to determine Deutsche Bank's allowance for credit losses in the fourth quarter of 2019.

IFRS 9 – Forward Looking Information applied for year end 2019

	Current	Year 1 (average)	Year 2 (average)
Credit - ITX Europe 125	65.34	56.85	–
FX - EUR/USD	1.13	1.11	–
GDP - Eurozone	1.17 %	0.93 %	1.19 %
GDP - Germany	0.58 %	0.48 %	1.19 %
GDP - Italy	0.01 %	0.39 %	0.63 %
GDP - USA	2.35 %	1.70 %	1.70 %
Rate - US Treasury 2y	2.28 %	1.55 %	–
Unemployment - Eurozone	7.71 %	7.53 %	7.45 %
Unemployment - Germany	3.15 %	2.92 %	2.75 %
Unemployment - Italy	10.15 %	10.06 %	10.06 %
Unemployment - Spain	14.20 %	13.33 %	12.72 %
Unemployment - USA	3.75 %	3.74 %	3.93 %

The sensitivity of our model with respect to future changes in macroeconomic variables (MEVs) is illustrated in the following table, which provides the ECL impact for stages 1 and 2 in a Downward and Upward shift across all scenarios used in the ECL calculation. Both shifts are applied in addition to the baseline ECL as of December 31, 2019, by specifying Downward and Upward MEV values that are all either one standard deviation above or below the baseline forecasts, e.g. reducing forecasted GDP rates by 2 percentage points on average.

IFRS 9 – Sensitivities of Forward Looking Information applied for year end 2019

in € m.

	Downward shift	ECL per Dec 31, 2019	Upward shift
Corporate Bank	374	241	170
Investment Bank	438	288	198
Private Bank	890	697	572
Asset Management	4	3	2
Capital Release Unit	13	10	7
Corporate & Other	29	12	6
Total	1,747	1,250	955

Basis of inputs and assumptions and the estimation techniques

The Group calculates expected credit losses for each financial asset individually. Similarly, the determination of the need to transfer between stages is made on an individual asset basis.

The Group uses three main components to measure ECL. These are PD, Loss Given Default (LGD) and Exposure at Default (EAD). The Group has leveraged existing parameters used for determination of capital demand under the Basel Internal Ratings Based Approach and internal risk management practices as much as possible to calculate ECL. These parameters are adjusted where necessary to comply with IFRS 9 requirements (e.g. use of point in time ratings and removal of downturn elements in the regulatory parameters). Incorporating forecasts of future economic conditions into the measurement of expected credit losses influences the allowance for credit losses for each stage. In order to calculate lifetime expected credit losses, the Group's calculation includes deriving the corresponding lifetime PDs from migration matrices that reflect economic forecasts.

The expected credit loss calculation for Stage 3 distinguishes between transactions in homogeneous and non-homogenous portfolios, and purchased or originated credit-impaired transactions. For transactions that are in Stage 3 and in a homogeneous portfolio, a similar approach as for Stage 1 and 2 transactions is taken. Since a Stage 3 transaction is defaulted, the probability of default is equal to 100 %. To incorporate the currently available information, the LGD parameters are modelled to be time-dependent, thus capture the time dependency of recovery expectation after default.

The estimation techniques for the input factors are described in more detail below.

The one-year PD for counterparties is derived from our internal rating systems. The Group assigns a PD to each relevant counterparty credit exposure based at the 21-grade master rating scale for all of our exposure.

The counterparty ratings assigned are derived based on internally developed rating models which specify consistent and distinct customer-relevant criteria and assign a rating grade based on a specific set of criteria as given for a certain customer. The set of criteria is generated from information sets relevant for the respective customer segments including general customer behavior, financial and external data. The methods in use range from statistical scoring models to expert-based models taking into account the relevant available quantitative and qualitative information. Expert-based models are usually applied for counterparties in the exposure classes "Central governments and central banks", "Institutions" and "Corporates" with the exception of those "Corporates" segments for which sufficient data basis is available for statistical scoring models. For the latter as well as for the retail segment statistical scoring or hybrid models combining both approaches are commonly used. Quantitative rating methodologies are developed based on applicable statistical modelling techniques, such as logistic regression.

One-year PDs are extended to multi-year PD curves using through-the-cycle (TTC) matrices and macroeconomic forecasts. Based on these forecasts, TTC matrices are transformed into point-in-time (PIT) rating migration matrices, typically for a two year period. The calculation of the PIT matrices is performed by specifying a direct link between macroeconomic variables and the default and rating behavior of counterparties. The macroeconomic forecasts adjust the distribution of the respective macroeconomic factors and consequently, the rating migration matrices that define migration and default probabilities. The actual calculation is based on a Monte-Carlo simulation of multiple scenarios or on equivalent analytical techniques. Multi-year PDs and rating migration matrices are thus derived and applied to portfolios in scope for IFRS 9 which are categorized according to the following counterparty classes: retail Germany, retail Spain, retail Italy, financial institutions, midcaps, corporates, and sovereigns.

LGD is defined as the likely loss intensity in case of a counterparty default. It provides an estimation of the exposure that cannot be recovered in a default event and therefore captures the severity of a loss. Conceptually, LGD estimates are independent of a customer's probability of default. The LGD models ensure that the main drivers for losses (i.e., different levels and quality of collateralization and customer or product types or seniority of facility) are reflected in specific LGD factors. In our LGD models we assign collateral type specific LGD parameters to the collateralized exposure (collateral value after application of haircuts).

The EAD over the lifetime of a financial asset is modelled taking into account expected repayment profiles. We apply specific Credit Conversion Factors (CCFs) in order to calculate an EAD value. Conceptually, the EAD is defined as the expected amount of the credit exposure to a counterparty at the time of its default. In instances where a transaction involves an unused limit, a percentage share of this unused limit is added to the outstanding amount in order to appropriately reflect the expected outstanding amount in case of a counterparty default. This reflects the assumption that for commitments the utilization at the time of default might be higher than the current utilization under IAS 39. In case a transaction involves an additional contingent component (i.e., guarantees) a further percentage share is applied as part of the CCF model in order to estimate the amount of guarantees drawn in case of default. The calibrations of such parameters are based on statistical experience as well as internal historical data and consider counterparty and product type specifics.

Consideration of Collateralization in IFRS 9 Expected Credit Loss calculation

The LTECL engine projects the level of collateralization for each point in time in the life of a financial asset. For the reporting date, the engine uses the existing collateral distribution process applied for the DB's Economic Capital model. In this model, the liquidation value of each eligible collateral is allocated to relevant financial assets to distinguish between collateralized and uncollateralized parts of each exposure.

For personal collateral, the LTECL engine assumes that the relative level of collateralization remains stable over time. In case of an amortizing loan the absolute exposure and collateral values decrease together over time. For impersonal collateral, the LTECL shall assume that the absolute collateral value remains constant. In case of an amortizing loan, the collateralized part of the exposure increases over time and consequently the exposure is likely to be fully collateralized at some point.

Certain financial guarantee contracts are integral to the financial assets guaranteed. In such cases, the financial guarantee is considered as collateral for the financial asset and the benefit of the guarantee is used to mitigate the ECL of the guaranteed financial asset.

For further details on how we determine the liquidation value of our collaterals please refer to section "Managing and Mitigation of Credit Risk"

Model sensitivity

There are two main sources of ECL volatility for Stage 1 and 2 assets. Similarly to traditional risk measures like Risk Weighted Assets or Economic Capital, our ECL is sensitive to changes in the portfolio relevant for IFRS 9. Changes to the portfolio composition, the exposure profile or counterparty ratings, which are particularly important due to potential implications on stage determination, influence the level of ECL and thus the level of our Credit Loss Allowance.

In addition to portfolio changes, ECL is also impacted by macroeconomic forecasts. The selection process for the macroeconomic variables combines expert assessment and statistical tests and reflects the characteristics of the individual portfolios. As a consequence, ECL sensitivities to macroeconomic forecasts are portfolio-specific with GDP growth rates and unemployment rates in the Eurozone and the US as dominant factors.

Managing and mitigation of Credit Risk

Managing Credit Risk on counterparty level

Credit-related counterparties are principally allocated to credit officers within credit teams which are organized by types of counterparty (such as financial institutions, corporates or private individuals) or economic area (e.g., emerging markets) and dedicated rating analyst teams. The individual credit officers have the relevant expertise and experience to manage the credit risks associated with these counterparties and their associated credit related transactions. For retail clients, credit decision making and credit monitoring is highly automated for efficiency reasons. Credit Risk Management has full oversight of the respective processes and tools used in these highly automated retail credit processes. It is the responsibility of each credit officer to undertake ongoing credit monitoring for their allocated portfolio of counterparties. We also have procedures in place intended to identify at an early stage credit exposures for which there may be an increased risk of loss.

In instances where we have identified counterparties where there is a concern that the credit quality has deteriorated or appears likely to deteriorate to the point where they present a heightened risk of loss in default, the respective exposure is generally placed on a “watchlist”. We aim to identify counterparties that, on the basis of the application of our risk management tools, demonstrate the likelihood of problems well in advance in order to effectively manage the credit exposure and minimize potential losses. The objective of this early warning system is to address potential problems while adequate options for action are still available. This early risk detection is a tenet of our credit culture and is intended to ensure that greater attention is paid to such exposures.

Credit limits are established by the Credit Risk Management function via the execution of assigned credit authorities. This also applies to settlement risk that must fall within limits pre-approved by Credit Risk Management considering risk appetite and in a manner that reflects expected settlement patterns for the subject counterparty. Credit approvals are documented by the signing of the credit report by the respective credit authority holders and retained for future reference.

Credit authority is generally assigned to individuals as personal credit authority according to the individual's professional qualification, experience and training. All assigned credit authorities are reviewed on a periodic basis to help ensure that they are commensurate with the individual performance of the authority holder.

Where an individual's personal authority is insufficient to establish required credit limits, the transaction is referred to a higher credit authority holder or where necessary to an appropriate credit committee. Where personal and committee authorities are insufficient to establish appropriate limits, the case is referred to the Management Board for approval.

Mitigation of Credit Risk on counterparty level

In addition to determining counterparty credit quality and our risk appetite, we also use various credit risk mitigation techniques to optimize credit exposure and reduce potential credit losses. Credit risk mitigants are applied in the following forms:

- Comprehensive and enforceable credit documentation with adequate terms and conditions.
- Collateral held as security to reduce losses by increasing the recovery of obligations.
- Risk transfers, which shift the loss arising from the probability of default risk of an obligor to a third party including hedging executed by our Credit Portfolio Strategies Group.
- Netting and collateral arrangements which reduce the credit exposure from derivatives and securities financing transactions (e.g. repo transactions).
- Hedging of derivatives counterparty risk including CVA, using primarily CDS contracts via our Counterparty Portfolio Management desk.

Collateral

We regularly agree on collateral to be received from or to be provided to customers in contracts that are subject to credit risk. Collateral is security in the form of an asset or third-party obligation that serves to mitigate the inherent risk of credit loss in an exposure, by either substituting the counterparty default risk or improving recoveries in the event of a default. While collateral can be an alternative source of repayment, it does not replace the necessity of high quality underwriting standards and a thorough assessment of the debt service ability of the counterparty in line with CRR Article 194 (9).

We segregate collateral received into the following two types:

- Financial and other collateral, which enables us to recover all or part of the outstanding exposure by liquidating the collateral asset provided, in cases where the counterparty is unable or unwilling to fulfill its primary obligations. Cash collateral, securities (equity, bonds), collateral assignments of other claims or inventory, equipment (i.e., plant, machinery and aircraft) and real estate typically fall into this category. All financial collateral is regularly, mostly daily, revalued and measured against the respective credit exposure. The value of other collateral, including real estate, is monitored based upon established processes that includes regular reviews or revaluations by internal and/or external experts.
- Guarantee collateral, which complements the counterparty's ability to fulfill its obligation under the legal contract and as such is provided by third parties. Letters of credit, insurance contracts, export credit insurance, guarantees, credit derivatives and risk participations typically fall into this category. Guarantee collateral with a non-investment grade rating of the guarantor is limited.

Our processes seek to ensure that the collateral we accept for risk mitigation purposes is of high quality. This includes seeking to have in place legally effective and enforceable documentation for realizable and measureable collateral assets which are evaluated regularly by dedicated teams. The assessment of the suitability of collateral for a specific transaction is part of the credit decision and must be undertaken in a conservative way, including collateral haircuts that are applied. We have collateral type specific haircuts in place which are regularly reviewed and approved. In this regard, we strive to avoid "wrong-way" risk characteristics where the counterparty's risk is positively correlated with the risk of deterioration in the collateral value. For guarantee collateral, the process for the analysis of the guarantor's creditworthiness is aligned to the credit assessment process for counterparties.

The valuation of collateral is considered under a liquidation scenario. Liquidation value is equal to the expected proceeds of collateral monetization / realization in a base case scenario, wherein a fair price is achieved through careful preparation and orderly liquidation of the collateral. Collateral can either move in value over time (dynamic value) or not (static value). The dynamic liquidation value generally includes a safety margin or haircut over realizable value to address liquidity and marketability aspects.

The Group assigns a liquidation value to eligible collateral, based on, among other things:

- the market value and / or lending value, notional amount or face value of a collateral as a starting point;
- the type of collateral; the currency mismatch, if any, between the secured exposure and the collateral; and a maturity mismatch, if any;
- the applicable legal environment or jurisdiction (onshore versus offshore collateral);
- the market liquidity and volatility in relation to agreed termination clauses;
- the correlation between the performance of the borrower and the value of the collateral, e.g., in the case of the pledge of a borrower's own shares or securities (in this case generally full correlation leads to no liquidation value);
- the quality of physical collateral and potential for litigation or environmental risks; and
- a determined collateral type specific haircut (0 – 100 %) reflecting collection risks (i.e. price risks over the average liquidation period and processing/utilization/sales cost) as specified in the respective policies.

Collateral haircut settings are typically based on available historic internal and/or external recovery data (expert opinions may also be used, where appropriate). They also incorporate a forward-looking component in the form of collection and valuation forecast provided by experts within Risk Management. When data is not sufficiently available or inconclusive, more conservative haircuts than otherwise used must be applied. Haircut settings are reviewed at least annually.

Risk transfers

Risk transfers to third parties form a key part of our overall risk management process and are executed in various forms, including outright sales, single name and portfolio hedging, and securitizations. Risk transfers are conducted by the respective business units and by our Credit Portfolio Strategies Group (CPSG), in accordance with specifically approved mandates.

CPSG manages the residual credit risk of loans and lending-related commitments of the institutional and corporate credit portfolio, the leveraged portfolio and the medium-sized German companies' portfolio across our CB and IB divisions.

Acting as a central pricing reference, CPSG provides the businesses with an observed or derived capital market rate for loan applications; however, the decision of whether or not the business can enter into the credit risk remains exclusively with Credit Risk Management.

CPSG is concentrating on two primary objectives within the credit risk framework to enhance risk management discipline, improve returns and use capital more efficiently:

- to reduce single-name credit risk concentrations within the credit portfolio and
- to manage credit exposures by utilizing techniques including loan sales, securitization via collateralized loan obligations, sub-participations and single-name and portfolio credit default swaps.

Netting and collateral arrangements for derivatives and Securities Financing Transactions

Netting is applicable to both exchange traded derivatives and OTC derivatives. Netting is also applied to securities financing transactions (e.g. repurchase, securities lending and margin lending transactions) as far as documentation, structure and nature of the risk mitigation allow netting with the underlying credit risk.

All exchange traded derivatives are cleared through central counterparties (CCPs), which interpose themselves between the trading entities by becoming the counterparty to each of the entities. Where legally required or where available and to the extent agreed with our counterparties, we also use CCP clearing for our OTC derivative transactions.

The Dodd-Frank Act and related Commodity Futures Trading Commission (CFTC) rules introduced in 2013 mandatory CCP clearing in the United States for certain standardized OTC derivative transactions, including certain interest rate swaps and index credit default swaps. Additionally, the CFTC adopted final rules in 2016 that require additional interest rate swaps to be cleared on a phased implementation schedule that ended in October 2018. The European Regulation (EU) No 648/2012 on OTC Derivatives, Central Counterparties and Trade Repositories (EMIR) and the Commission Delegated Regulations (EU) 2015/2205, (EU) 2015/592 and (EU) 2016/1178 based thereupon introduced mandatory CCP clearing in the EU clearing for certain standardized OTC derivatives transactions. Mandatory CCP clearing in the EU began for certain interest rate derivatives on June 21, 2016 and for certain iTraxx-based credit derivatives and additional interest rate derivatives on February 9, 2017. Article 4 (2) of EMIR authorizes competent authorities to exempt intragroup transactions from mandatory CCP clearing, provided certain requirements, such as full consolidation of the intragroup transactions and the application of an appropriate centralized risk evaluation, measurement and control procedure are met. The Bank successfully applied for the clearing exemption for a number of its regulatory-consolidated subsidiaries with intragroup derivatives, including e.g., Deutsche Bank Securities Inc. and Deutsche Bank Luxembourg S.A. As of December 31, 2019, the Bank is allowed to make use of has obtained intragroup exemptions from the EMIR clearing obligation for 68 bilateral intragroup relationships. The extent of the exemptions differs as not all entities enter into relevant transaction types subject to the clearing obligation. Of the 68 intragroup relationships, 17 are relationships where both entities are established in the Union (EU) for which a full exemption has been granted, and 51 are relationships where one is established in a third country ("Third Country Relationship"). Third Country Relationships required repeat applications for each new asset class being subject to the clearing obligation; the process took place in the course of 2017. Such repeat applications have been filed for 39 of the Third Country Relationships, with one of those entities having been liquidated in the meantime. Due to "Brexit", the status of some group entities will change from an EU entity to a third country entity. There are two affected UK group entities, but we have not applied for any EMIR clearing exemption for those entities.

The rules and regulations of CCPs typically provide for the bilateral set off of all amounts payable on the same day and in the same currency ("payment netting") thereby reducing our settlement risk. Depending on the business model applied by the CCP, this payment netting applies either to all of our derivatives cleared by the CCP or at least to those that form part of the same class of derivatives. Many CCP rules and regulations also provide for the termination, close-out and netting of all cleared transactions upon the CCP's default ("close-out netting"), which reduced our credit risk. In our risk measurement and risk assessment processes we apply close-out netting only to the extent we have satisfied ourselves of the legal validity and enforceability of the relevant CCP's close-out netting provisions.

In order to reduce the credit risk resulting from OTC derivative transactions, where CCP clearing is not available, we regularly seek the execution of standard master agreements (such as master agreements for derivatives published by the International Swaps and Derivatives Association, Inc. (ISDA) or the German Master Agreement for Financial Derivative Transactions) with our counterparts. A master agreement allows for the close-out netting of rights and obligations arising under derivative transactions that have been entered into under such a master agreement upon the counterparty's default, resulting in a single net claim owed by or to the counterparty. For parts of the derivatives business (e.g., foreign exchange transactions) we also enter into master agreements under which payment netting applies in respect to transactions covered by such master agreements, reducing our settlement risk. In our risk measurement and risk assessment processes we apply close-out netting only to the extent we have satisfied ourselves of the legal validity and enforceability of the master agreement in all relevant jurisdictions.

Also, we enter into credit support annexes (CSA) to master agreements in order to further reduce our derivatives-related credit risk. These annexes generally provide risk mitigation through periodic, usually daily, margining of the covered exposure. The CSAs also provide for the right to terminate the related derivative transactions upon the counterparty's failure to honor a margin call. As with netting, when we believe the annex is enforceable, we reflect this in our exposure measurement.

The Dodd-Frank Act and CFTC rules thereunder, including CFTC rule § 23.504, as well as EMIR and Commission Delegated Regulation based thereupon, namely Commission Delegated Regulation (EU) 2016/2251, introduced the mandatory use of master agreements and related CSAs, which must be executed prior to or contemporaneously with entering into an uncleared OTC derivative transaction. Similar documentation requirements can be found in the U.S. margin rules adopted by U.S. prudential regulators. Under those rules, we are required to post and collect initial margin and variation margin for our derivatives exposures with other derivatives dealers, as well as with our counterparties that (a) are "financial end users," as that term is defined in the U.S. margin rules, and (b) have an average daily aggregate notional amount of uncleared swaps, uncleared security-based swaps, foreign exchange forwards and foreign exchange swaps exceeding U.S.\$ 8 billion in June, July and August of the previous calendar year. The U.S. margin rules additionally require us to post and collect variation margin for our derivatives with other financial end user counterparties. These margin requirements are subject to a U.S.\$ 50 million threshold for initial margin and a zero threshold for variation margin, with a combined U.S.\$ 500,000 minimum transfer amount. The U.S. margin requirements have been in effect for large banks since September 2016, with additional variation margin requirements having come into effect March 1, 2017 and additional initial margin requirements phased in on an annual basis from September 2017 through September 2020.

Under Commission Delegated Regulation (EU) 2016/2251, which implements the EMIR margin requirements, the CSA must provide for daily valuation and daily variation margining based on a zero threshold and a minimum transfer amount of not more than € 500,000. For large derivative exposures exceeding € 8 billion, initial margin has to be posted as well. The variation margin requirements under EMIR apply as of March 1, 2017; the initial margin requirements will be subject to a staged phase-in until September 1, 2021. Under Article 31 of Commission Delegated Regulation (EU) 2016/2251, an EU party may decide to not exchange margin with counterparties in certain non-netting jurisdictions provided certain requirements are met. Pursuant to Article 11 (5) to (10) of EMIR competent authorities are authorized to exempt intragroup transactions from the margining obligation, provided certain requirements are met. While some of those requirements are the same as for the EMIR clearing exemptions (see above), there are additional requirements such as the absence of any current or foreseen practical or legal impediment to the prompt transfer of funds or repayment of liabilities between intragroup counterparties. The Bank plans to make use of this exemption. The Bank has successfully applied for the collateral exemption for some of its regulatory-consolidated subsidiaries with intragroup derivatives, including, e.g., Deutsche Bank Securities Inc. and Deutsche Bank Luxembourg S.A. As of December 31, 2019, the Bank has obtained intragroup exemptions from the EMIR collateral obligation for 14 bilateral intragroup relationships which are published under <https://www.db.com/company/en/intra-group-exemptions--marginig.htm>. For third country subsidiaries, the intragroup exemption is currently limited until the earlier of 21 December 2020 and four months after the publication of an equivalence decision by the EU Commission under Article 13(2) EMIR, unless, in the case of an equivalence decision being applicable, a follow-up exemption application is made and granted. Such follow-up application has been filed for Deutsche Securities Inc. (our Japanese subsidiary) and is currently pending regulatory approval. For further 10 bilateral intragroup relationships, the EMIR margining exemption may be used based on Article 11 (5) of EMIR, i.e. without the need for any application, because both entities are established in the same EU Member State. Due to "Brexit", the status of two intragroup entities will change from an EU entity to that of a third country entity. This will trigger the need for a new application as agreed with the national competent authority.

Certain CSAs to master agreements provide for rating-dependent triggers, where additional collateral must be pledged if a party's rating is downgraded. We also enter into master agreements that provide for an additional termination event upon a party's rating downgrade. These downgrade provisions in CSAs and master agreements usually apply to both parties but in some agreements may apply to us only. We analyze and monitor our potential contingent payment obligations resulting from a rating downgrade in our stress testing approach for liquidity risk on an ongoing basis. For an assessment of the quantitative impact of a downgrading of our credit rating please refer to table "Stress Testing Results" in the section "Liquidity Risk".

Concentrations within Credit Risk mitigation

Concentrations within credit risk mitigations taken may occur if a number of guarantors and credit derivative providers with similar economic characteristics are engaged in comparable activities with changes in economic or industry conditions affecting their ability to meet contractual obligations. We use a range of tools and metrics to monitor our credit risk mitigating activities.

For more qualitative and quantitative details in relation to the application of credit risk mitigation and potential concentration effects please refer to the section "Maximum Exposure to Credit Risk".

Managing Credit Risk on portfolio level

On a portfolio level, significant concentrations of credit risk could result from having material exposures to a number of counterparties with similar economic characteristics, or who are engaged in comparable activities, where these similarities may cause their ability to meet contractual obligations to be affected in the same manner by changes in economic or industry conditions.

Our portfolio management framework supports a comprehensive assessment of concentrations within our credit risk portfolio in order to keep concentrations within acceptable levels.

Industry risk management

To manage industry risk, we have grouped our corporate and financial institutions counterparties into various industry sub-portfolios. Portfolios are regularly reviewed with the frequency of review according to portfolio size and risk profile as well as risk developments. Larger / riskier portfolios are reviewed at least on an annual basis. Reviews highlight industry developments and risks to our credit portfolio, review cross-risk concentration risks, analyze the risk/reward profile of the portfolio and incorporate the results of an economic downside stress test. Finally, this analysis is used to define the credit strategies for the portfolio in question.

In our Industry Limit framework, thresholds are established for aggregate credit limits to counterparties within each industry sub-portfolio. Regular overviews are prepared for the Enterprise Risk Committee to discuss recent developments and to agree on actions where necessary.

Beyond credit risk, our Industry Risk Framework comprises of thresholds for Traded Credit Positions while key non-financial risks are closely monitored.

Country risk management

Avoiding undue concentrations from a regional perspective is also an integral part of our credit risk management framework. In order to achieve this, country risk limits are applied to Emerging Markets as well as selected Developed Markets countries (based on internal country risk ratings). Emerging Markets are divided into regions. Similar to industry risk, country portfolios are regularly reviewed with the frequency of review according to portfolio size and risk profile as well as risk developments. Larger / riskier portfolios are reviewed at least on an annual basis. These reviews assess key macroeconomic developments and outlook, review portfolio composition and cross-risk concentration risks and analyze the risk/reward profile of the portfolio. Based on this, thresholds and strategies are set for countries and, where relevant, for the region as a whole.

In our Country Limit framework, thresholds are established for counterparty credit risk exposures in a given country to manage the aggregated credit risk subject to country-specific economic and political events. These thresholds include exposures to entities incorporated locally as well as subsidiaries of foreign multinational corporations. Also, gap risk thresholds are set to control the risk of loss due to intra-country wrong-way risk exposure.

Beyond credit risk, our Country Risk Framework comprises thresholds for trading positions in emerging markets that measure the Profit and Loss impact of potential market events on trading positions within a specific country vs. a threshold structure. Furthermore we take into consideration treasury risk comprising thresholds for capital positions and intra-group funding exposure of Deutsche Bank entities in above countries given the transfer risk inherent in these cross-border positions. Key non-financial risks are closely monitored.

Our country risk ratings represent a key tool in our management of country risk. They include:

- Sovereign rating (set and managed by ERM): A measure of the probability of the sovereign defaulting on its foreign or local currency obligations.
- Transfer risk rating (set and managed by ERM): A measure of the probability of a “transfer risk event”, i.e., the risk that an otherwise solvent debtor is unable to meet its obligations due to inability to obtain foreign currency or to transfer assets as a result of direct sovereign intervention.
- Event risk rating (set and managed by MRM): Used to calibrate shocks for stress testing Event risks are measured as part of our event risk scenarios, as described in the section “Market Risk Measurement” of this report.

All sovereign and transfer risk ratings are reviewed, at least on an annual basis.

Product/Asset class specific risk management

Complementary to our counterparty, industry and country risk approach, we focus on product/asset class specific risk concentrations and selectively set limits, thresholds or indicators where required for risk management purposes. Specific risk limits are set in particular if a concentration of transactions of a specific type might lead to significant losses under certain conditions. In this respect, correlated losses might result from disruptions of the functioning of financial markets, significant moves in market parameters to which the respective product is sensitive, macroeconomic default scenarios or other factors. Specific focus is put on concentrations of transactions with underwriting risks where we underwrite commitments with the intention to sell down or distribute part of the risk to third parties. These commitments include the undertaking to fund bank loans and to provide bridge loans for the issuance of public bonds. The risk is that we may not be successful in the distribution of the facilities, meaning that we would have to hold more of the underlying risk for longer periods of time than originally intended. These underwriting commitments are additionally exposed to market risk in the form of widening credit spreads. We dynamically hedge this credit spread risk to be within the approved market risk limit framework.

A major asset class, in which DB is active in underwriting, is leverage lending, which we mainly execute through our Leveraged Debt Capital Markets (LDCM) business unit. The business model is a fee-based, originate to distribute’ approach based on the distribution of largely unfunded underwriting commitments into the capital market. The aforementioned risks regarding distribution and credit spread movement apply to this business unit, however, are managed under a range of specific notional as well as market risk limits. The latter require the business to also hedge its underwriting pipeline against market dislocations. The fee-based model of our LDCM business unit includes a restrictive approach to related credit exposures retained on Deutsche Bank’s balance sheet, which results in low hold levels for individual clients leading to a diversified overall portfolio without any material concentration risks. The resulting longer-term on-balance sheet portfolio is also subject to a credit limit and hedging framework.

In addition to underwriting risk, we also focus on concentration of transactions with specific risk dynamics (including risk to commercial real estate and risk from securitization positions).

Furthermore, in our PB and certain CB businesses, we apply product-specific strategies setting our risk appetite for sufficiently homogeneous portfolios, such as the retail portfolios of mortgages and business and consumer finance products. Here, individual risk analyses are of secondary importance. In Wealth Management, target levels are set for global concentrations along products as well as based on type and liquidity of collateral.

Market Risk Management

Market Risk framework

The vast majority of our businesses are subject to market risk, defined as the potential for change in the market value of our trading and invested positions. Risk can arise from changes in interest rates, credit spreads, foreign exchange rates, equity prices, commodity prices and other relevant parameters, such as market volatility and market implied default probabilities.

Market Risk Management is part of our independent Risk function and sits within the Market and Valuations Risk Management group. One of the primary objectives of Market Risk Management is to ensure that our business units' risk exposure is within the approved risk appetite commensurate with its defined strategy. To achieve this objective, Market Risk Management works closely together with risk takers ("the business units") and other control and support groups.

We distinguish between three substantially different types of market risk:

- Trading market risk arises primarily through the market-making and client facilitation activities of the Investment Bank and Corporate Bank Divisions. This involves taking positions in debt, equity, foreign exchange, other securities and commodities as well as in equivalent derivatives.
- Traded default risk arising from defaults and rating migrations relating to trading instruments.
- Nontrading market risk arises from market movements, primarily outside the activities of our trading units, in our banking book and from off-balance sheet items. This includes interest rate risk, credit spread risk, investment risk and foreign exchange risk as well as market risk arising from our pension schemes, guaranteed funds and equity compensation. Nontrading market risk also includes risk from the modeling of client deposits as well as savings and loan products.

Market Risk Management governance is designed and established to promote oversight of all market risks, effective decision-making and timely escalation to senior management.

Market Risk Management defines and implements a framework to systematically identify, assess, monitor and report our market risk. Market risk managers identify market risks through active portfolio analysis and engagement with the business units.

Market Risk measurement

We aim to accurately measure all types of market risks by a comprehensive set of risk metrics embedding accounting, economic and regulatory considerations.

We measure market risks by several internally developed key risk metrics and regulatory defined market risk approaches.

Trading Market Risk

Our primary mechanism to manage trading market risk is the application of our risk appetite framework of which the limit framework is a key component. Our Management Board, supported by Market Risk Management, sets group-wide value-at-risk, economic capital and portfolio stress testing limits for market risk in the trading book. Market Risk Management allocates this overall appetite to our Corporate Divisions and their individual business units based on established and agreed business plans. We also have business aligned heads within Market Risk Management who establish business unit limits, by allocating the limit down to individual portfolios, geographical regions and types of market risks.

Value-at-risk, economic capital and portfolio stress testing limits are used for managing all types of market risk at an overall portfolio level. As an additional and important complementary tool for managing certain portfolios or risk types, Market Risk Management performs risk analysis and business specific stress testing. Limits are also set on sensitivity and concentration/liquidity, exposure, business-level stress testing and event risk scenarios, taking into consideration business plans and the risk vs return assessment.

Business units are responsible for adhering to the limits against which exposures are monitored and reported. The market risk limits set by Market Risk Management are monitored on a daily, weekly and monthly basis, dependent on the risk management tool being used.

Internally developed Market Risk Models

Value-at-Risk (VaR)

VaR is a quantitative measure of the potential loss (in value) of Fair Value positions due to market movements that should not be exceeded in a defined period of time and with a defined confidence level.

Our value-at-risk for the trading businesses is based on our own internal model. In October 1998, the German Banking Supervisory Authority (now the BaFin) approved our internal model for calculating the regulatory market risk capital for our general and specific market risks. Since then the model has been continually refined and approval has been maintained.

We calculate VaR using a 99 % confidence level and a one day holding period. This means we estimate there is a 1 in 100 chance that a mark-to-market loss from our trading positions will be at least as large as the reported VaR. For regulatory purposes, which include the calculation of our risk-weighted assets, the holding period is ten days.

We use one year of historical market data as input to calculate VaR. The calculation employs a Monte Carlo Simulation technique, and we assume that changes in risk factors follow a well-defined distribution, e.g. normal or non-normal (t, skew-t, Skew-Normal). To determine our aggregated VaR, we use observed correlations between the risk factors during this one year period.

Our VaR model is designed to take into account a comprehensive set of risk factors across all asset classes. Key risk factors are swap/government curves, index and issuer-specific credit curves, funding spreads, single equity and index prices, foreign exchange rates, commodity prices as well as their implied volatilities. To help ensure completeness in the risk coverage, second order risk factors, e.g. CDS index vs. constituent basis, money market basis, implied dividends, option-adjusted spreads and precious metals lease rates are considered in the VaR calculation.

For each business unit a separate VaR is calculated for each risk type, e.g. interest rate risk, credit spread risk, equity risk, foreign exchange risk and commodity risk. For each risk type this is achieved by deriving the sensitivities to the relevant risk type and then simulating changes in the associated risk drivers. For foreign exchange risk there is an additional component using a revaluation approach for non-linear exposures. "Diversification effect" reflects the fact that the total VaR on a given day will be lower than the sum of the VaR relating to the individual risk types. Simply adding the VaR figures of the individual risk types to arrive at an aggregate VaR would imply the assumption that the losses in all risk types occur simultaneously.

The model incorporates both linear and, especially for derivatives, nonlinear impacts through a combination of sensitivity-based and revaluation approaches.

The VaR enables us to apply a consistent measure across our fair value exposures. It allows a comparison of risk in different businesses, and also provides a means of aggregating and netting positions within a portfolio to reflect correlations and offsets between different asset classes. Furthermore, it facilitates comparisons of our market risk both over time and against our daily trading results.

When using VaR results a number of considerations should be taken into account. These include:

- The use of historical market data may not be a good indicator of potential future events, particularly those that are extreme in nature. This "backward-looking" limitation can cause VaR to understate future potential losses (as in 2008), but can also cause it to be overstated.
- Assumptions concerning the distribution of changes in risk factors, and the correlation between different risk factors, may not hold true, particularly during market events that are extreme in nature. The one day holding period does not fully capture the market risk arising during periods of illiquidity, when positions cannot be closed out or hedged within one day.
- VaR does not indicate the potential loss beyond the 99th quantile.
- Intra-day risk is not reflected in the end of day VaR calculation.
- There may be risks in the trading or banking book that are partially or not captured by the VaR model.

Our process of systematically capturing and evaluating risks currently not captured in our VaR mode has been further developed and improved. An assessment is made to determine the level of materiality of these risks and material risks are prioritized for inclusion in our internal model. Risks not in VaR are monitored and assessed on a regular basis through our Risk Not In VaR (RNIV) framework.

We are committed to the ongoing development of our internal risk models, and we allocate substantial resources to reviewing, validating and improving them. We are currently in transition of the process to move to a calculation using a historical simulation approach predominantly based on full revaluation.

Stressed Value-at-Risk

Stressed Value-at-Risk (SVaR) calculates a stressed value-at-risk measure based on a one year period of significant market stress. We calculate a stressed value-at-risk measure using a 99 % confidence level. The holding period is one day for internal purposes and ten days for regulatory purposes. Our SVaR calculation utilizes the same systems, trade information and processes as those used for the calculation of value-at-risk. The only difference is that historical market data and observed correlations from a period of significant financial stress (i.e., characterized by high volatilities) is used as an input for the Monte Carlo Simulation.

The time window selection process for the stressed value-at-risk calculation is based on the identification of a time window characterized by high levels of volatility in the top value-at-risk contributors. The identified window is then further validated by comparing the SVaR results to neighboring windows using the complete Group portfolio.

Incremental Risk Charge

Incremental Risk Charge captures default and credit rating migration risks for credit-sensitive positions in the trading book. It applies to credit products over a one-year capital horizon at a 99.9 % confidence level, employing a constant position approach. We use a Monte Carlo Simulation for calculating incremental risk charge as the 99.9 % quantile of the portfolio loss distribution and for allocating contributory incremental risk charge to individual positions.

The model captures the default and migration risk in an accurate and consistent quantitative approach for all portfolios. Important parameters for the incremental risk charge calculation are exposures, recovery rates, maturity ratings with corresponding default and migration probabilities and parameters specifying issuer correlations.

Market Risk Standardized Approach

The Market Risk Standardized Approach ("MRSA") is used to determine the regulatory capital charge for the specific market risk of trading book securitizations, for certain types of investment funds and for longevity risk as set out in CRR/CRD regulations.

Longevity risk is the risk of adverse changes in life expectancies resulting in a loss in value on longevity linked policies and transactions. For risk management purposes, stress testing and economic capital allocations are also used to monitor and manage longevity risk.

Market Risk Stress Testing

Stress testing is a key risk management technique, which evaluates the potential effects of extreme market events and movements in individual risk factors. It is one of the core quantitative tools used to assess the market risk of Deutsche Bank's positions and complements VaR and Economic Capital. Market Risk Management performs several types of stress testing to capture the variety of risks (Portfolio Stress Testing, individual specific stress tests and Event Risk Scenarios) and also contributes to Group-wide stress testing. These stress tests cover a wide range of severities designed to test the earnings stability and capital adequacy of the bank.

Trading Market Risk Economic Capital (TMR EC)

Our trading market risk economic capital model-scaled Stressed VaR based EC (SVaR based EC) - comprises two core components, the "common risk" component covering risk drivers across all businesses and the "business-specific risk" component, which enriches the Common Risk via a suite of Business Specific Stress Tests (BSSTs). Both components are calibrated to historically observed severe market shocks. Common risk is calculated using a scaled version of the Regulatory SVaR framework while BSSTs are designed to capture more product/business-related bespoke risks (e.g. complex basis risks) as well as higher order risks not captured in the common risk component.

Traded Default Risk Economic Capital (TDR EC)

TDR EC captures the relevant credit exposures across our trading and fair value banking books. Trading book exposures are monitored by MRM via single name concentration and portfolio thresholds which are set based upon rating, size and liquidity. Single name concentration risk thresholds are set for two key metrics: Default Exposure, i.e., the P&L impact of an instantaneous default at the current recovery rate (RR), and bond equivalent Market Value (MV), i.e. default exposure at 0 % recovery. In order to capture diversification and concentration effects we perform a joint calculation for traded default risk economic capital and credit risk economic capital. Important parameters for the calculation of traded default risk are exposures, recovery rates and default probabilities as well as maturities. The probability of joint rating downgrades and defaults is determined by the default and rating correlations of the portfolio model. These correlations are specified through systematic factors that represent countries, geographical regions and industries.

Trading Market Risk Reporting

Market Risk Management reporting creates transparency on the risk profile and facilitates the understanding of core market risk drivers to all levels of the organization. The Management Board and Senior Governance Committees receive regular reporting, as well as ad hoc reporting as required, on market risk, regulatory capital and stress testing. Senior Risk Committees receive risk information at a number of frequencies, including weekly or monthly.

Additionally, Market Risk Management produces daily and weekly Market Risk specific reports and daily limit utilization reports for each business owner.

Regulatory prudent valuation of assets carried at fair value

Pursuant to Article 34 CRR institutions shall apply the prudent valuation requirements of Article 105 CRR to all assets measured at fair value and shall deduct from CET 1 capital the amount of any additional value adjustments necessary.

We determined the amount of the additional value adjustments based on the methodology defined in the Commission Delegated Regulation (EU) 2016/101.

As of December 31, 2019 the amount of the additional value adjustments was € 1.7 billion. The December 31, 2018 amount was € 1.5 billion. The increase was predominantly driven by exposure changes and methodology enhancements throughout the year.

As of December 31, 2019 the reduction of the expected loss from subtracting the additional value adjustments was € 128 million, which partly mitigated the negative impact of the additional value adjustments on our CET 1 capital.

Nontrading Market Risk

Nontrading market risk arises primarily from activities outside of our trading units, in our banking book, and from certain off-balance sheet items, and embedding considerations of different accounting treatment of transactions. Significant market risk factors the Group is exposed to and are overseen by risk management groups in that area are:

- Interest rate risk (including risk from embedded optionality and changes in behavioral patterns for certain product types), credit spread risk, foreign exchange risk, equity risk (including investments in public and private equity as well as real estate, infrastructure and fund assets).
- Market risks from off-balance sheet items, such as pension schemes and guarantees, as well as structural foreign exchange risk and equity compensation risk.

Interest Rate Risk in the Banking Book

Interest rate risk in the banking book (IRRBB) is the current or prospective risk, to both the Group's capital and earnings, arising from movements in interest rates, which affect the Group's banking book exposures. This includes gap risk, which arises from the term structure of banking book instruments, basis risk, which describes the impact of relative changes in interest rates for financial instruments that are priced using different interest rate curves, as well as option risk, which arises from option derivative positions or from optional elements embedded in financial instruments.

The Group manages its IRRBB exposures using economic value as well as earnings based measures. Our Group Treasury function is mandated to manage the interest rate risk centrally, with Market Risk Management acting as an independent oversight function.

Economic value based measures look at the change in economic value of banking book assets, liabilities and off-balance sheet exposures resulting from interest rate movements, independent of the accounting treatment. Thereby the Group measures the change in Economic Value of Equity (Δ EVE) as the maximum decrease of the banking book economic value under the six standard scenarios defined by Basel Committee on Banking Supervision (BCBS) in addition to internal stress scenarios for risk steering purposes.

Earnings-based measures look at the expected change in Net Interest Income (NII) resulting from interest rate movements over a defined time horizon, compared to a defined benchmark scenario. Thereby the Group measures Δ NII as the maximum reduction in NII under the six standard scenarios defined Basel Committee on Banking Supervision (BCBS) in addition to internal stress scenarios for risk steering purposes, compared to a market implied curve scenario, over a period of 12 months.

The Group employs mitigation techniques to hedge the interest rate risk arising from nontrading positions within given limits. The interest rate risk arising from nontrading asset and liability positions is managed through Treasury Markets & Investments, with the most notable exception of DB Privat- und Firmenkundenbank AG, where the interest rate risk is managed by a dedicated risk management function. The residual interest rate risk positions are hedged with Deutsche Bank's trading books within the IB division. The treatment of interest rate risk in our trading portfolios and the application of the value-at-risk model is discussed in the "Trading Market Risk" section of this document.

Positions in our banking books as well as the hedges described in the aforementioned paragraph follow the accounting principles as detailed in the "Notes to the Consolidated Financial Statements" section of this document.

The Model Risk Management function performs independent validation of models used for IRRBB measurement in line with Deutsche Bank's group-wide risk governance framework.

The calculation of VaR and sensitivities of interest rate risk is performed daily, whereas the measurement and reporting of economic value interest rate and earnings risk is performed on a monthly basis. The Group generally uses the same metrics in its internal management systems as it applies for the disclosure in this report. This is applicable to both the methodology as well as the modelling assumptions used when calculating the metrics.

Deutsche Bank's key modelling assumptions are applied to the positions in our PB division and parts of our CB division. Those positions are subject to risk of changes in our client's behavior with regard to their deposits as well as loan products.

The Group manages the interest rate risk exposure of its Non-Maturity Deposits (NMDs) through a replicating portfolio approach to determine the average repricing maturity of the portfolio. For the purpose of constructing the replicating portfolio, the portfolio of NMDs is clustered by dimensions such as Business Unit, Currency, Product and Geographical Location. The main dimensions influencing the repricing maturity are elasticity of deposit rates to market interest rates, volatility of deposit balances and observable client behavior. For the reporting period the average repricing maturity assigned across all such replicating portfolios is 2.0 years and Deutsche Bank uses 15 years as the longest repricing maturity.

In the Loan and some of the Term deposit products Deutsche Bank considers early prepayment/withdrawal behavior of its customers. The parameters are based on historical observations, statistical analyses and expert assessments.

Furthermore, the Group generally calculates IRRBB related metrics in contractual currencies and aggregates the resulting metrics for reporting purposes. When calculating economic value based metrics the commercial margin is excluded for material parts of the balance sheet.

Credit Spread Risk in the Banking Book

Deutsche Bank is exposed to credit spread risk of bonds held in the banking book, mainly as part of the Treasury Liquidity Reserves portfolio and in DB Privat- und Firmenkundenbank AG. The credit spread risk in the banking book is managed by the businesses, with Market Risk Management acting as an independent oversight function ensuring that the exposure is within the approved risk appetite. This risk category is closely associated with interest rate risk in the banking book as changes in the perceived credit quality of individual instruments may result in fluctuations in spreads relative to underlying interest rates.

Foreign exchange risk

Foreign exchange risk arises from our nontrading asset and liability positions that are denominated in currencies other than the functional currency of the respective entity. The majority of this foreign exchange risk is transferred through internal hedges to trading books within the IB division and is therefore reflected and managed via the value-at-risk figures in the trading books. The remaining foreign exchange risks that have not been transferred are mitigated through match funding the investment in the same currency, so that only residual risk remains in the portfolios. Small exceptions to above approach follow the general Market Risk Management monitoring and reporting process, as outlined for the trading portfolio.

The bulk of nontrading foreign exchange risk is related to unhedged structural foreign exchange exposure, mainly in our U.S., U.K. and China entities. Structural foreign exchange exposure arises from local capital (including retained earnings) held in the Group's consolidated subsidiaries and branches and from investments accounted for at equity. Change in foreign exchange rates of the underlying functional currencies are booked as Currency Translation Adjustments (CTA).

The primary objective for managing our structural foreign exchange exposure is to stabilize consolidated capital ratios from the effects of fluctuations in exchange rates. Therefore the exposure remains unhedged or partially hedged for a number of currencies with considerable amounts of risk-weighted assets denominated in that currency in order to avoid volatility in the capital ratio for the specific entity and the Group as a whole.

Equity and investment risk

Nontrading equity risk arising predominantly from our non-consolidated investment holdings in the banking book and from our equity compensation plans.

Our non-consolidated equity investment holdings in the banking book are categorized into strategic and alternative investment assets. Strategic investments typically relate to acquisitions made to support our business franchise and are undertaken with a medium to long-term investment horizon. Alternative assets are comprised of principal investments and other non-strategic investment assets. Principal investments are direct investments in private equity, real estate, venture capital, hedge or mutual funds whereas assets recovered in the workout of distressed positions or other legacy investment assets in private equity and real estate are of a non-strategic nature.

Pension risk

We are exposed to market risk from a number of defined benefit pension schemes for past and current employees. The ability of the pension schemes to meet the projected pension payments is maintained through investments and ongoing plan contributions. Market risk materializes due to a potential decline in the market value of the assets or an increase in the liability of each of the pension plans. Market Risk Management monitors and reports all market risks both on the asset and liability side of our defined benefit pension plans including interest rate risk, inflation risk, credit spread risk, equity risk and longevity risk. Overall, the Group seeks to minimize the impact of adverse market movements to key financial metric, with the primary objective on protecting the overall IFRS funded status, however in selected markets with the aim to balance competing key financial metrics. The investment managers manage the pension assets in line with investment mandates or guidelines as agreed with the pension plans' trustees and investment committees. For key defined benefit plans for which the Bank aims to protect the IFRS funded status, the Group applies a liability driven investment (LDI) approach. Risks from mismatches between fluctuations in the present value of the defined benefit obligations and plan assets due to capital market movements are minimized, subject to balancing relevant trade-offs.

For details on our defined benefit pension obligation see Note 35 "Employee Benefits" in the "Notes to the Consolidated Financial Statements" section.

Other risks in the Banking Book

Market risks in our Asset Management business primarily result from principal guaranteed funds or accounts, but also from co-investments in our funds.

Nontrading Market Risk Economic Capital

Nontrading market risk economic capital is calculated either by applying the standard traded market risk EC methodology or through the use of non-traded market risk models that are specific to each risk class and which consider, among other factors, historically observed market moves, the liquidity of each asset class, and changes in client's behavior in relation to products with behavioral optionalities.

Operational risk management

Operational risk management framework

Deutsche Bank applies the European Banking Authority's Single Rulebook definition of operational risk: "Operational risk means the risk of losses stemming from inadequate or failed internal processes, people and systems or from external events. Operational risk includes legal risks, but excludes business and reputational risk and is embedded in all banking products and activities." Operational risk forms a subset of the bank's non-financial risks (NFR).

Deutsche Bank's operational risk appetite sets out the amount of operational risk we are willing to accept as a consequence of doing business. We take on operational risks consciously, both strategically as well as in day-to-day business. While the bank may have no appetite for certain types of operational risk events (such as violations of laws or regulations and misconduct), in other cases a certain amount of operational risk must be accepted if the bank is to achieve its business objectives. In case a residual risk is assessed to be outside our risk appetite, risk reducing actions must be undertaken, including remediating the risks, insuring risks or ceasing business.

The Operational risk management framework (ORMF) is a set of interrelated tools and processes that are used to identify, assess, measure, monitor and remediate the bank's operational risks. Its components have been designed to operate together to provide a comprehensive but risk-based approach to managing the bank's most material operational risks. ORMF components include the Group's approach to setting and adhering to operational risk appetite, the operational risk type and control taxonomies, the minimum standards for operational risk management processes including tools, and the bank's operational risk capital model.

Organizational & governance structure

While the day-to-day management of operational risk is the primary responsibility of our business divisions and infrastructure functions as risk owners, Non-Financial Risk Management (NFRM) oversees the Group-wide management of operational risks, identifies and reports risk concentrations, and promotes a consistent application of the ORMF across the bank. NFRM is part of the Group risk function, which is headed by the Chief Risk Officer.

The Chief Risk Officer appoints the Head of NFRM, who is accountable for the design, implementation and maintenance of an effective, efficient and regulatory compliant ORMF, including the operational risk capital model. The Head of NFRM monitors and challenges the ORMF's implementation and monitors overall risk levels against risk appetite.

The Non-Financial Risk Committee (NFRC), which is chaired by the Chief Risk Officer, is responsible for the oversight, governance and coordination of the management of operational risk in the Group on behalf of the Management Board by establishing a cross-risk perspective of the key operational risks of the Group. Its decision-making and policy related authorities include the review, advice and management of all operational risk issues that may impact the risk profile of our business divisions and infrastructure functions. Several sub-fora with attendees from both, the 1st and 2nd LoDs support the NFRC to effectively fulfil its mandate. In addition to the Group level NFRC, business divisions have established 1st LoD governance fora for the oversight and management of operational risks on various levels of the organization.

The governance of our operational risks follows the bank's Three Lines of Defence (3LoD) approach to managing all of its financial and non-financial risks. The ORMF establishes the operational risk governance standards including the core 1st and 2nd LoD roles and their responsibilities, to ensure effective risk management and appropriate independent challenge:

Operational risk governance standard for the first line of defence (1st LoD): Risk owners as the 1st LoD have full accountability for their operational risks and manage these against a defined risk specific appetite.

Risk owners are those roles in the bank whose (business) activities generate risks. As heads of business divisions and infrastructure functions, they must determine the appropriate organizational structure to identify their organizations' operational risk profile, implement risk management and control standards within their organization, take business decisions on the mitigation or acceptance of operational risks to ensure they remain within risk appetite and establish and maintain 1st LoD controls.

Operational risk governance standard for the second line of defence (2nd LoD): Risk Type Controllers (RTCs) act as the 2nd LoD control functions for all sub-risk types under the overarching risk type "operational risk".

RTCs establish the framework and define Group level risk appetite statements for the specific operational risk type they oversee. RTCs define the fundamental risk management and control standards and independently oversee and challenge risk owners' implementation of these standards in their day-to-day processes, as well as their risk-taking and management activities. RTCs establish independent operational risk governance and prepare aggregated risk type profile reporting. RTCs monitor the risk type's profile against risk appetite and exercise a veto on risk decisions leading to foreseeable risk appetite breaches. As risk type experts, RTCs define the risk type and its taxonomy and support and facilitate the implementation of the risk type framework in the 1st LoD. To maintain their independence, RTC roles are located only in infrastructure functions.

Operational risk governance standard for NFRM as the RTC for the overarching risk type operational risk: As the RTC / risk control function for operational risk, NFRM establishes and maintains the overarching ORMF and determines the appropriate level of capital to underpin the Group's operational risk.

- As the 2nd LoD risk control function, NFRM defines the bank's approach to operational risk appetite and monitors its adherence, breaches and consequences. NFRM is the independent reviewer and challenger of the 1st LoD's risk and control assessments and risk management activities. NFRM provides the oversight of risk and control mitigation plans to return the bank's operational risk to its risk appetite, where required. It also establishes and regularly reports the bank's operational risk profile and operational top risks, i.e. the bank's material operational risks which are outside of risk appetite.
- As the subject matter expert for operational risk, NFRM provides independent risk views to facilitate forward-looking management of operational risks, actively engages with risk owners (1st LoD) and facilitates the implementation of risk management and control standards across the bank.
- NFRM is accountable for the design, implementation and maintenance of the approach to determine the adequate level of capital required for operational risk, for recommendation to the Management Board. This includes the calculation and allocation of operational risk capital demand and expected loss under the Advanced Measurement Approach (AMA).

Managing our operational risk

In order to manage the broad range of sub-risk types underlying operational risk, the ORMF provides a set of tools and processes that apply to all operational risk types across the bank. These enable us to determine our operational risk profile in relation to our risk appetite for operational risk, to systematically identify operational risk themes and concentrations, and to define risk mitigating measures and priorities.

In 2019, we further enhanced the management of operational risks by simplifying our risk management processes, by promoting an active and continuous dialogue between the 1st and 2nd LoDs on operational risks, by strengthening our controls, and by making the management of operational risks more transparent, meaningful and embedded in day-to-day business decisions:

Loss data collection: We collect, categorize and analyze data on internal and relevant external operational risk events (with a P&L impact \geq €10,000) in a timely manner. Material operational risk events trigger clearly defined lessons learned and read-across analyses, which are performed in close collaboration between business partners, risk control and other infrastructure functions. Lessons learned reviews analyze the reasons for significant operational risk events, identify their root causes, and document appropriate remediation actions to reduce the likelihood of their reoccurrence. Read across reviews take the conclusions of the lessons learned process and seek to analyze whether similar risks and control weaknesses identified in a lessons learned review exist in other areas of the bank, even if they have not yet resulted in problems. This allows preventative actions to be undertaken. In 2019, we further simplified the event management processes to improve data quality and started the development of a new, convenient to use, event management platform.

We complement our operational risk profile by using a set of scenarios including internal scenarios and relevant external operational risk events provided by an industry database. We thereby systematically utilize information on external loss events occurring in the banking industry to reduce the likelihood of similar incidents happening to us, for example through particular deep dive analyses or risk profile reviews. At the end of 2019, we revised our approach in this area to use scenario analysis more effectively for risk management purposes.

The Risk & Control Assessment process (RCA) comprises of a series of bottom-up assessments of the risks generated by business divisions and infrastructure functions (1st LoDs), the effectiveness of the controls in place to manage them, and the remediation actions required to bring the risks outside of risk appetite back into risk appetite. This enables both the 1st and 2nd LoDs to have a clear view of the bank's material operational risks. In 2019, we launched an integrated risk and control assessment that combined the risk assessments led by Anti-Financial Crime (AFC), Compliance and NFRM in a coordinated way. The coordinated approach aims to improve visibility across various risk types and to streamline risk assessment processes, tools and reporting across the three risk control functions, creating efficiencies and improving engagement. Alongside the integration of risk assessments, we further enhanced the bank's central control inventory and started the development of a new control assurance framework to enhance the transparency of control assurance activities across various levels of the bank.

We regularly report and perform analyses on our top risks to establish they are appropriately mitigated. As all risks, top risks are rated in terms of both the likelihood that they could occur and the impact on the bank should they do so, and through this assessment identified to be particularly material for the bank. The reporting provides a forward-looking perspective on the impact of planned remediation and control enhancements. It also contains emerging risks and themes that have the potential to evolve as a top risk in future. Top risk reduction programs comprise the most significant risk reduction activities that are key to bringing our operational top risk themes back within risk appetite. In 2019, we launched a new reporting platform, which provides risk managers with greater visibility on the operational risk management data from multiple framework components, thus improving oversight and decision-making capability.

To appropriately identify and manage risks from material change initiatives within the bank, a Transformation Risk Assessment (TRA) process is in place to assess the impact of transformation on the bank's risk profile and control environment. This process considers impacts to both financial and non-financial risk types and is applicable to initiatives including strategic changes, large technology programmes and regulatory projects within the bank. For instance, through the TRA process, the bank prepared in advance for anticipated risks arising from the strategy announcement published in July 2019. This included detailed consideration of risks and mitigants across the bank, their documentation and monitoring, to proactively manage these risks.

NFR appetite is the amount of non-financial risk the bank is willing to accept as a consequence of doing business. The NFR appetite framework provides a common approach to measure and monitor the level of risk appetite across the firm. NFR appetite metrics are used to monitor the operational risk profile against the bank's defined risk appetite, and to alert the organization to impending problems in a timely fashion. In 2019 work was undertaken to further embed risk appetite by standardizing risk appetite statements and enhancing metrics at group, divisional and business unit levels. Further work is underway to cascade adequate metrics down to the appropriate level of the organisation.

The findings and issue management process allows the bank to mitigate the risks associated with known control weaknesses and deficiencies, and enables management to make risk-based decisions over the need for further remediation or risk acceptance. Outputs from the findings management process must be able to demonstrate to internal and external stakeholders that the bank is actively identifying its control weaknesses and taking steps to manage associated risks within acceptable levels of risk appetite.

Operational risk type frameworks

The ORMF provides the overarching set of standards, tools and processes that apply to the management of all operational sub-risk types. It is complemented by the operational risk type frameworks, risk management and control standards and tools set up by the respective RTCs for the operational sub-risk types they control. These operational sub-risk types are controlled by various infrastructure functions and include the following:

- The Compliance department performs an independent 2nd level control function that protects the bank’s license to operate by promoting and enforcing compliance with the law and driving a culture of compliance and ethical conduct in the bank. The Compliance department assists the business divisions and works with other infrastructure functions and regulators to establish and maintain a risk-based approach to the management of the bank’s compliance risks in accordance with the bank’s risk appetite and to help the bank detect, mitigate and prevent breaches of laws and regulations. The Compliance department performs the following principal activities: regulatory engagement and management, collaborating with government & regulatory affairs; acting as a trusted advisor; and identifying, assessing, mitigating, monitoring and reporting on compliance risk. The results of these assessments are regularly reported to the Management Board and Supervisory Board.
- Financial crime risks are managed by our Anti-Financial Crime (AFC) function via maintenance and development of a dedicated program. The AFC program is based on regulatory and supervisory requirements. AFC has defined roles and responsibilities and established dedicated functions for the identification and management of financial crime risks resulting from money laundering, terrorism financing, non-compliance with sanctions and embargoes as well as other criminal activities including fraud, bribery and corruption and other crimes. AFC updates its strategy for financial crime prevention via regular development of internal policies processes and controls, institution-specific risk assessment and staff training.
- The Legal Department (including group governance) is an infrastructure function that is mandated to provide legal advice to the Management Board, the Supervisory Board (to the extent it does not give rise to conflict of interest), business divisions and infrastructure functions and to support the Management Board in setting up and guarding the Group’s governance and control frameworks in respect of the bank’s legal and governance risks. This includes in particular but without limitation:
 - Advising the Management Board and Supervisory Board on legal aspects of their activities
 - Providing legal advice to all Deutsche Bank units to facilitate adherence to legal and regulatory requirements in relation to their activities respectively
 - Supporting other Deutsche Bank units in managing Deutsche Bank Group’s interactions with regulatory authorities
 - Engaging and managing external lawyers used by Deutsche Bank Group
 - Managing Deutsche Bank Group’s litigation and contentious regulatory matters, (incl. contentious HR matters), and managing Deutsche Bank Group’s response to external regulatory enforcement investigations
 - Advising on legal aspects of internal investigations
 - Setting the global governance framework for Deutsche Bank Group, facilitating its cross-unit application and assessing its implementation
 - Developing and safeguarding efficient corporate governance structures suitable to support efficient decision-making, to align risk and accountability on the basis of clear and consistent roles and responsibilities
 - Maintaining Deutsche Bank Group’s framework for policies and procedures and serve as guardian for Group policies and procedures
 - Ensuring appropriate quality assurance around all of the above
- NFRM Product Governance oversee the framework that manages the bank’s new product and product lifecycle related risks. The framework establishes a bank wide cross-risk process that includes an assessment of both financial and non-financial risks. In 2019, NFRM established Systematic Product Reviews (SPR) for the Investment Bank, including the former Equities business. SPR’s are now in place across all DB Group Divisions and are an holistic risk assessment that validates whether a product remains operationally ready and fit for purpose and assesses whether the Bank wants to continue, stop or revise the approved product scope. Furthermore, in 2019, a joint venture between NFRM and the Investment Bank led to the implementation of a daily new product approval breach control which provides alerts to NFRM and business contacts where trading activity is not supported by a New Product Approval (NPA). The output from this control is reviewed by the Trader Mandate Oversight Council which is co-chaired by Risk and the Divisional Control Officer in the Investment Bank. This work has led to a reduction in product risk.
- NFRM is the RTC for a number of operational resilience risks. Its mandate includes controls over transaction processing activities, as well as infrastructure risks to prevent technology or process disruption, maintain the confidentiality, integrity and availability of data, records and information security, and ensure business divisions and infrastructure functions have robust plans in place to recover critical business processes and functions in the event of disruption from technical or building outage, or the effects of cyber-attack or natural disaster as well as any physical security or safety risk. NFRM RTC also manages the risks arising from the bank’s internal and external vendor engagements via the provision of a comprehensive third party risk management framework.

Measuring our operational risks

We calculate and measure the regulatory and economic capital requirements for operational risk using the Advanced Measurement Approach (AMA) methodology. Our AMA capital calculation is based upon the loss distribution approach. Gross losses from historical internal and external loss data (Operational Riskdata eXchange Association consortium data) and external scenarios from a public database (IBM OpData) complemented by internal scenario data are used to estimate the risk profile (i.e., a loss frequency and a loss severity distribution). Our loss distribution approach model includes conservatism by recognizing losses on events that arise over multiple years as single events in our historical loss profile.

Within the loss distribution approach model, the frequency and severity distributions are combined in a Monte Carlo simulation to generate potential losses over a one year time horizon. Finally, the risk mitigating benefits of insurance are applied to each loss generated in the Monte Carlo simulation. Correlation and diversification benefits are applied to the net losses in a manner compatible with regulatory requirements to arrive at a net loss distribution at Group level, covering expected and unexpected losses. Capital is then allocated to each of the business divisions after considering qualitative adjustments and expected loss.

The regulatory capital requirement for operational risk is derived from the 99.9 % percentile. Since Q4 2017, the economic capital is also set at 99.9 % percentile; see the section "Economic Capital Adequacy" for details. Both regulatory and economic capital requirements are calculated for a time horizon of one year.

The regulatory and economic capital demand calculations are performed on a quarterly basis. NFRM aims to ensure that for the approach for capital demand quantification, appropriate development, validation and change governance processes are in place, whereby the validation is performed by an independent validation function and in line with the Group's model risk management process.

Drivers for operational risk capital development

In 2019, our total operational risk losses increased by 35 % compared with 2018, though they remained well below previous years' levels and continued to be predominantly driven by losses and provisions arising from civil litigation and regulatory enforcement. Such losses still make up 84 % of operational risk losses and account for the majority of operational risk regulatory and economic capital demand, which is more heavily reliant on our long-term loss history. For a description of our current legal and regulatory proceedings, please see section "Current Individual Proceedings" in Note 29 "Provisions" to the consolidated financial statements. The operational risk losses from civil litigation and regulatory enforcement increased by € 131 million or 73 % while our non-legal operational risk losses decreased by € 34 million or 35% compared to 2018.

In view of the relevance of legal risks within our operational risk profile, we dedicate specific attention to the management and measurement of our open civil litigation and regulatory enforcement matters where the bank relies both on information from internal as well as external data sources to consider developments in legal matters that affect the bank specifically but also the banking industry as a whole. Reflecting the multi-year nature of legal proceedings the measurement of these risks furthermore takes into account changing levels of certainty by capturing the risks at various stages throughout the lifecycle of a legal matter.

Conceptually, the bank measures operational risk including legal risk by determining the maximum loss that will not be exceeded with a given probability. This maximum loss amount includes a component that due to the IFRS criteria is reflected in our financial statements and a component that is expressed as regulatory or economic capital demand beyond the amount reflected as provisions within our financial statements.

The legal losses which the bank expects with a likelihood of more than 50 % are already reflected in our IFRS group financial statements. These losses include net changes in provisions for existing and new cases in a specific period where the loss is deemed probable and is reliably measurable in accordance with IAS 37. The development of our legal provisions for civil litigations and regulatory enforcement is outlined in detail in Note 29 "Provisions" to the consolidated financial statements.

Uncertain legal losses which are not reflected in our financial statements as provisions because they do not meet the recognition criteria under IAS 37 are expressed as "regulatory or economic capital demand".

To quantify the litigation losses in the AMA model, the bank takes into account historical losses, provisions, contingent liabilities and legal forecasts. Legal forecasts are generally comprised of ranges of potential losses from legal matters that are not deemed probable but are reasonably possible. Reasonably possible losses may result from ongoing and new legal matters which are reviewed at least quarterly by the attorneys handling the legal matters.

We include the legal forecasts in the "relevant loss data" used in our AMA model. The projection range of the legal forecasts is not restricted to the one year capital time horizon but goes beyond and conservatively assumes early settlement of the underlying losses in the reporting period - thus considering the multi-year nature of legal matters.

Liquidity Risk Management

Liquidity risk is the risk arising from our potential inability to meet all payment obligations when they come due or only being able to meet these obligations at excessive costs. The objective of the Group's liquidity risk management framework is to ensure that the Group can fulfill its payment obligations at all times and can manage liquidity and funding risks within its risk appetite. The framework considers relevant and significant drivers of liquidity risk, whether on-balance sheet or off-balance sheet.

Liquidity Risk Management framework

In accordance with the ECB's Supervisory Review and Evaluation Process (SREP), Deutsche Bank has implemented an annual Internal Liquidity Adequacy Assessment Process (ILAAP), which is reviewed at least annually and approved by the Management Board. The ILAAP provides comprehensive documentation and assessment of the Bank's Liquidity Risk Management framework, including: identifying the key liquidity and funding risks to which the Group is exposed; describing how these risks are identified, monitored and measured and describing the techniques and resources used to manage and mitigate these risks.

The Management Board defines the liquidity and funding risk strategy for the Bank, as well as the risk appetite, based on recommendations made by the Group Risk Committee (GRC). At least annually the Management Board reviews and approves the risk appetite which is applied to the Group to monitor and control liquidity risk as well as our long-term funding and issuance plan.

Treasury is mandated to manage the overall liquidity and funding position of the Bank, with Liquidity Risk Management (LRM) acting as an independent control function. LRM is responsible for reviewing the liquidity risk framework, proposing the risk appetite, limits and stress test scenarios to GRC and the validation of Liquidity Risk models which are developed by Treasury, to measure and manage the Group's liquidity risk profile.

Treasury manages liquidity and funding, in accordance with the Management Board-approved risk appetite across a range of relevant metrics, and implements a number of tools to monitor these and ensure compliance. In addition, Treasury works closely with LRM and business divisions, to identify, analyze and understand underlying liquidity risk characteristics within business portfolios. These parties are engaged in regular dialogue regarding changes in the Bank's position arising from business activities and market circumstances. Dedicated business and material legal entity targets are allocated to ensure the Group operates within its overall liquidity and funding risk appetite.

The Management Board is informed about the performance against the key liquidity metrics for both internal and market indicators for which limits and thresholds are approved by either GRC or Management Board, via a weekly Liquidity Dashboard. As part of the annual strategic planning process, we project the development of the key liquidity and funding metrics including the USD currency exposure based on the underlying business plans to ensure that the plan is in compliance with our risk appetite.

Deutsche Bank has a wide range of funding sources, including retail and institutional deposits, unsecured and secured wholesale funding and debt issuance in the capital markets.

Short-term liquidity and wholesale funding

Deutsche Bank tracks all contractual cash flows from wholesale funding sources, on a daily basis, over a 12-month horizon. For this purpose, we consider wholesale funding to include unsecured liabilities raised primarily by Treasury Markets Pool, as well as secured liabilities primarily raised by our Investment Bank Division. Our wholesale funding counterparties typically include corporates, banks and other financial institutions, governments and sovereigns.

The Group has implemented a set of GRC-approved limits to restrict the Bank's exposure to wholesale counterparties, which have historically shown to be the most susceptible to market stress. The wholesale funding limits are monitored daily, and apply to the total combined currency amount of all wholesale funding currently outstanding, both secured and unsecured with specific tenor limits. Our Liquidity Reserves are the primary mitigants against potential stress in the short-term.

The tables in section "Liquidity Risk Exposure: Funding Diversification" show the contractual maturity of our short-term wholesale funding and capital markets issuance.

Liquidity stress testing and scenario analysis

Global internal liquidity stress testing and scenario analysis is one of the key tools for measuring liquidity risk and evaluating the Group's short-term liquidity position within the liquidity framework. It complements the daily operational cash management process. The long-term liquidity strategy based on contractual and behavioral modelled cash flow information is represented by the Funding Matrix.

Our global liquidity stress testing process is managed by Treasury in accordance with the Management Board approved risk appetite. Treasury is responsible for the design of the overall methodology, the choice of liquidity risk drivers and the determination of appropriate assumptions (parameters) to translate input data into stress testing output. Liquidity Risk Management is responsible for the definition of the stress scenarios and the independent validation of liquidity risk models. Liquidity and Treasury Reporting & Analysis (LTRA) is responsible for implementing these methodologies in conjunction with Treasury, LRM and IT as well as for the stress test calculation.

We use stress testing and scenario analysis to evaluate the impact of sudden and severe stress events on our liquidity position. Deutsche Bank has selected four scenarios to calculate the Group's stressed Net Liquidity Position ("sNLP"). These scenarios capture the historical experience of Deutsche Bank during periods of idiosyncratic and/or market-wide stress and are assumed to be both plausible and sufficiently severe as to materially impact the Group's liquidity position. The most severe scenario assesses the potential consequences of a combined market-wide and idiosyncratic stress event, including downgrades of our credit rating. Under each of the scenarios we consider the impact of a liquidity stress event over different time horizons and across multiple liquidity risk drivers, covering all of our business and product areas and balance sheet.

In addition, we include the potential funding requirements from contingent liquidity risks which might arise, including credit facilities, increased collateral requirements under derivative agreements, and outflows from deposits with a contractual rating linked trigger. We then take into consideration the actions we would take to counterbalance the outflows incurred. Countermeasures include utilizing the Liquidity Reserve and generating liquidity from unencumbered, marketable assets.

Stress testing is conducted at a global level and for defined material legal entities covering an eight-weeks stress horizon. In addition to the consolidated currency stress test, stress tests for material currencies (EUR, USD and GBP) are performed. In U.S., we also perform stress testing out to 12 months period. We review our stress-testing scenarios and assumptions on a regular basis and have made further enhancements to the methodology and severity of certain parameters through the course of 2019. This includes a reverse stress testing scenario to assess drivers which, under extreme events, could precipitate a failure.

On a daily basis, we run the liquidity stress test over an eight-week horizon, which we consider the most critical time span in a liquidity crisis, and apply the relevant stress assumptions to risk drivers from on-balance sheet and off-balance sheet products. Beyond the eight week time horizon, we analyze the impact of a more prolonged stress period, extending to twelve months. This stress testing analysis is also performed on a daily basis.

The tables in section "Liquidity Risk Exposure: Stress Testing and Scenario Analysis" show the results of our internal global liquidity stress test under the various different scenarios.

Liquidity Coverage Ratio

In addition to our internal stress test result, the Group has a Management Board-approved risk appetite for the Liquidity Coverage Ratio (LCR). The LCR is intended to promote the short-term resilience of a bank's liquidity risk profile over a 30 day stress scenario. The ratio is defined as the amount of High Quality Liquid Assets (HQLA) that could be used to raise liquidity in a stressed scenario, measured against the total volume of net cash outflows, arising from both contractual and modelled exposures.

This requirement has been implemented into European law, via the Commission Delegated Regulation (EU) 2015/61, adopted in October 2014. Compliance with the LCR was required in the EU from October 1, 2015.

The LCR complements the internal stress testing framework. By maintaining a ratio in excess of minimum regulatory requirements, the LCR seeks to ensure that the Group holds adequate liquidity resources to mitigate a short-term liquidity stress.

Key differences between the internal liquidity stress test and LCR include the time horizon (eight weeks versus 30 days), classification and haircut differences between Liquidity Reserves and the LCR HQLA, outflow rates for various categories of funding, and inflow assumption for various assets (for example, loan repayments). Our liquidity stress test also includes outflows related to intraday liquidity assumptions, which are not explicitly captured in the LCR.

Funding Risk Management

Deutsche Bank's primary tool for monitoring and managing longer term funding risk is the Funding Matrix. The Funding Matrix assesses the Group's structural funding profile for the greater than one year time horizon. To produce the Funding Matrix, all funding-relevant assets and liabilities are mapped into time buckets corresponding to their contractual or modeled maturities. This allows the Group to identify expected excesses and shortfalls in term liabilities over assets in each time bucket, facilitating the management of potential liquidity exposures.

The liquidity profile is based on contractual cash flow information. If the contractual maturity profile of a product does not adequately reflect the liquidity profile, it is replaced by modeling assumptions. Short-term balance sheet items (<1yr) or matched funded structures (asset and liabilities directly matched with no liquidity risk) are excluded from the term analysis.

The bottom-up assessment by individual business line is combined with a top-down reconciliation against the Group's IFRS balance sheet. From the cumulative term profile of assets and liabilities beyond 1 year, long-funded surpluses or short-funded gaps in the Group's maturity structure can be identified. The cumulative profile is thereby built up starting from the greater than 10 year bucket down to the greater than 1 year bucket.

The strategic liquidity planning process, which incorporates the development of funding supply and demand across business units, together with the bank's targeted key liquidity and funding metrics, provides the key input parameter for our annual capital markets issuance plan. Upon approval by the Management Board the capital markets issuance plan establishes issuance targets for securities by tenor, volume, currency and instrument.

Capital Markets Issuance

Debt issuance, encompassing senior unsecured bonds, covered bonds as well as capital securities, is a key source of term funding for the Bank and is managed directly by Treasury. At least once a year Treasury submits an annual long-term Funding Plan to the GRC for recommendation and then to the Management Board for approval. This plan is driven by global and local funding and liquidity requirements based on expected business development. Our capital markets issuance portfolio is dynamically managed through our yearly issuance plans to avoid excessive maturity concentrations.

Net Stable Funding Ratio

The Net Stable Funding Ratio (NSFR) was proposed as part of Basel 3, as the regulatory metric (effective from June 2021) for assessing a bank's structural funding profile. The NSFR is intended to reduce medium to long-term funding risks by requiring banks to maintain a stable funding profile in relation to their on- and off-balance sheet activities. The ratio is defined as the amount of Available Stable Funding (the portion of capital and liabilities expected to be a stable source of funding), relative to the amount of Required Stable Funding (a function of the liquidity characteristics of various assets held).

In October 2019, EBA published draft Implementing Technical Standard (ITS) with regards to supervisory reporting, and has launched a consultation on the templates. The consultation process will run through to January 16, 2020 and includes the NSFR templates too. Deutsche Bank is currently preparing for certain clarifications and proposals to be raised as part of the consultation process which will be submitted through industry bodies. The metric will be embedded into our overall liquidity risk management framework, once NSFR compliance becomes effective on June 28, 2021.

Funding Diversification

Diversification of our funding profile in terms of investor types, regions and products is an important element of our liquidity risk management framework. Our most stable funding sources for which the bank has introduced a minimum risk appetite stem from capital markets issuances and equity, as well as from retail, and transaction banking clients. Other customer deposits and secured funding and short positions are additional sources of funding. Unsecured wholesale funding represents unsecured wholesale liabilities sourced primarily by our Treasury Pool Management. Given the relatively short-term nature of these liabilities, they are primarily used to fund liquid trading assets.

To promote the additional diversification of our refinancing activities, we hold a license allowing us to issue mortgage Pfandbriefe. In addition, we continue to run a program for the purpose of issuing Covered Bonds under Spanish law (Cedulas) and participate in the TLTRO II program.

Unsecured wholesale funding comprises a range of unsecured products, such as Certificate of Deposits (CDs), Commercial Papers (CPs) as well as term, call and overnight deposits across tenors primarily up to one year.

To avoid any unwanted reliance on these short-term funding sources, and to promote a sound funding profile, which complies with the defined risk appetite, we have implemented limits (across tenors) on these funding sources, which are derived from our daily stress testing analysis. In addition, we limit the total volume of unsecured wholesale funding to manage the reliance on this funding source as part of the overall funding diversification.

The chart “Liquidity Risk Exposure: Funding Diversification” shows the composition of our external funding sources that contribute to the liquidity risk position, both in EUR billion and as a percentage of our total external funding sources.

Funds Transfer Pricing

The funds transfer pricing framework applies to all businesses/regions and promotes pricing of (i) assets in accordance with their underlying liquidity risk, (ii) liabilities in accordance with their liquidity value and (iii) contingent liquidity exposures in accordance with the cost of providing for appropriate liquidity reserves.

Within this framework funding and liquidity risk costs and benefits are allocated to the firm's business units based on rates which reflect the economic costs of liquidity for Deutsche Bank. Treasury might set further financial incentives in line with the Bank's liquidity risk guidelines. While the framework promotes a diligent group-wide allocation of the Bank's funding costs to the liquidity users, it also provides an incentive-based framework for businesses generating stable long-term and stress compliant funding.

In the third quarter of 2019, the internal funds transfer pricing (“FTP”) framework was changed in order to enhance its effectiveness as a management tool, as well as to better support funding cost optimization. Additional details are included in Note 4 “Business segments and related information“ of the consolidated financial statements.

Liquidity reserves

Liquidity reserves comprise available cash and cash equivalents, highly liquid securities (includes government and agency bonds and government guarantees) as well as other unencumbered central bank eligible assets.

The volume of our liquidity reserves is a function of our expected daily stress result, both at an aggregate level as well as at an individual currency level. To the extent we receive incremental short-term wholesale liabilities which attract a high stress roll-off, we will largely keep the proceeds of such liabilities in cash or highly liquid securities as a stress mitigant. Accordingly, the total volume of our liquidity reserves will fluctuate as a function of the level of short-term wholesale liabilities held, although this has no material impact on our overall liquidity position under stress. Our liquidity reserves include only assets that are freely transferable or that can be utilized after taking into consideration local liquidity demands within the Group, including local limits on free transferability within the Group, or that can be applied against local entity stress outflows. As a result, our liquidity reserves exclude surplus liquidity held in Deutsche Bank Trust Company Americas due to requirements pursuant to Section 23A of the U.S. Federal Reserve Act and also exclude the surplus liquidity held in other non-fungible entities. Certain intraday requirements are directly deducted in the calculation of the Liquidity Reserves while others are represented as outflows in our internal liquidity model. We hold the vast majority of our liquidity reserves centrally across the major currencies, at our parent and our foreign branch central bank accounts with further reserves held at key locations in which we are active. To ensure a prudent composition of liquidity reserves across asset classes, we maintain minimum cash levels for the material currencies.

Asset Encumbrance

Encumbered assets primarily comprise those on- and off-balance sheet assets that are pledged as collateral against secured funding, collateral swaps, and other collateralized obligations. We generally encumber loans to support long-term capital markets secured issuance such as covered bonds or other self-securitization structures, while financing debt and equity inventory on a secured basis is a regular activity for our Investment Bank business. Additionally, in line with the EBA technical standards on regulatory asset encumbrance reporting, we consider as encumbered assets pledged with settlement systems, including default funds and initial margins, as well as other assets pledged which cannot be freely withdrawn such as mandatory minimum reserves at central banks. We also include derivative margin receivable assets as encumbered under these EBA guidelines.

Business (Strategic) Risk Management

Strategic risk is the risk of a shortfall in earnings (excluding other material risks) due to incorrect business plans (owing to flawed assumptions), ineffective plan execution or a lack of responsiveness to material plan deviations. Strategic risk arises from the exposure of the bank to the macroeconomic environment, changes in the competitive landscape, and regulatory and technological developments. Additionally, it could occur due to errors in strategic positioning, the bank's failure to execute its planned strategy and/or a failure to effectively address under-performance versus plan targets.

A Strategic and Capital plan is developed annually and presented to the Management Board for discussion and approval. The final plan is then presented to the Supervisory Board. During the year, execution of business strategies is regularly monitored to assess the performance against strategic objectives and to seek to ensure we remain on track to achieve targets. A more comprehensive description of this process is detailed in the section 'Strategic and Capital Plan'.

Model Risk Management

Model Risk Management Framework

Model risk is the potential for adverse consequences from decisions based on incorrect or misused model outputs. Model risk can lead to: financial loss, poor business or strategic decision making, or damage to our reputation. Deutsche Bank uses models for a broad range of decision making activities, such as: underwriting credits; valuing exposures, instruments and positions; measuring risk; managing and safeguarding client assets, and determining capital and reserve adequacy. The term 'model' refers to a quantitative method, system, or approach that applies statistical, economic, financial, or mathematical theories, techniques, and assumptions to process input data into quantitative estimates. Models are simplified representations of real-world relationships, and are based on assumptions and judgment. The use of models exposes the bank to model risk which must be identified, measured and managed across the lifecycle of the model.

Model risk management oversight is provided by all levels of management, including the Management Board. Management of model risk is underpinned by a framework designed and monitored by 2nd Line of Defence, including components across the lifecycle of a model. The model risk management framework is formalized within policies and procedures, and overseen by a robust governance structure.

The management of model risk includes:

- Bank-wide model risk related policy and procedures, aligned to regulatory requirements, with clear roles and responsibilities for stakeholders across the model life cycle;
- A model risk governance framework, including senior forums for monitoring and escalation of model risk related topics;
- An inventory of all models, supporting ongoing assessments of model risk;
- Updating the Management Board on the latest risk appetite metrics through the Risk and Capital Profile monthly report; and
- Independent model validation providing effective challenge, identifying models' limitations and weaknesses, resulting in findings and conditions for use, such as adjustments or overlays.

Developments during the reporting period:

In 2019, significant improvements were made to the model risk management framework including:

- Identification, inclusion and enrichment of the Model Inventory, supported by an enhanced model attestation process;
- Alignment and enhancement of Deutsche Bank model risk appetite statement, metrics and thresholds;
- Continued progress in improving the control environment; reflected in the annual risk and control assessment; and
- Establishment of the Group Strategic Analytics function which concentrates the Bank's quantitative and modelling functions within a single unit to deliver an end-to-end quantitative analytics and model delivery function for Deutsche Bank.

In addition, enhancement effort continues to improve the model risk management framework in order to instill a robust and consistent framework that effectively identifies, assesses, monitors and measures model risk. Focus of the effort has spanned across model identification and model inventory, a single coherent policy and governance framework, model development practices, and effective model validation, in order to achieve compliance of regulatory requirements or to meet regulatory expectations.

Reputational Risk Management

Within our risk management process, reputational risk is defined as the risk of possible damage to Deutsche Bank's brand and reputation, and the associated risk to earnings, capital or liquidity arising from any association, action or inaction which could be perceived by stakeholders to be inappropriate, unethical or inconsistent with the Bank's values and beliefs.

Deutsche Bank seeks to ensure that reputational risk is as low as reasonably possible. Reputational risk cannot be precluded as it can be driven by unforeseeable changes in perception of our practices by our various stakeholders (e.g. public, clients, shareholders and regulators). Deutsche Bank strives to promote sustainable standards that will enhance profitability and minimize reputational risk.

The Reputational Risk Framework (the Framework) is in place to manage the process through which active decisions are taken on matters which may pose a reputational risk, before the event, and in doing so to prevent damage to Deutsche Bank's reputation wherever possible. The Framework provides consistent standards for the identification, assessment and management of reputational risk issues. Reputational impacts which may arise as a consequence of a failure from another risk type, control or process are addressed separately via the associated risk type framework.

The modelling and quantitative measurement of reputational risk internal capital is implicitly covered in our economic capital framework primarily within operational and strategic risk.

Governance and Organizational Structure

The Framework is applicable across all Business Divisions and Regions. DWS-specific matters are reviewed by a DWS-dedicated reputational risk committee and escalated to the DWS Executive Board where required.

Whilst every employee has a responsibility to protect our reputation, the primary responsibility for the identification, assessment, management, monitoring and, if necessary, referring or reporting of reputational risk matters lies with Deutsche Bank's Business Divisions as the primary risk owners. Each Business Division has an established process through which matters, which are deemed to be a moderate or greater reputational risk are assessed, the Unit Reputational Risk Assessment Process (Unit RRAP).

The Unit RRAP is required to refer any material reputational risk matters to the respective Regional Reputational Risk Committee (RRRC). The Framework also sets out a number of matters which are considered inherently higher risk from a reputational risk perspective and are therefore mandatory referrals to the RRRCs. The RRRCs, which are 2nd LoD Committees, are responsible for ensuring the oversight, governance and coordination of the management of reputational risk in the respective region of Deutsche Bank. The RRRCs meet, as a minimum, on a quarterly basis with ad hoc meetings as required. The Group Reputational Risk Committee (GRRC) is responsible for ensuring the oversight, governance and coordination of the management of reputational risk at Deutsche Bank on behalf of the Group Risk Committee and the Management Board. Additionally, the GRRC reviews cases with a Group wide impact and in exceptional circumstances, those that could not be resolved at a regional level.

Risk Concentration and Risk Diversification

Risk Concentrations

Risk concentrations refer to clusters of the same or similar risk drivers within specific risk types (intra-risk concentrations in credit, market, operational, liquidity and business risks) as well as across different risk types (inter-risk concentrations). They occur within and across counterparties, businesses, regions/countries, industries and products. The management and monitoring of risk concentrations is achieved through a quantitative and qualitative approach, as follows:

- Intra-risk concentrations are assessed, monitored and mitigated by the individual risk functions (credit, market, operational, liquidity and strategic risk management). This is supported by limit setting on different levels and/or management according to each risk type.
- Inter-risk concentrations are managed through quantitative top-down stress-testing and qualitative bottom-up reviews, identifying and assessing risk themes independent of any risk type and providing a holistic view across the bank.

The most senior governance body for the oversight of risk concentrations throughout 2019 was the Enterprise Risk Committee (ERC), which is a subcommittee of the Group Risk Committee (GRC).

Risk Type Diversification Benefit

The risk type diversification benefit quantifies diversification effects between credit, market, operational and strategic risk in the economic capital calculation. To the extent correlations between these risk types fall below 1.0, a risk type diversification benefit results. The calculation of the risk type diversification benefit is intended to ensure that the standalone economic capital figures for the individual risk types are aggregated in an economically meaningful way.

Risk and capital performance

Capital, Leverage Ratio, TLAC and MREL

Own Funds

The calculation of our own funds incorporates the capital requirements following the “Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms” (Capital Requirements Regulation or “CRR”) and the “Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms” (Capital Requirements Directive or “CRD”) which have been further amended with subsequent Regulations and Directives. The CRD has been implemented into German law. The information in this section as well as in the section “Development of risk-weighted Assets” is based on the regulatory principles of consolidation.

This section refers to the capital adequacy of the group of entities consolidated for banking regulatory purposes pursuant to the CRR and the German Banking Act (“Kreditwesengesetz” or “KWG”). Therein not included are insurance companies or companies outside the finance sector.

The total own funds pursuant to the effective regulations as of year-end 2019 comprises Tier 1 and Tier 2 (T2) capital. Tier 1 capital is subdivided into Common Equity Tier 1 (CET 1) capital and Additional Tier 1 (AT1) capital.

Common Equity Tier 1 (CET 1) capital consists primarily of common share capital (reduced by own holdings) including related share premium accounts, retained earnings (including losses for the financial year, if any) and accumulated other comprehensive income, subject to regulatory adjustments (i.e. prudential filters and deductions), as well as minority interests qualifying for inclusion in consolidated CET1 capital. Prudential filters for CET 1 capital, according to Articles 32 to 35 CRR, include (i) securitization gains on sale, (ii) cash flow hedges and changes in the value of own liabilities, and (iii) additional value adjustments. CET 1 capital deductions for instance includes (i) intangible assets, (ii) deferred tax assets that rely on future profitability, (iii) negative amounts resulting from the calculation of expected loss amounts, (iv) net defined benefit pension fund assets, (v) reciprocal cross holdings in the capital of financial sector entities and, (vi) significant and non-significant investments in the capital (CET 1, AT1, T2) of financial sector entities above certain thresholds. All items not deducted (i.e., amounts below the threshold) are subject to risk-weighting.

Additional Tier 1 (AT1) capital consists of AT1 capital instruments and related share premium accounts as well as noncontrolling interests qualifying for inclusion in consolidated AT1 capital and during the transitional period grandfathered instruments. To qualify as AT1 capital under CRR/CRD, instruments must have principal loss absorption through a conversion to common shares or a write-down mechanism allocating losses at a trigger point and must also meet further requirements (perpetual with no incentive to redeem; institution must have full dividend/coupon discretion at all times, etc.).

Tier 2 (T2) capital comprises eligible capital instruments, the related share premium accounts and subordinated long-term debt, certain loan loss provisions and noncontrolling interests that qualify for inclusion in consolidated T2 capital. To qualify as T2 capital, capital instruments or subordinated debt must have an original maturity of at least five years. Moreover, eligible capital instruments may inter alia not contain an incentive to redeem, a right of investors to accelerate repayment, or a credit sensitive dividend feature. Capital instruments that no longer qualify as AT1 or T2 capital under the fully loaded CRR/CRD applicable until June 26, 2019 are subject to grandfathering rules during the transitional period and are being phased out from 2013 to 2022 with their recognition capped at 40 % in 2018, 30 % in 2019 and the cap decreasing by ten percentage points every year thereafter.

We present certain figures in this report based on our definition of own funds on a “fully loaded” basis. This relates to our Additional Tier 1 capital and Tier 2 capital and figures based thereon, including Tier 1 capital and Leverage Ratio. The term “fully loaded” is defined as excluding the transitional arrangements for own funds introduced by the CRR/CRD applicable until June 26, 2019. However, it reflects the latest transitional arrangements introduced by the amendments to the CRR/CRD applicable from June 27, 2019. We believe that these “fully loaded” calculations provide useful information to investors as they reflect our progress against the regulatory capital standards and as many of our competitors have been describing calculations on a “fully loaded” basis. As our competitors’ assumptions and estimates regarding “fully loaded” calculations may vary, however, our “fully loaded” measures may not be comparable with similarly labelled measures used by our competitors.

Capital instruments

Our Management Board received approval from the 2018 Annual General Meeting to buy back up to 206.7 million shares before the end of April 2023. Thereof 103.3 million shares can be purchased by using derivatives, this includes 41.3 million derivatives with a maturity exceeding 18 months. During the period from the 2018 Annual General Meeting until the 2019 Annual General Meeting (May 23, 2019), 24.3 million shares were purchased. The shares purchased were used for equity compensation purposes in the same period or are to be used in the upcoming period so that the number of shares held in Treasury from buybacks was 1.7 million as of the 2019 Annual General Meeting.

The 2019 Annual General Meeting granted our Management Board the approval to buy back up to 206.7 million shares before the end of April 2024. Thereof 103.3 million shares can be purchased by using derivatives, this includes 41.3 million derivatives with a maturity exceeding 18 months. These authorizations substitute the authorizations of the previous year. During the period from the 2019 Annual General Meeting until December 31, 2019, 8.3 million shares were purchased. The shares purchased are to be used in the upcoming period so that the number of shares held in Treasury from buybacks was 0.7 million as of December 31, 2019.

Since the 2017 Annual General Meeting, and as of December 31, 2019, authorized capital available to the Management Board is €2,560 million (1,000 million shares). As of December 31, 2019, the conditional capital against cash stands at €512 million (200 million shares). Additional conditional capital for equity compensation amounts to €51.2 million (20 million shares). Further, the 2018 Annual General Meeting authorized the issuance of participatory notes and other Hybrid Debt Securities that fulfill the regulatory requirements to qualify as Additional Tier 1 capital with an equivalent value of €8.0 billion.

Our legacy Hybrid Tier 1 capital instruments (substantially all noncumulative trust preferred securities) are not recognized under fully loaded CRR/CRD rules as Additional Tier 1 capital, mainly because they have no write-down or equity conversion feature. However, they are recognized as Additional Tier 1 capital under CRR/CRD transitional provisions and can still be recognized as Tier 2 capital under the fully loaded CRR/CRD rules. During the transitional phase-out period the maximum recognizable amount of Additional Tier 1 instruments from Basel 2.5 compliant issuances as of December 31, 2012 will be reduced at the beginning of each financial year by 10 % or €1.3 billion, through 2022. For December 31, 2019, this resulted in eligible Additional Tier 1 instruments of €6.4 billion (i.e. €4.6 billion newly issued AT1 Notes plus €1.8 billion of legacy Hybrid Tier 1 instruments recognizable during the transition period). €1.8 billion of the legacy Hybrid Tier 1 instruments can still be recognized as Tier 2 capital under the fully loaded CRR/CRD rules. Additional Tier 1 instruments recognized under fully loaded CRR/CRD rules amounted to €4.6 billion as of December 31, 2019. In 2019, the bank redeemed one legacy Hybrid Tier 1 instrument with a notional of U.S. \$ 1.4 billion and an eligible equivalent amount of €1.2 billion.

The total of our Tier 2 capital instruments as of December 31, 2019 recognized during the transition period under CRR/CRD was €6.0 billion. As of December 31, 2019, there were no legacy Hybrid Tier 1 instruments that are counted as Tier 2 capital under transitional rules. The gross notional value of the Tier 2 capital instruments was €7.4 billion. Tier 2 instruments recognized under fully loaded CRR/CRD rules amounted to €7.8 billion as of December 31, 2019 (including the €1.8 billion legacy Hybrid Tier 1 capital instruments only recognizable as Additional Tier 1 capital during the transitional period).

Minimum capital requirements and additional capital buffers

The Pillar 1 CET 1 minimum capital requirement applicable to the Group is 4.50 % of risk-weighted assets (RWA). The Pillar 1 total capital requirement of 8.00 % demands further resources that may be met with up to 1.50 % Additional Tier 1 capital and up to 2.00 % Tier 2 capital.

Failure to meet minimum capital requirements can result in supervisory measures such as restrictions of profit distributions or limitations on certain businesses such as lending. We complied with the regulatory capital adequacy requirements in 2019.

In addition to these minimum capital requirements, the following combined capital buffer requirements are fully effective beginning 2019 onwards. The buffer requirements must be met in addition to the Pillar 1 minimum capital requirements, but can be drawn down in times of economic stress.

Deutsche Bank continues to be designated as a global systemically important institution (G-SII) by the German Federal Financial Supervisory Authority (BaFin) in agreement with the Deutsche Bundesbank, resulting in a G-SII buffer requirement of 2.00 % CET 1 capital of RWA in 2019. This is in line with the FSB assessment of systemic importance based on the indicators as published in 2018. According to the recent FSB assessment based on the indicators as published in 2019, the G-SII buffer requirement for Deutsche Bank is reduced to 1.50 %, which will become effective from January 1, 2021. We will continue to publish our indicators on our website.

The capital conservation buffer is implemented in Section 10c German Banking Act, based on Article 129 CRD and equals a requirement of 2.50 % CET 1 capital of RWA in 2019 and onwards.

The countercyclical capital buffer is deployed in a jurisdiction when excess credit growth is associated with an increase in system-wide risk. It may vary between 0 % and 2.50 % CET 1 capital of RWA by 2020. In exceptional cases, it could also be higher than 2.50 %. The institution-specific countercyclical buffer that applies to Deutsche Bank is the weighted average of the countercyclical capital buffers that apply in the jurisdictions where our relevant credit exposures are located. As per December 31, 2019, the institution-specific countercyclical capital buffer was at 0.08 %.

In addition to the aforementioned buffers, national authorities, such as the BaFin, may require a systemic risk buffer to prevent and mitigate long-term non-cyclical systemic or macro-prudential risks that are not covered by the CRR. They can require an additional buffer of up to 5.00 % CET 1 capital of RWA. As of the year-end 2019, no systemic risk buffer applied to Deutsche Bank.

Additionally, Deutsche Bank AG has been classified by the BaFin as an Other Systemically Important Institution (O-SII) with an additional buffer requirement of 2.00 % that has to be met on a consolidated level. For Deutsche Bank, the O-SII buffer amounts to 2.00 % in 2019. Unless certain exceptions apply, only the higher of the systemic risk buffer (as of December 31, 2019, not applicable), G-SII buffer and O-SII buffer must be applied.

In addition, pursuant to the Pillar 2 Supervisory Review and Evaluation Process (SREP), the European Central Bank (ECB) may impose capital requirements on individual banks which are more stringent than statutory requirements (so-called Pillar 2 requirement). On February 8, 2019, Deutsche Bank was informed by the ECB of its decision regarding prudential minimum capital requirements for 2019, following the results of the 2018 SREP. Beginning from January 1, 2019, the decision requires Deutsche Bank to maintain a CET 1 ratio, which as of December 31, 2019 is at least 11.83 % on a consolidated basis. This requirement on CET 1 capital comprises the Pillar 1 minimum capital requirement of 4.50 %, the Pillar 2 requirement (SREP Add-on) of 2.75 %, the combined capital buffer requirement comprising of capital conservation buffer of 2.50 %, the countercyclical buffer of 0.08 % (as per December 31, 2019) and the G-SII capital buffer of 2.00 %. Correspondingly the requirements for Deutsche Bank's Tier 1 capital ratio were at 13.33 % and total capital ratio at 15.33 % as of December 31, 2019.

On December 9, 2019, Deutsche Bank was informed by the ECB of its decision regarding prudential minimum capital requirements for 2020, following the results of the 2019 SREP. The decision acknowledges the progress Deutsche Bank has made since the first SREP assessment in 2016 and requires Deutsche Bank to maintain a CET1 ratio of at least 11.58 % on a consolidated basis, beginning on January 1, 2020. The decrease is attributable to the reduction in the ECB's Pillar 2 requirement (SREP Add-on) from 2.75% to 2.50% which will become effective January 1, 2020. The CET 1 capital requirement comprises the Pillar 1 minimum capital requirement of 4.50 %, the reduced Pillar 2 requirement of 2.50 %, the combined capital buffer requirement comprising of capital conservation buffer of 2.50 %, the countercyclical buffer (0.08 % expected for beginning of 2020) and the G-SII buffer of 2.00 %. Correspondingly, 2020 requirements for Deutsche Bank's Tier 1 capital ratio are at 13.08 % and for its total capital ratio at 15.08 %. Also, following the results of the 2019 SREP, the ECB communicated to Deutsche Bank an individual expectation to hold a further Pillar 2 CET 1 capital add-on, commonly referred to as the Pillar 2 guidance. The capital add-on pursuant to the Pillar 2 guidance is separate from and in addition to the Pillar 2 requirement. The ECB has stated that it expects banks to meet the Pillar 2 guidance although it is not legally binding, and failure to meet the Pillar 2 guidance does not lead to automatic restrictions of capital distributions.

The following table gives an overview of the different Pillar 1 and Pillar 2 minimum capital requirements (but excluding the Pillar 2 guidance) as well as capital buffer requirements applicable to Deutsche Bank in the years 2019 and 2020:

Overview total capital requirements and capital buffers

	2019	2020
Pillar 1		
Minimum CET 1 requirement	4.50 %	4.50 %
Combined buffer requirement	4.58 %	4.58 %
Capital Conservation Buffer	2.50 %	2.50 %
Countercyclical Buffer	0.08 %	0.08 % ¹
Maximum of:	2.00 %	2.00 %
G-SII Buffer	2.00 %	2.00 %
O-SII Buffer	2.00 %	2.00 %
Systemic Risk Buffer	0.00 %	0.00 %
Pillar 2		
Pillar 2 SREP Add-on of CET 1 capital (excluding the "Pillar 2" guidance)	2.75 %	2.50 %
Total CET 1 requirement from Pillar 1 and 2³	11.83 %	11.58 %
Total Tier 1 requirement from Pillar 1 and 2	13.33 %	13.08 %
Total capital requirement from Pillar 1 and 2	15.33 %	15.08 %

¹ Deutsche Bank's countercyclical buffer requirement is subject to country-specific buffer rates decreed by EBA and the Basel Committee of Banking Supervision (BCBS) as well as Deutsche Bank's relevant credit exposures as per respective reporting date. The countercyclical buffer rate for 2020 has been assumed to be 0.08 % as per beginning of the year 2020. The countercyclical buffer is subject to changes throughout the year depending on its constituents.

² The systemic risk buffer has been assumed to remain at 0 % for the projected year 2020, subject to changes based on further directives.

³ The total Pillar 1 and Pillar 2 CET 1 requirement (excluding the "Pillar 2" guidance) is calculated as the sum of the SREP requirement, the higher of the G-SII, O-SII and systemic risk buffer requirement as well as the countercyclical buffer requirement.

Further, assuming an unchanged regional portfolio structure of Deutsche Bank's risk weighted assets, already known countercyclical buffer requirements as announced for Germany (0.25% as of July 1, 2020) and for United Kingdom (increasing from 1.0% to 2.0 % as of December 16, 2020), will increase our weighted countercyclical buffer requirement to approximately 0.23% by year end 2020. We note that the announced countercyclical buffer requirement is subject to changes throughout the year.

Development of Own Funds

Our CRR/CRD Tier 1 capital amounted to €50.5 billion as of December 31, 2019, consisting of CET 1 capital of €44.1 billion and AT1 capital of €6.4 billion. The Tier 1 capital was €4.5 billion lower than at the end of 2018, driven by decrease in CET 1 capital of €3.3 billion and decrease in AT1 capital of €1.2 billion since year end 2018.

The CET 1 capital decrease of €3.3 billion was primarily driven by € 5.4 billion net loss attributable to Deutsche Bank shareholders and additional equity components as of December 31, 2019. The € 5.4 billion net loss was largely attributable to transformation-related deferred tax asset valuation adjustments and the impairment of goodwill and other intangible assets and these resulted in an offsetting positive counter-effect of € 3.4 billion in capital-terms as respective deductions of goodwill and other intangible assets lowered by €2.1 billion and for deferred tax assets by € 1.6 billion, partly offset with negative effect from 10% threshold related deduction of € 0.3 billion. Further decrease in our CET1 capital resulted from re-measurement losses related to defined benefit pension plan of €0.7 billion and capital deduction related to regular ECB review, which as of December 31, 2019 was €0.4 billion. In the second quarter of 2019, our CET 1 capital was reduced by €0.6 billion due to the payment of our common share dividends for the financial year 2018 (€0.11/share following the Annual General Meeting) and the yearly AT1 coupon payment, which was partially offset by year end 2018 dividend and AT1 accruals of €0.3 billion following Article 26(2) of Regulation (EU) No 575/2013 and as per ECB decision (EU) 2015/4. Since we did not include an interim profit in our CET 1 capital as a consequence of the negative net income in financial year 2019, no AT1 coupons were accrued in CET 1 capital in accordance with Article 26 (2) CRR.

The € 1.2 billion decrease in AT1 capital was mainly the result of call and redemption of one Legacy Hybrid Tier 1 instrument, recognizable as AT1 capital during the transition period, with a notional amount of € 1.2 billion in the fourth quarter of 2019.

Our fully loaded CRR/CRD Tier 1 capital as of December 31, 2019 was €48.7 billion, compared to €52.1 billion at the end of 2018. Our fully loaded Additional Tier 1 capital amounted to € 4.6 billion as per end of December 2019, unchanged compared to year end 2018. Our CET 1 capital amounted to €44.1 billion as of December 31, 2019, compared to €47.5 billion as of December 31, 2018.

Own Funds Template (incl. RWA and capital ratios)

in € m.	Dec 31, 2019		Dec 31, 2018	
	CRR/CRD fully-loaded	CRR/CRD	CRR/CRD fully loaded	CRR/CRD
Common Equity Tier 1 (CET 1) capital: instruments and reserves				
Capital instruments, related share premium accounts and other reserves	45,780	45,780	45,515	45,515
Retained earnings	14,814	14,814	16,297	16,297
Accumulated other comprehensive income (loss), net of tax	537	537	382	382
Independently reviewed interim profits net of any foreseeable charge or dividend ¹	(5,390)	(5,390)	0	0
Other	837	837	846	846
Common Equity Tier 1 (CET 1) capital before regulatory adjustments	56,579	56,579	63,041	63,041
Common Equity Tier 1 (CET 1) capital: regulatory adjustments				
Additional value adjustments (negative amount)	(1,738)	(1,738)	(1,504)	(1,504)
Other prudential filters (other than additional value adjustments)	(150)	(150)	(329)	(329)
Goodwill and other intangible assets (net of related tax liabilities) (negative amount)	(6,515)	(6,515)	(8,566)	(8,566)
Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liabilities where the conditions in Art. 38 (3) CRR are met) (negative amount)	(1,126)	(1,126)	(2,758)	(2,758)
Negative amounts resulting from the calculation of expected loss amounts	(259)	(259)	(367)	(367)
Defined benefit pension fund assets (net of related tax liabilities) (negative amount)	(892)	(892)	(1,111)	(1,111)
Direct, indirect and synthetic holdings by an institution of own CET 1 instruments (negative amount)	(15)	(15)	(25)	(25)
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above the 10 % / 15 % thresholds and net of eligible short positions) (negative amount)	0	0	0	0
Deferred tax assets arising from temporary differences (net of related tax liabilities where the conditions in Art. 38 (3) CRR are met) (amount above the 10 % / 15 % thresholds) (negative amount)	(319)	(319)	0	0
Other regulatory adjustments ²	(1,417)	(1,417)	(895)	(895)
Total regulatory adjustments to Common Equity Tier 1 (CET 1) capital	(12,430)	(12,430)	(15,555)	(15,555)
Common Equity Tier 1 (CET 1) capital	44,148	44,148	47,486	47,486
Additional Tier 1 (AT1) capital: instruments				
Capital instruments and the related share premium accounts	4,676	4,676	4,676	4,676
Amount of qualifying items referred to in Art. 484 (4) CRR and the related share premium accounts subject to phase out from AT1	N/M	1,813	N/M	3,009
Additional Tier 1 (AT1) capital before regulatory adjustments	4,676	6,489	4,676	7,685
Additional Tier 1 (AT1) capital: regulatory adjustments				
Direct, indirect and synthetic holdings by an institution of own AT1 instruments (negative amount)	(91)	(91)	(80)	(80)
Residual amounts deducted from AT1 capital with regard to deduction from CET 1 capital during the transitional period pursuant to Art. 472 CRR	N/M	N/M	N/M	N/M
Other regulatory adjustments	0	0	0	0
Total regulatory adjustments to Additional Tier 1 (AT1) capital	(91)	(91)	(80)	(80)
Additional Tier 1 (AT1) capital	4,584	6,397	4,595	7,604
Tier 1 capital (T1 = CET 1 + AT1)	48,733	50,546	52,082	55,091
Tier 2 (T2) capital	7,770³	5,957	9,211	6,202
Total capital (TC = T1 + T2)	56,503³	56,503	61,292	61,292
Total risk-weighted assets	324,015	324,015	350,432	350,432
Capital ratios				
Common Equity Tier 1 capital ratio (as a percentage of risk-weighted assets)	13.6	13.6	13.6	13.6
Tier 1 capital ratio (as a percentage of risk-weighted assets)	15.0	15.6	14.9	15.7
Total capital ratio (as a percentage of risk-weighted assets)	17.4 ³	17.4	17.5	17.5

N/M – Not meaningful

¹ No interim profits to be recognized as per ECB Decision (EU) 2015/656 in accordance with the Article 26(2) of Regulation (EU) No 575/2013 (ECB/2015/4).

² Includes € 0.4 billion capital deduction effective from April 2019 and € 0.3 billion effective from October 2016 based on regular ECB review and € 0.8 billion capital deduction based on ECB guidance on irrevocable payment commitments related to the Single Resolution Fund and the Deposit Guarantee Scheme effective from January 2018 onwards.

³ The term "fully loaded" is defined as excluding the transitional arrangements for own funds introduced by the CRR/CRD applicable until June 26, 2019. The grandfathered instruments are recognized under AT1 instruments under transitional rule until end of 2021. However starting 2022 these instruments will be de-recognized from regulatory capital based on CRR/CRD regulations which is effective from June 27, 2019 and which will reduce the "fully loaded" Tier2 capital by € 2.1 billion.

Reconciliation of shareholders' equity to Own Funds

in € m.	CRR/CRD	
	Dec 31, 2019	Dec 31, 2018
Total shareholders' equity per accounting balance sheet	55,857	62,495
Deconsolidation/Consolidation of entities	(116)	(33)
Of which:		
Additional paid-in capital	(12)	(12)
Retained earnings	(220)	(150)
Accumulated other comprehensive income (loss), net of tax	116	130
Total shareholders' equity per regulatory balance sheet	55,741	62,462
Minority Interests (amount allowed in consolidated CET 1)	837	846
Accrual for dividend and AT1 coupons ¹	0	(267)
Reversal of deconsolidation/consolidation of the position Accumulated other comprehensive income (loss), net of tax, during transitional period	0	0
Common Equity Tier 1 (CET 1) capital before regulatory adjustments	56,579	63,041
Additional value adjustments	(1,738)	(1,504)
Other prudential filters (other than additional value adjustments)	(150)	(329)
Regulatory adjustments relating to unrealized gains and losses pursuant to Art. 467 and 468 CRR	0	0
Goodwill and other intangible assets (net of related tax liabilities) (negative amount)	(6,515)	(8,566)
Deferred tax assets that rely on future profitability	(1,445)	(2,758)
Defined benefit pension fund assets (net of related tax liabilities) (negative amount)	(892)	(1,111)
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	0	0
Other regulatory adjustments ²	(1,692)	(1,287)
Common Equity Tier 1 capital	44,148	47,486

¹ No interim profits to be recognized as per ECB Decision (EU) 2015/656 in accordance with the Article 26(2) of Regulation (EU) No 575/2013 (ECB/2015/4).

² Includes € 0.4 billion capital deduction effective from April 2019 and € 0.3 billion effective from October 2016 based on regular ECB review, € 0.8 billion capital deduction based on ECB guidance on irrevocable payment commitments related to the Single Resolution Fund and the Deposit Guarantee Scheme effective from January 2018 onwards, € 0.3 billion negative amounts resulting from the calculation of expected loss amounts and € 15 million from Direct, indirect and synthetic holdings by an institution of own CET1 instruments.

Development of Own Funds

in € m.	CRR/CRD	
	twelve months ended Dec 31, 2019	twelve months ended Dec 31, 2018
Common Equity Tier 1 (CET 1) capital - opening amount	47,486	50,808
Common shares, net effect	0	0
Additional paid-in capital	253	327
Retained earnings	(6,873)	(662)
Common shares in treasury, net effect/(+) sales (-) purchase	11	(6)
Movements in accumulated other comprehensive income	155	(134)
Accrual for dividend and Additional Tier 1 (AT1) coupons ¹	0	(267)
Additional value adjustments	(234)	(299)
Goodwill and other intangible assets (net of related tax liabilities) (negative amount)	2,051	(1,850)
Deferred tax assets that rely on future profitability (excluding those arising from temporary differences)	1,632	(355)
Negative amounts resulting from the calculation of expected loss amounts	108	41
Defined benefit pension fund assets (net of related tax liabilities) (negative amount)	219	(211)
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	0	0
Securitization positions not included in risk-weighted assets	0	0
Deferred tax assets arising from temporary differences (amount above 10 % and 15 % threshold, net of related tax liabilities where the conditions in Art. 38 (3) CRR are met)	(319)	0
Other, including regulatory adjustments	(341)	95
Common Equity Tier 1 (CET 1) capital - closing amount	44,148	47,486
Additional Tier 1 (AT1) Capital - opening amount	7,604	6,823
New Additional Tier 1 eligible capital issues	0	0
Matured and called instruments	(1,210)	(1,008)
Transitional arrangements	0	1,730
Of which:		
Goodwill and other intangible assets (net of related tax liabilities)	0	1,679
Other, including regulatory adjustments	3	59
Additional Tier 1 (AT1) Capital - closing amount	6,397	7,604
Tier 1 capital	50,546	55,091
Tier 2 (T2) capital - closing amount	5,957	6,202
Total regulatory capital	56,503	61,292

¹ No interim profits to be recognized as per ECB Decision (EU) 2015/656 in accordance with the Article 26(2) of Regulation (EU) No 575/2013 (ECB/2015/4).

Development of risk-weighted assets

The table below provides an overview of RWA broken down by risk type and business division. They include the aggregated effects of the segmental reallocation of infrastructure related positions, if applicable, as well as reallocations between the segments.

Risk-weighted assets by risk type and business division

							Dec 31, 2019
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total
Credit Risk	48,633	69,507	66,925	4,873	13,155	17,967	221,060
Settlement Risk	0	192	0	0	6	44	242
Credit Valuation Adjustment (CVA)	48	2,009	103	56	2,450	17	4,683
Market Risk	530	20,390	89	28	4,331	0	25,368
Operational Risk	7,312	26,525	8,325	4,570	25,931	0	72,662
Total	56,522	118,622	75,442	9,527	45,874	18,029	324,015

							Dec 31, 2018
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total
Credit Risk	48,059	63,981	59,564	5,236	20,028	15,958	212,827
Settlement Risk	0	2	0	0	37	47	86
Credit Valuation Adjustment (CVA)	33	3,363	195	111	4,254	40	7,997
Market Risk	438	24,923	89	0	12,085	0	37,535
Operational Risk	9,632	32,141	9,460	5,017	35,739	0	91,989
Total	58,162	124,410	69,308	10,365	72,144	16,045	350,432

Our RWA were €324.0 billion as of December 31, 2019, compared to €350.4 billion at the end of 2018. The decrease of €26.4 billion was primarily driven by lower RWA for operational and market risk partly offset by increased RWA for credit risk. The operational risk RWA reduction by €19.3 billion was mainly driven by model refinements as well as better internal and external loss profiles. The market risk RWA reduction of €12.2 billion primarily resulted from decreases in risk exposures within the different components stemming from de-risking activities across the year. Furthermore CVA RWA decreased by €3.3 billion as a result of methodology-related changes and decreases in risk exposures. The credit risk RWA increased by €8.2 billion from business growth in our core businesses as well as the introduction of IFRS 16 and FX related movements of €2.1 billion. Additionally, the credit risk RWA increase reflects methodology and regulatory updates along with parameter recalibrations.

The tables below provide an analysis of key drivers for risk-weighted asset movements observed for credit risk, credit valuation adjustments as well as market and operational risk in the reporting period. They also show the corresponding movements in capital requirements, derived from the RWA by an 8 % capital ratio.

Development of risk-weighted assets for Credit Risk including Counterparty Credit Risk

in € m.	Dec 31, 2019		Dec 31, 2018	
	Credit risk RWA	Capital requirements	Credit risk RWA	Capital requirements
Credit risk RWA balance, beginning of year	212,827	17,026	214,142	17,131
Book size	3,192	255	4,086	327
Book quality	(4,700)	(376)	(3,314)	(265)
Model updates	4,867	389	(1,357)	(109)
Methodology and policy	2,693	215	(976)	(78)
Acquisition and disposals	(300)	(24)	(1,653)	(132)
Foreign exchange movements	2,069	166	2,536	203
Other	413	33	(637)	(51)
Credit risk RWA balance, end of year	221,060	17,685	212,827	17,026

Of which: Development of risk-weighted assets for Counterparty Credit Risk

in € m.	Dec 31, 2019		Dec 31, 2018	
	Counterparty credit risk RWA	Capital requirements	Counterparty credit risk RWA	Capital requirements
Counterparty credit risk RWA balance, beginning of year	25,282	2,023	33,924	2,714
Book size	(1,708)	(137)	(8,235)	(659)
Book quality	(12)	(1)	104	8
Model updates	318	25	(850)	(68)
Methodology and policy	(507)	(41)	0	0
Acquisition and disposals	0	0	0	0
Foreign exchange movements	326	26	339	27
Other	0	0	0	0
Counterparty credit risk RWA balance, end of year	23,698	1,896	25,282	2,023

The classifications of key drivers for the RWA credit risk development table are fully aligned with the recommendations of the Enhanced Disclosure Task Force (EDTF). Organic changes in our portfolio size and composition are considered in the category "Book size". The category "Book quality" mainly represents the effects from portfolio rating migrations, loss given default, model parameter recalibrations as well as collateral and netting coverage activities. "Model updates" include model refinements and advanced model roll out. RWA movements resulting from externally, regulatory-driven changes, e.g. applying new regulations, are considered in the "Methodology and policy" section. "Acquisition and disposals" is reserved to show significant exposure movements which can be clearly assigned to new businesses or disposal-related activities. Changes that cannot be attributed to the above categories are reflected in the category "Other".

The increase in RWA for credit risk by 3.9 % or € 8.2 billion since December 31, 2018 is mainly driven by methodology and policy as well as model related changes and book size. The category "Methodology and policy" reflects mainly the impact of the introduction of IFRS 16. The category "Model updates" reflects the outcome of the Asset Quality Review and refinements to our risk model methods based on regulatory updates. The increase in the category "Book size" reflects business growth in our core Business segments, in addition to an increase resulting from foreign exchange movements. These increases were partly offset by the category "Book quality" which includes reductions resulting from parameter recalibrations and data enhancements. Furthermore, "Acquisition and disposals" provides the reduction in credit risk RWA, which is related to the partial sale of our Portugal retail business.

The decrease in counterparty credit risk is mainly driven by trade terminations as well as data and collateral enhancements across the businesses. In addition the category "Methodology and policy" contributed to the overall decrease which includes the impact from refinements in the accounting treatment for derivatives.

Based on the CRR/CRD regulatory framework, we are required to calculate RWA using the CVA which takes into account the credit quality of our counterparties. RWA for CVA covers the risk of mark-to-market losses on the expected counterparty risk in connection with OTC derivative exposures. We calculate the majority of the CVA based on our own internal model as approved by the BaFin.

Development of risk-weighted assets for Credit Valuation Adjustment

in € m.	Dec 31, 2019		Dec 31, 2018	
	CVA RWA	Capital requirements	CVA RWA	Capital requirements
CVA RWA balance, beginning of year	7,997	640	6,451	516
Movement in risk levels	(1,423)	(114)	(770)	(62)
Market data changes and recalibrations	0	0	0	0
Model updates	0	0	0	0
Methodology and policy	(1,891)	(151)	2,028	162
Acquisitions and disposals	0	0	0	0
Foreign exchange movements	0	0	288	23
CVA RWA balance, end of year	4,683	374	7,997	640

The development of CVA RWA is broken down into a number of categories: "Movement in risk levels", which includes changes to the portfolio size and composition; "Market data changes and calibrations", which includes changes in market data levels and volatilities as well as recalibrations; "Model updates" refers to changes to either the IMM credit exposure models or the value-at-risk models that are used for CVA RWA; "Methodology and policy" relates to changes to the regulation. Any significant business acquisitions or disposals would be presented in the category with that name.

As of December 31, 2019, the RWA for CVA amounted to €4.7 billion, representing a decrease of €3.3 billion (41 %) compared with €8.0 billion for December 31, 2018. The overall decrease was primarily driven by methodology/policy changes and de-risking of the portfolio.

Development of risk-weighted assets for Market Risk

in € m.							Dec 31, 2019	
	VaR	SVaR	IRC	CRM	Other	Total RWA	Total capital requirements	
Market risk RWA balance, beginning of year	5,368	16,426	10,068	0	5,673	37,535	3,003	
Movement in risk levels	(1,021)	(1,879)	(5,222)	0	(2,973)	(11,095)	(888)	
Market data changes and recalibrations	(81)	0	0	0	(315)	(396)	(32)	
Model updates/changes	7	(813)	22	0	0	(784)	(63)	
Methodology and policy	0	0	0	0	120	120	10	
Acquisitions and disposals	0	0	0	0	0	0	0	
Foreign exchange movements	0	0	0	0	(11)	(11)	(1)	
Other	0	0	0	0	0	0	0	
Market risk RWA balance, end of year	4,273	13,734	4,868	0	2,493	25,368	2,029	

in € m.							Dec 31, 2018	
	VaR	SVaR	IRC	CRM	Other	Total RWA	Total capital requirements	
Market risk RWA balance, beginning of year	4,380	10,896	9,871	56	5,763	30,966	2,477	
Movement in risk levels	799	4,562	1,174	(3)	903	7,435	595	
Market data changes and recalibrations	(51)	0	0	0	(165)	(215)	(17)	
Model updates/changes	108	431	80	0	(200)	420	34	
Methodology and policy	131	537	(1,057)	(53)	(500)	(941)	(75)	
Acquisitions and disposals	0	0	0	0	(223)	(223)	(18)	
Foreign exchange movements	0	0	0	0	94	94	8	
Other	0	0	0	0	0	0	0	
Market risk RWA balance, end of year	5,368	16,426	10,068	0	5,673	37,535	3,003	

The analysis for market risk covers movements in our internal models for value-at-risk (VaR), stressed value-at-risk (SVaR), incremental risk charge (IRC) and comprehensive risk measure (CRM) as well as results from the market risk standardized approach, which are captured in the table under the category "Other". The market risk standardized approach covers trading securitizations and nth-to-default derivatives, longevity exposures, relevant Collective Investment Undertakings and market risk RWA from Postbank.

The market risk RWA movements due to changes in market data levels, volatilities, correlations, liquidity and ratings are included under the "Market data changes and recalibrations" category. Changes to our market risk RWA internal models, such as methodology enhancements or risk scope extensions, are included in the category of "Model updates". In the "Methodology and policy" category we reflect regulatory driven changes to our market risk RWA models and calculations. Significant new businesses and disposals would be assigned to the line item "Acquisition and disposals". The impacts of "Foreign exchange movements" are only calculated for the CRM and Standardized approach methods.

As of December 31, 2019 the RWA for market risk was €25.4 billion which has decreased by €12.2 billion (-32 %) since December 31, 2018. The reduction was driven by the "Movement in risk levels" category. De-risking activity, particularly following the change in strategy in the second half of the year, led to lower levels of exposure that can be seen across of all the Market Risk components. Incremental risk charge has the greatest reduction, partly impacted by a high level at the end of December 2018 due to Asian sovereign exposures that were soon exited. Large reductions were also seen in stressed value-at-risk and the market risk standardized component for securitization positions.

Development of risk-weighted assets for operational risk

in € m.	Dec 31, 2019		Dec 31, 2018	
	Operational risk RWA	Capital requirements	Operational risk RWA	Capital requirements
Operational risk RWA balance, beginning of year	91,989	7,359	91,610	7,329
Loss profile changes (internal and external)	(8,185)	(655)	(2,847)	(228)
Expected loss development	1,747	140	5,407	433
Forward looking risk component	1,879	150	484	39
Model updates	(14,768)	(1,181)	(2,666)	(213)
Methodology and policy	0	0	0	0
Acquisitions and disposals	0	0	0	0
Operational risk RWA balance, end of year	72,662	5,813	91,989	7,359

Changes in internal and external loss events are reflected in the category "Loss profile changes". The category "Expected loss development" is based on divisional business plans as well as historical losses and is deducted from the AMA capital figure within certain constraints. The category "Forward looking risk component" reflects qualitative adjustments and, as such, the effectiveness and performance of the day-to-day operational risk management activities via NFR appetite metrics and RCA scores, focusing on the business environment and internal control factors. The category "Model updates" covers model refinements, such as the implementation of model changes. The category "Methodology and policy" represents externally driven changes such as regulatory add-ons. The category "Acquisition and disposals" represents significant exposure movements which can be clearly assigned to new or disposed businesses.

The overall RWA decrease of € 19.3 billion was driven by several effects. A reduced litigation intensity throughout the industry as well as provision and legal forecast levels below previous years for Deutsche Bank led to a lighter loss profile feeding into our capital model. These loss profile changes (internal and external) reduced our RWA for Operational Risk by € 8.2 billion.

Moreover, three main drivers necessitated model updates: new regulations, such as the AMA Regulatory Technical Standards (RTS), de-risking before and during the Group's transformation, as well as improved capture of risk profile (including improved model inputs related to financial planning, the risk appetite framework, and the risk and control assessments). These resulted in an overall RWA decrease of € 14.8 billion. Specifically, the model updates aligned our expected loss deductible with the AMA RTS and more granular financial planning, adjusted our external loss data selection to the Group's reduced business footprint and aligned the application of inflation adjustment with the AMA RTS.

The decreases outlined above lead to a related reduction in the capital reducing components, in particular the expected loss deductible and the forward looking component. The expected loss deductible reduction was additionally driven by a positive outlook of operational risk loss development, leading to an RWA increase of € 1.7 billion. The forward looking component was additionally adversely impacted by slightly weaker risk appetite metrics and risk assessment scores, resulting in an RWA increase of € 1.9 billion.

Economic Capital

Economic Capital Adequacy

Our internal capital adequacy assessment process (ICAAP) aims at maintaining the continuity of Deutsche Bank on an ongoing basis. We assess our internal capital adequacy from an economic perspective as the ratio of our economic capital supply divided by our internal economic capital demand as shown in the table below.

Total economic capital supply and demand

in € m. (unless stated otherwise)	Dec 31, 2019	Dec 31, 2018
Components of economic capital supply		
Shareholders' equity	55,857	62,495
Noncontrolling interests ¹	953	900
AT1 coupons accruals	(222)	(218)
Gain on sale of securitisations, cash flow hedges	(23)	(26)
Fair value gains on own debt and debt valuation adjustments, subject to own credit risk	(127)	(304)
Additional valuation adjustments	(1,738)	(1,504)
Intangible assets	(7,029)	(9,141)
IFRS deferred tax assets excl. temporary differences	(1,254)	(3,090)
Expected loss shortfall	(259)	(367)
Defined benefit pension fund assets ²	(892)	(1,111)
Holdings of own common equity tier 1 capital instruments	(0)	(11)
Other adjustments ³	(1,417)	(1,122)
Additional tier 1 equity instruments ⁴	3,732	4,675
Economic capital supply	47,581	51,176
Components of economic capital demand		
Credit risk	10,757	10,610
Market risk	11,767	10,341
Operational risk	5,813	7,359
Business risk	6,374	4,758
Diversification benefit	(5,535)	(6,960)
Total economic capital demand	29,176	26,108
Economic capital adequacy ratio	163 %	196 %

¹ Includes noncontrolling interest up to the economic capital requirement for each subsidiary.

² Reported as net assets (assets minus liabilities) of pension funds with overfunding.

³ Includes € 0.4 billion capital deduction effective from April 2019 and € 0.3 billion effective from October 2016 based on regular ECB review and € 0.8 billion capital deduction based on ECB guidance on irrevocable payment commitments related to the Single Resolution Fund and the Deposit Guarantee Scheme effective from January 2018 onwards.

⁴ Decrease in additional tier 1 equity instruments reflects methodology change to phase out their recognition in economic capital supply.

The economic capital adequacy ratio was 163 % as of December 31, 2019, compared with 196 % as of December 31, 2018. The change in the ratio was mainly due to an increase in capital demand and decrease in capital supply. The economic capital supply decreased by € 3.6 billion mainly driven by the net loss of € 5.4 billion attributable to Deutsche Bank shareholders and additional equity components as of December 31, 2019. The € 5.4 billion net loss was largely attributable to transformation-related deferred tax asset valuation adjustments and the impairment of goodwill and other intangible assets and these resulted in an offsetting positive counter-effect of € 3.9 billion in capital-terms as respective deduction items for goodwill and other intangible assets decreased by € 2.1 billion and for deferred tax assets by € 1.8 billion. Further decrease in our economic capital supply resulted from a methodology change in the fourth quarter of 2019 to gradually phase out recognition of additional tier 1 equity instruments of € 0.9 billion, re-measurement losses related to defined benefit pension plans of € 0.8 billion and additional capital deduction of € 0.4 billion related to regular ECB review. In the second quarter of 2019, shareholder's dividend for the financial year 2018 (€ 0.11/share following the Annual General Meeting) and the yearly AT1 coupon payment were paid out which were offset by corresponding accruals. The increase in capital demand was driven by higher economic capital demand as explained in the section "Risk Profile".

The above capital adequacy measures apply to the consolidated Deutsche Bank Group as a whole and form an integral part of our risk and capital management framework.

Leverage Ratio

We manage our balance sheet on a Group level and, where applicable, locally in each region. In the allocation of financial resources we favor business portfolios with the highest positive impact on our profitability and shareholder value. We monitor and analyze balance sheet developments and track certain market-observed balance sheet ratios. Based on this we trigger discussion and management action by the Group Risk Committee (GRC).

Leverage Ratio according to CRR/CRD framework

The non-risk based leverage ratio is intended to act as a supplementary measure to the risk based capital requirements. Its objectives are to constrain the build-up of leverage in the banking sector, helping avoid destabilizing deleveraging processes which can damage the broader financial system and the economy, and to reinforce the risk based requirements with a simple, non-risk based "backstop" measure.

A minimum leverage ratio requirement of 3 % was introduced effective June 2021. From January 1, 2022 an additional leverage ratio buffer requirement of 50 % of the applicable G-SIB buffer rate will apply. It is currently expected that this additional requirement will equal 0.75 %.

We calculate our leverage ratio exposure in accordance with Article 429 of the CRR as per Delegated Regulation (EU) 2015/62 of October 10, 2014 published in the Official Journal of the European Union on January 17, 2015.

Our total leverage ratio exposure includes derivatives, securities financing transactions (SFTs), off-balance sheet exposure and other on-balance sheet exposure (excluding derivatives and SFTs).

The leverage exposure for derivatives is calculated by using the regulatory mark-to-market method for derivatives comprising the current replacement cost plus a regulatory defined add-on for the potential future exposure. Variation margin received in cash from counterparties is deducted from the current replacement cost portion of the leverage ratio exposure measure and variation margin paid to counterparties is deducted from the leverage ratio exposure measure related to receivables recognized as an asset on the balance sheet, provided certain conditions are met. Deductions of receivables for cash variation margin provided in derivatives transactions are shown under derivative exposure in the table "Leverage ratio common disclosure" below. The effective notional amount of written credit derivatives, i.e., the notional reduced by any negative fair value changes that have been incorporated in Tier 1 capital is included in the leverage ratio exposure measure; the resulting exposure measure is further reduced by the effective notional amount of purchased credit derivative protection on the same reference name provided certain conditions are met.

The securities financing transaction (SFT) component includes the gross receivables for SFTs, which are netted with SFT payables if specific conditions are met. In addition to the gross exposure a regulatory add-on for the counterparty credit risk is included.

The off-balance sheet exposure component follows the credit risk conversion factors (CCF) of the standardized approach for credit risk (0 %, 20 %, 50 %, or 100 %), which depend on the risk category subject to a floor of 10 %.

The other on-balance sheet exposure component (excluding derivatives and SFTs) reflects the accounting values of the assets (excluding derivatives and SFTs) as well as regulatory adjustments for asset amounts deducted in determining Tier 1 capital.

The following tables show the leverage ratio exposure and the leverage ratio. The Leverage ratio common disclosure table provides the leverage ratio on a fully-loaded and phase-in basis with the fully-loaded and phase-in Tier 1 Capital, respectively, in the numerator. For further details on Tier 1 capital please also refer to the “Regulatory capital composition, prudential filters and deduction items” section in chapter “Own funds” in this report.

Summary reconciliation of accounting assets and leverage ratio exposures

in € bn.	Dec 31, 2019	Dec 31, 2018
Total assets as per published financial statements	1,298	1,348
Adjustment for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	(1)	0
Adjustments for derivative financial instruments	(188)	(140)
Adjustment for securities financing transactions (SFTs)	6	14
Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	103	99
Other adjustments	(50)	(49)
Leverage ratio total exposure measure	1,168	1,273

Leverage ratio common disclosure

in € bn. (unless stated otherwise)	Dec 31, 2019	Dec 31, 2018
Total derivative exposures	113	159
Total securities financing transaction exposures	93	103
Total off-balance sheet exposures	103	99
Other Assets	869	925
Asset amounts deducted in determining Tier 1 capital	(10)	(13)
Tier 1 capital (fully loaded)	48.7	52.1
Leverage ratio total exposure measure	1,168	1,273
Leverage ratio (fully loaded, in %)	4.2	4.1
Tier 1 capital (phase-in)	50.5	55.1
Leverage ratio total exposure measure	1,168	1,273
Leverage ratio (phase-in, in %)	4.3	4.3

Description of the factors that had an impact on the leverage ratio in 2019

As of December 31, 2019, our fully loaded leverage ratio was 4.2 % compared to 4.1 % as of December 31, 2018, taking into account as of December 31, 2019 a fully loaded Tier 1 capital of €48.7 billion over an applicable exposure measure of €1,168 billion (€52.1 billion and €1,273 billion as of December 31, 2018, respectively).

Our leverage ratio according to transitional provisions was 4.3 % as of December 31, 2019 (4.3 % as of December 31, 2018), calculated as Tier 1 capital according to transitional rules of €50.5 billion over an applicable exposure measure of €1,168 billion (€55.1 billion and €1,273 billion as of December 31, 2018, respectively).

Over the year 2019, our leverage exposure decreased by €105 billion to €1,168 billion. On-balance sheet exposures (excluding derivatives and SFTs, but including asset amounts deducted in determining Tier 1 capital) decreased by €52 billion reflecting the development of our balance sheet: cash and central bank / interbank balances decreased by €50 billion, non-derivative trading assets decreased by €44 billion and pending settlements were €8 billion lower. This was partly offset by loans which grew by €29 billion and remaining asset items which increased by €20 billion (related to a large extent to a shift of liquidity reserves from cash into securities as part of the continued optimization of the bank's funding). Furthermore, the leverage exposure related to derivatives decreased by €46 billion (€35 billion excluding deductions of receivables assets for cash variation margin provided in derivatives transactions) mainly driven by lower add-ons for potential future exposure and effective notional amounts of written credit derivatives as well as higher deductions of receivables assets for cash variation margin provided in derivatives transactions. SFT related items (securities purchased under resale agreements, securities borrowed and receivables from prime brokerage) decreased by €10 billion. Off-balance sheet exposures increased by €3 billion.

The decrease in leverage exposure in 2019 included a positive foreign exchange impact of €17 billion mainly due to the depreciation of the Euro against the U.S. dollar. The effects from foreign exchange rate movements are embedded in the movement of the leverage exposure items discussed in this section.

For main drivers of the Tier 1 capital development please refer to section “Own funds” in this report.

Minimum Requirement of Own Funds and Eligible Liabilities (“MREL”) and Total Loss Absorbing Capacity (“TLAC”)

MREL Requirements

The minimum requirement for own funds and eligible liabilities (“MREL”) requirement was introduced by the European Union’s regulation establishing uniform rules and a uniform procedure for the resolution of credit institutions (Single Resolution Mechanism Regulation or “SRM Regulation”) and the European Union’s Directive establishing a framework for the recovery and resolution of credit institutions (Bank Recovery and Resolution Directive or “BRRD”) as implemented into German law by the German Recovery and Resolution Act.

The currently required level of MREL is determined by the competent resolution authorities for each supervised bank individually on a case-by-case basis, depending on the respective preferred resolution strategy. In the case of Deutsche Bank AG, MREL is determined by the Single Resolution Board (“SRB”). While there is no statutory minimum level of MREL, the SRM Regulation, BRRD and a delegated regulation set out criteria which the resolution authority must consider when determining the relevant required level of MREL. Guidance is provided through an MREL policy published annually by the SRB. Any binding MREL ratio determined by the SRB is communicated to Deutsche Bank via the German Federal Financial Supervisory Authority (BaFin).

In the second quarter of 2018, Deutsche Bank AG’s binding MREL ratio requirement on a consolidated basis has been set at 9.14 % of Total Liabilities and Own Funds (“TLOF”) applicable immediately. TLOF principally consists of total liabilities after derivatives netting, plus own funds, i.e. regulatory capital.

As a result of its regular annual review, the SRB has revised Deutsche Bank AG’s binding MREL ratio requirement in the last quarter of 2019 applicable immediately. The MREL ratio requirement on a consolidated basis has been lowered to 8.58 % of TLOF of which 6.11 % of TLOF now have to be met with own funds and subordinated instruments as an additional requirement.

TLAC Requirements

Since June 27, 2019, Deutsche Bank, as a global systemically important bank, has also become subject to global minimum standards for its Total Loss-Absorbing Capacity (“TLAC”). The TLAC requirement has been implemented with the banking reform package via amendments to the Capital Requirements Regulation and the Capital Requirements Directive provided in June 2019 with the publication of Regulation (EU) 2019/876 and Directive (EU) 2019/878.

This TLAC requirement is based on both risk-based and non-risk-based denominators and set at the higher-of 16 % of risk weighted assets plus the combined buffer requirements and 6.00 % of the leverage exposure for a transition period until December 31, 2021. Thereafter, the higher-of 18 % of risk weighted assets plus the combined buffer requirements and 6.75% of the leverage exposure are to be met.

MREL ratio development

As of December 31, 2019, TLOF were € 996 billion and available MREL were € 115 billion, corresponding to a ratio of 11.57 %. This means that Deutsche Bank has a comfortable MREL surplus of € 30 billion above our MREL requirement of € 85 billion (i.e. 8.58 % of TLOF). € 112 billion of our available MREL were own funds and subordinated liabilities, corresponding to a MREL subordination ratio of 11.28 %, a buffer of € 51 billion over our subordination requirement of € 61 billion (i.e. 6.11 % of TLOF).

TLAC ratio development

As of December 31, 2019, TLAC was € 112 billion and the corresponding TLAC ratios were 34.7 % (RWA based) and 9.6 % (Leverage exposure based). This means that Deutsche Bank has a comfortable TLAC surplus of € 42 billion over its total loss absorbing capacity minimum requirement of € 70 billion (6.00 % Leverage exposure based).

MREL and TLAC disclosure

in € m.

(unless stated otherwise)

	Dec 31, 2019	Dec 31, 2018
Regulatory capital elements of TLAC/MREL		
Common Equity Tier 1 capital (CET 1)	44,148	47,486
Additional Tier 1 (AT1) capital instruments eligible under TLAC/MREL	6,397	7,604
Tier 2 (T2) capital instruments eligible under TLAC/MREL		
Tier 2 (T2) capital instruments before TLAC/MREL adjustments	5,957	6,202
Tier 2 (T2) capital instruments adjustments for TLAC/MREL	16	745
Tier 2 (T2) capital instruments eligible under TLAC/MREL	5,973	6,947
Total regulatory capital elements of TLAC/MREL	56,519	62,037
Other elements of TLAC/MREL		
Senior non-preferred plain vanilla	55,803	54,852
Holdings of eligible liabilities instruments of other G-SIIs (TLAC only)	0	–
Total Loss Absorbing Capacity (TLAC)	112,322	116,890
Add back of holdings of eligible liabilities instruments of other G-SIIs (TLAC only)	0	0
Available Own Funds and subordinated Eligible Liabilities (subordinated MREL)	112,322	116,890
Senior preferred plain vanilla	2,856	1,020
Available Minimum Own Funds and Eligible Liabilities (MREL)	115,178	117,910
Risk Weighted Assets (RWA)	324,015	350,432
Leverage Ratio Exposure (LRE)	1,168,040	1,272,930
Total liabilities and own funds after prudential netting (TLOF)	995,513	1,058,484
TLAC ratio¹		
TLAC ratio (as percentage of RWA)	34.67	N/M
TLAC requirement (as percentage of RWA)	20.58	N/M
TLAC ratio (as percentage of Leverage Exposure)	9.62	N/M
TLAC requirement (as percentage of Leverage Exposure)	6.00	N/M
TLAC surplus over RWA requirement	45,639	N/M
TLAC surplus over LRE requirement	42,239	N/M
MREL subordination¹		
MREL subordination ratio (as percentage of TLOF)	11.28	N/M
MREL subordination requirement (as percentage of TLOF)	6.11	N/M
Surplus over MREL subordination requirement	51,496	N/M
MREL ratio		
MREL ratio (as percentage of TLOF)	11.57	11.14
MREL requirement (as percentage of TLOF)	8.58	9.14
MREL surplus over requirement	29,763	21,164

¹ No disclosure requirements as of December 31, 2018.

Own Funds and Eligible Liabilities

In order to meet the MREL and TLAC requirement, Deutsche Bank needs to ensure that a sufficient amount of eligible instruments is maintained. Instruments eligible for MREL and TLAC are regulatory capital instruments (“own funds”) and liabilities that meet certain criteria, which are referred to as eligible liabilities.

Own funds used for MREL and TLAC include the full amount of T2 capital instruments with a remaining maturity of greater than 1 year and less than 5 years which are reflected in regulatory capital on a pro-rata basis only.

Eligible liabilities are liabilities issued out of the resolution entity Deutsche Bank AG that meet eligibility criteria which are supposed to ensure that they are structurally suited as loss-absorbing capital. As a result, eligible liabilities exclude deposits which are covered by an insurance deposit protection scheme or which are preferred under German insolvency law (e.g., deposits from private individuals as well as small and medium-size enterprises). Among other things, secured liabilities, derivatives liabilities and debt instruments with embedded derivatives (e.g. structured notes) are generally excluded as well. In addition, eligible liabilities must have a remaining time to maturity of at least one year and must either be issued under the law of a Member State of the European Union or must include a bail-in clause in their contractual terms to make write-down or conversion effective.

In addition, eligible liabilities need to be subordinated in order to be counted against the TLAC and new MREL subordination requirements. Effective January 1, 2017, the German Banking Act provided for a new class of statutorily subordinated debt securities that rank as “senior non-preferred” below the bank’s other senior liabilities (but in priority to the bank’s contractually subordinated liabilities, such as those qualifying as Tier 2 instruments). Following a harmonization effort by the European Union implemented in Germany effective July 21, 2018, banks are permitted to decide if a specific issuance of eligible senior debt will be in the non-preferred or in the preferred category. Any such “senior non-preferred” debt instruments issued by Deutsche Bank AG under such new rules rank on parity with its outstanding debt instruments that were classified as “senior non-preferred” under the prior rules. All of these “senior non-preferred” issuances meet the TLAC and new MREL subordination criteria.

Credit Risk Exposure

We define our credit exposure by taking into account all transactions where losses might occur due to the fact that counterparties may not fulfill their contractual payment obligations as defined under ‘Credit Risk Framework’.

Maximum Exposure to Credit Risk

The maximum exposure to credit risk table shows the direct exposure before consideration of associated collateral held and other credit enhancements (netting and hedges) that do not qualify for offset in our financial statements for the periods specified. The netting credit enhancement component includes the effects of legally enforceable netting agreements as well as the offset of negative mark-to-markets from derivatives against pledged cash collateral. The collateral credit enhancement component mainly includes real estate, collateral in the form of cash as well as securities-related collateral. In relation to collateral we apply internally determined haircuts and additionally cap all collateral values at the level of the respective collateralized exposure.

Maximum Exposure to Credit Risk

in € m.	Maximum exposure to credit risk ¹	Subject to impairment	Dec 31, 2019			
			Netting	Collateral	Guarantees and Credit derivatives ²	Total credit enhancements
Financial assets at amortized cost³						
Cash and central bank balances	137,596	137,596	–	0	–	0
Interbank balances (w/o central banks)	9,642	9,642	–	0	0	0
Central bank funds sold and securities purchased under resale agreements	13,800	13,800	–	13,650	–	13,650
Securities borrowed	428	428	–	303	–	303
Loans	433,834	433,834	–	228,620	27,984	256,605
Other assets subject to credit risk ^{4,5}	96,779	85,028	37,267	1,524	42	38,833
Total financial assets at amortized cost³	692,079	680,328	37,267	244,098	28,026	309,392
Financial assets at fair value through profit or loss⁶						
Trading assets	93,369	–	–	1,480	861	2,340
Positive market values from derivative financial instruments	332,931	–	262,326	48,608	134	311,068
Non-trading financial assets mandatory at fair value through profit or loss	84,359	–	853	69,645	259	70,757
Of which:						
Securities purchased under resale agreement	53,366	–	853	51,659	0	52,512
Securities borrowed	17,918	–	–	17,599	0	17,599
Loans	3,174	–	–	290	259	550
Financial assets designated at fair value through profit or loss	7	–	–	0	0	0
Total financial assets at fair value through profit or loss	510,665	–	263,180	119,732	1,254	384,166
Financial assets at fair value through OCI						
Of which:						
Securities purchased under resale agreement	1,415	1,415	–	0	0	0
Securities borrowed	0	0	–	0	0	0
Loans	4,874	4,874	–	1,622	1,267	2,889
Total financial assets at fair value through OCI	45,503	45,503	–	1,622	1,267	2,889
Financial guarantees and other credit related contingent liabilities ⁷	49,232	49,232	–	2,994	6,138	9,132
Revocable and irrevocable lending commitments and other credit related commitments ⁷	211,440	209,986	–	15,217	4,984	20,202
Total off-balance sheet	260,672	259,218	–	18,211	11,122	29,333
Maximum exposure to credit risk	1,508,920	985,049	300,447	383,663	41,670	725,780

¹ Does not include credit derivative notional sold (€ 356,362 million) and credit derivative notional bought protection.

² Bought Credit protection is reflected with the notional of the underlying.

³ All amounts at gross value before deductions of allowance for credit losses.

⁴ All amounts at amortized cost (gross) except for qualifying hedge derivatives, which are reflected at Fair value through P&L.

⁵ Includes Asset Held for Sale regardless of accounting classification.

⁶ Excludes equities, other equity interests and commodities.

⁷ Figures are reflected at notional amounts.

in € m.	Dec 31, 2018					
	Maximum exposure to credit risk ¹	Subject to impairment	Credit Enhancements			Total credit enhancements
Netting			Collateral	Guarantees and Credit derivatives ²		
Financial assets at amortized cost³						
Cash and central bank balances	188,736	188,736	–	0	–	0
Interbank balances (w/o central banks)	8,885	8,885	–	4	0	4
Central bank funds sold and securities purchased under resale agreements	8,222	8,222	–	7,734	–	7,734
Securities borrowed	3,396	3,396	–	0	–	0
Loans	404,537	404,537	–	224,353	16,582	240,934
Other assets subject to credit risk ^{4,5}	71,899	65,010	29,073	3,199	79	32,352
Total financial assets at amortized cost³	685,676	678,787	29,073	235,290	16,661	281,024
Financial assets at fair value through profit or loss⁶						
Trading assets	96,966	–	–	677	155	831
Positive market values from derivative financial instruments	320,058	–	250,231	48,548	82	298,861
Non-trading financial assets mandatory at fair value through profit or loss	97,771	–	245	67,385	0	67,630
Of which:						
Securities purchased under resale agreement	44,543	–	245	43,258	0	43,503
Securities borrowed	24,210	–	–	24,003	0	24,003
Loans	12,741	–	–	125	0	125
Financial assets designated at fair value through profit or loss	104	–	–	0	0	0
Total financial assets at fair value through profit or loss	514,899	–	250,476	116,610	237	367,323
Financial assets at fair value through OCI	51,182	51,182	0	1,488	520	2,008
Of which:						
Securities purchased under resale agreement	1,097	1,097	–	621	0	621
Securities borrowed	0	0	–	0	0	0
Loans	5,092	5,092	–	450	104	554
Total financial assets at fair value through OCI	51,182	51,182	–	1,488	520	2,008
Financial guarantees and other credit related contingent liabilities ⁷	51,605	51,605	–	3,375	5,291	8,666
Revocable and irrevocable lending commitments and other credit related commitments ⁷	212,049	211,055	–	16,418	4,734	21,152
Total off-balance sheet	263,654	262,659	–	19,793	10,025	29,818
Maximum exposure to credit risk	1,515,410	992,628	279,550	373,181	27,443	680,173

¹ Does not include credit derivative notional sold (€ 415,967 million) and credit derivative notional bought protection.

² Bought Credit protection is reflected with the notional of the underlying.

³ All amounts at gross value before deductions of allowance for credit losses.

⁴ All amounts at amortized cost (gross) except for qualifying hedge derivatives, which are reflected at Fair value through P&L.

⁵ Includes Asset Held for Sale regardless of accounting classification.

⁶ Excludes equities, other equity interests and commodities.

⁷ Figures are reflected at notional amounts.

The overall decrease in maximum exposure to credit risk for December 31, 2019 is € 6.5 billion, mainly driven by a € 51.1 billion decrease in Cash and central bank balances and loans mandatory at fair value through profit and loss by € 9.6 billion, offset by an increase in loans at amortized cost by € 29.3 billion, debt securities held to collect, part of other assets by € 19.1 billion, positive market value from derivatives by € 12.9 billion and central bank funds sold, securities purchased under resale agreements and securities loaned across all applicable measurement categories by € 5.5 billion.

Included in the category of trading assets as of December 31, 2019, were traded bonds of € 80.7 billion (€ 85.2 billion as of December 31, 2018) of which over 81 % were investment-grade (over 79 % as of December 31, 2018).

Credit Enhancements are split into three categories: netting, collateral and guarantees / credit derivatives. Haircuts, parameter setting for regular margin calls as well as expert judgments for collateral valuation are employed to prevent market developments from leading to a build-up of uncollateralized exposures. All categories are monitored and reviewed regularly. Overall credit enhancements received are diversified and of adequate quality being largely cash, highly rated government bonds and third-party guarantees mostly from well rated banks and insurance companies. These financial institutions are domiciled mainly in European countries and the United States. Furthermore we have collateral pools of highly liquid assets and mortgages (principally consisting of residential properties mainly in Germany) for the homogeneous retail portfolio.

Main Credit Exposure Categories

The tables in this section show details about several of our main credit exposure categories, namely Loans, Revocable and Irrevocable Lending Commitments, Contingent Liabilities Over-The-Counter (“OTC”) Derivatives, Debt Securities and Repo and repo-style transactions:

- “Loans” are gross loans as reported on our balance sheet at amortized cost, loans at fair value through profit and loss and loans at fair value through other comprehensive income before deduction of allowance for credit losses. This includes “Traded loans” that are bought and held for the purpose of selling them in the near term, or the material risks of which have all been hedged or sold. From a regulatory perspective the latter category principally covers trading book positions.
- “Revocable and irrevocable lending commitments” consist of the undrawn portion of revocable and irrevocable lending-related commitments.
- “Contingent liabilities” consist of financial and performance guarantees, standby letters of credit and other similar arrangements (mainly indemnity agreements).
- “OTC derivatives” are our credit exposures from over-the-counter derivative transactions that we have entered into, after netting and cash collateral received. On our balance sheet, these are included in financial assets at fair value through profit or loss or, for derivatives qualifying for hedge accounting, in other assets, in either case, before netting and cash collateral received.
- “Debt securities” include debentures, bonds, deposits, notes or commercial paper, which are issued for a fixed term and redeemable by the issuer, as reported on our balance sheet within accounting categories at amortized cost and at fair value through other comprehensive income before deduction of allowance for credit losses, it also includes category at fair value through profit and loss. This includes “Traded bonds”, which are bonds, deposits, notes or commercial paper that are bought and held for the purpose of selling them in the near term. From a regulatory perspective the latter category principally covers trading book positions.
- “Repo and repo-style transactions” consist of reverse repurchase transactions, as well as securities or commodities borrowing transactions before application of netting and collateral received.

Although considered in the monitoring of maximum credit exposures, the following are not included in the details of our main credit exposure: brokerage and securities related receivables, cash and central bank balances, interbank balances (without central banks), assets held for sale, accrued interest receivables, traditional securitization positions. Consequently, the gross exposure of OTC derivatives (prior to netting and cash collateral) of € 1.77 billion which is part of the “asset held for sale” classification is not included in our main credit exposure. This exposure is associated with the Prime Finance platform being transferred to BNP Paribas. For further information please refer to Note 24 “Non-Current Assets and Disposal Groups Held for Sale” to the consolidated financial statement.

Main Credit Exposure Categories by Business Divisions

in € m.	Dec 31, 2019						
	Loans			Off-balance sheet		OTC derivatives	
	at amortized cost ¹	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI ²	Revocable and irrevocable lending commitments ³	Contingent liabilities	at fair value through P&L ⁴
Corporate Bank	118,311	427	480	4,549	120,073	44,917	216
Investment Bank	75,145	10,091	1,597	174	51,701	2,005	13,506
Private Bank	229,746	(0)	7	0	35,550	1,996	262
Asset Management	57	0	0	0	121	10	2
Capital Release Unit	3,555	1,827	1,096	150	2,901	51	13,904
Corporate & Other	7,020	0	0	0	1,094	253	148
Total	433,834	12,346	3,181	4,874	211,440	49,232	28,039

in € m.	Dec 31, 2019						
	Debt Securities			Repo and repo-style transactions ⁷			Total
	at amortized cost ⁵	at fair value through P&L	at fair value through OCI ⁶	at amortized cost ⁸	at fair value through P&L	at fair value through OCI ⁹	
Corporate Bank	859	14	0	583	0	0	290,429
Investment Bank	2,242	83,039	543	7,842	68,199	0	316,085
Private Bank	4,019	18	2,951	4,082	0	0	278,632
Asset Management	0	556	0	0	0	0	746
Capital Release Unit	61	1,440	9	521	3,085	0	28,601
Corporate & Other	17,119	4,767	35,712	1,201	0	1,415	68,728
Total	24,300	89,835	39,214	14,228	71,284	1,415	983,222

¹ Includes stage 3 and stage 3 POCI loans at amortized cost amounting to €9.6 billion as of December 31, 2019.

² Includes stage 3 and stage 3 POCI loans at fair value through OCI amounting to €22.0 million as of December 31, 2019.

³ Includes stage 3 and stage 3 POCI off-balance sheet exposure amounting to €1.4 billion as of December 31, 2019.

⁴ Includes the effect of netting agreements and cash collateral received where applicable. Excludes derivatives qualifying for hedge accounting.

⁵ Includes stage 3 and stage 3 POCI debt securities at amortized cost amounting to €96 million as of December 31, 2019.

⁶ Includes stage 3 and stage 3 POCI debt securities at fair value through OCI amounting to €1.4 million as of December 31, 2019.

⁷ Before reflection of collateral and limited to securities purchased under resale agreements and securities borrowed.

⁸ Includes stage 3 and stage 3 POCI repo and repo-style transactions at amortized cost amounting to €0 million as of December 31, 2019.

⁹ Includes stage 3 and stage 3 POCI repo and repo-style transactions at fair value through OCI amounting to €0 million as of December 31, 2019.

in € m.	Dec 31, 2018						
	Loans			Off-balance sheet		OTC derivatives	
	at amortized cost ¹	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI ²	Revocable and irrevocable lending commitments ³	Contingent liabilities	at fair value through P&L ⁴
Corporate & Investment Bank	135,078	11,462	12,532	5,092	168,332	48,871	27,028
Private & Commercial Bank	269,175	0	209	0	43,331	2,638	353
Asset Management	68	0	0	0	117	14	0
Corporate & Other	216	0	0	0	269	81	37
Total	404,537	11,462	12,741	5,092	212,049	51,605	27,417

in € m.	Dec 31, 2018						
	Debt Securities			Repo and repo-style transactions ⁷			Total
	at amortized cost ⁵	at fair value through P&L	at fair value through OCI ⁶	at amortized cost ⁸	at fair value through P&L	at fair value through OCI ⁹	
Corporate & Investment Bank	579	88,451	1,032	11,348	64,684	0	574,488
Private & Commercial Bank	4,569	19	7,799	260	0	0	328,353
Asset Management	0	419	0	0	0	0	618
Corporate & Other	51	3,776	36,162	11	4,068	1,097	45,768
Total	5,199	92,664	44,993	11,618	68,752	1,097	949,227

¹ Includes stage 3 and stage 3 POCI loans at amortized cost amounting to €9.1 billion as of December 31, 2018.

² Includes stage 3 and stage 3 POCI loans at fair value through OCI amounting to €1 million as of December 31, 2018.

³ Includes stage 3 and stage 3 POCI off-balance sheet exposure amounting to €599 million as of December 31, 2018.

⁴ Includes the effect of netting agreements and cash collateral received where applicable. Excludes derivatives qualifying for hedge accounting.

⁵ Includes stage 3 and stage 3 POCI debt securities at amortized cost amounting to €73 million as of December 31, 2018.

⁶ Includes stage 3 and stage 3 POCI debt securities at fair value through OCI amounting to €2 million as of December 31, 2018.

⁷ Before reflection of collateral and limited to securities purchased under resale agreements and securities borrowed.

⁸ Includes stage 3 and stage 3 POCI repo and repo-style transactions at amortized cost amounting to €0 million as of December 31, 2018.

⁹ Includes stage 3 and stage 3 POCI repo and repo-style transactions at fair value through OCI amounting to €0 million as of December 31, 2018.

As part of our re-segmentation in 2019, we have six business segments for 2019 when compared to the four segments in 2018. The exposures are not entirely comparable on business division lines, due to fragmentation of the previous years' business segments and clustering as per the new strategic requirements. Our total exposure of the current year when compared with previous year increased by €33.4 billion. As per the new segments, comparison excluding the OTC derivatives indicates an increase of €3.5 billion in Private Bank, €9.8 billion in Corporate Bank, €35.6 billion in Investment Bank and €22.3 billion in Corporate & Other, partially offset by a decrease in Capital Release Unit by €37.9 billion.

- From a divisional perspective, increases in exposure are observed across all divisions. Corporate & Other primarily comprises of Treasury exposures.
- From a product perspective strong exposure increases have been observed for loans, debt securities, repo and repo-style transactions while a decrease is observed in off balance sheet products.

Main Credit Exposure Categories by Industry Sectors

in € m.	Dec 31, 2019						
	Loans				Off-balance sheet		OTC derivatives
	at amortized cost ¹	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI ²	Revocable and irrevocable lending commitments ³	Contingent liabilities	at fair value through P&L ⁴
Agriculture, forestry and fishing	676	0	0	0	874	39	1
Mining and quarrying	2,537	274	135	80	4,606	1,223	22
Manufacturing	28,412	418	84	1,285	51,627	12,180	1,169
Electricity, gas, steam and air conditioning supply	4,115	401	60	0	5,774	1,630	589
Water supply, sewerage, waste management and remediation activities	833	10	0	0	486	136	68
Construction	3,810	259	27	14	2,876	2,174	364
Wholesale and retail trade, repair of motor vehicles and motorcycles	20,990	624	97	858	12,669	5,087	306
Transport and storage	4,872	534	54	150	5,066	996	1,213
Accommodation and food service activities	2,565	40	0	29	1,935	191	49
Information and communication	5,783	434	1	358	14,460	2,640	919
Financial and insurance activities	90,962	4,015	2,521	936	57,295	19,036	17,286
Real estate activities	41,670	3,236	49	198	5,600	306	1,516
Professional, scientific and technical activities	7,307	91	0	32	4,429	1,890	48
Administrative and support service activities	6,833	102	106	22	4,070	373	502
Public administration and defense, compulsory social security	6,437	1,071	15	489	2,650	109	2,586
Education	327	0	0	0	95	18	397
Human health services and social work activities	3,503	63	2	63	2,476	124	352
Arts, entertainment and recreation	843	24	0	0	1,309	44	23
Other service activities	4,677	707	24	358	3,428	733	130
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	196,680	45	5	2	29,713	301	324
Activities of extraterritorial organizations and bodies	3	0	0	0	3	4	176
Total	433,834	12,346	3,181	4,874	211,440	49,232	28,039

in € m.	Dec 31, 2019						Total
	Debt Securities			Repo and repo-style transactions ⁷			
	at amortized cost ⁵	at fair value through P&L	at fair value through OCI ⁶	at amortized cost ⁸	at fair value through P&L	at fair value through OCI ⁹	
Agriculture, forestry and fishing	0	4	0	0	0	0	1,593
Mining and quarrying	115	369	7	0	0	0	9,369
Manufacturing	371	1,029	51	0	0	0	96,626
Electricity, gas, steam and air conditioning supply	420	668	1	0	0	0	13,659
Water supply, sewerage, waste management and remediation activities	5	27	0	0	0	0	1,565
Construction	26	263	68	0	0	0	9,880
Wholesale and retail trade, repair of motor vehicles and motorcycles	68	226	15	0	0	0	40,938
Transport and storage	194	431	47	0	0	0	13,557
Accommodation and food service activities	21	33	0	0	0	0	4,863
Information and communication	126	478	36	0	9	0	25,244
Financial and insurance activities	7,915	18,296	11,118	14,228	70,224	1,415	315,247
Real estate activities	387	2,327	81	0	0	0	55,371
Professional, scientific and technical activities	10	194	10	0	0	0	14,009
Administrative and support service activities	59	133	3	0	0	0	12,203
Public administration and defense, compulsory social security	12,492	59,381	24,814	0	948	0	110,992
Education	0	194	0	0	0	0	1,032
Human health services and social work activities	0	461	0	0	0	0	7,044
Arts, entertainment and recreation	55	125	0	0	0	0	2,423
Other service activities	143	3,421	246	0	5	0	13,871
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	0	0	0	0	0	0	227,071
Activities of extraterritorial organizations and bodies	1,893	1,772	2,718	0	96	0	6,665
Total	24,300	89,835	39,214	14,228	71,284	1,415	983,222

¹ Includes stage 3 and stage 3 POCI loans at amortized cost amounting to €9.6 billion as of December 31, 2019.

² Includes stage 3 and stage 3 POCI loans at fair value through OCI amounting to €22 million as of December 31, 2019.

³ Includes stage 3 and stage 3 POCI off-balance sheet exposure amounting to €1.4 billion as of December 31, 2019.

⁴ Includes the effect of netting agreements and cash collateral received where applicable. Excludes derivatives qualifying for hedge accounting.

⁵ Includes stage 3 and stage 3 POCI debt securities at amortized cost amounting to €96 million as of December 31, 2019.

⁶ Includes stage 3 and stage 3 POCI debt securities at fair value through OCI amounting to €1.4 million as of December 31, 2019.

⁷ Before reflection of collateral and limited to securities purchased under resale agreements and securities borrowed.

⁸ Includes stage 3 and stage 3 POCI repo and repo-style transactions at amortized cost amounting to €0 million as of December 31, 2019.

⁹ Includes stage 3 and stage 3 POCI repo and repo-style transactions at fair value through OCI amounting to €0 million as of December 31, 2019.

in € m.	Dec 31, 2018						
	Loans				Off-balance sheet		OTC derivatives
	at amortized cost ¹	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI ²	Revocable and irrevocable lending commitments ³	Contingent liabilities	at fair value through P&L ⁴
Agriculture, forestry and fishing	640	15	0	0	541	40	5
Mining and quarrying	2,995	563	0	141	6,094	1,505	210
Manufacturing	28,342	786	7	1,831	45,296	11,985	1,378
Electricity, gas, steam and air conditioning supply	3,210	284	57	3	4,908	1,563	452
Water supply, sewerage, waste management and remediation activities	867	28	0	0	399	155	181
Construction	3,902	495	0	25	3,638	2,089	338
Wholesale and retail trade, repair of motor vehicles and motorcycles	20,293	488	215	875	14,380	5,058	317
Transport and storage	5,774	647	48	79	5,059	920	1,017
Accommodation and food service activities	2,026	40	0	28	1,761	195	158
Information and communication	4,372	505	29	374	17,277	2,061	793
Financial and insurance activities	77,628	3,530	11,845	882	62,739	22,191	17,415
Real estate activities	33,432	1,538	88	95	5,375	221	1,084
Professional, scientific and technical activities	6,590	239	0	190	4,172	1,708	47
Administrative and support service activities	7,381	338	169	34	4,835	451	628
Public administration and defense, compulsory social security	8,917	1,160	203	472	978	48	2,088
Education	698	1	0	0	76	18	362
Human health services and social work activities	3,483	104	0	31	1,862	124	239
Arts, entertainment and recreation	859	71	0	21	873	38	13
Other service activities	4,720	520	77	10	2,406	708	157
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	188,407	85	2	0	29,372	522	347
Activities of extraterritorial organizations and bodies	1	25	0	0	7	6	188
Total	404,537	11,462	12,741	5,092	212,049	51,605	27,417

in € m.	Dec 31, 2018						Total
	Debt Securities			Repo and repo-style transactions ⁷			
	at amortized cost ⁵	at fair value through P&L	at fair value through OCI ⁶	at amortized cost ⁸	at fair value through P&L	at fair value through OCI ⁹	
Agriculture, forestry and fishing	0	9	0	0	0	0	1,251
Mining and quarrying	119	481	5	0	0	0	12,113
Manufacturing	472	1,245	47	0	0	0	91,389
Electricity, gas, steam and air conditioning supply	374	631	45	0	0	0	11,527
Water supply, sewerage, waste management and remediation activities	5	36	0	0	0	0	1,670
Construction	35	585	59	0	0	0	11,165
Wholesale and retail trade, repair of motor vehicles and motorcycles	87	224	1	0	0	0	41,938
Transport and storage	100	608	55	0	0	0	14,308
Accommodation and food service activities	21	25	0	0	0	0	4,254
Information and communication	168	724	505	0	0	0	26,810
Financial and insurance activities	2,771	18,102	16,219	10,668	66,949	1,097	312,035
Real estate activities	84	1,928	23	6	28	0	43,903
Professional, scientific and technical activities	23	306	0	0	0	0	13,275
Administrative and support service activities	38	160	0	434	131	0	14,599
Public administration and defense, compulsory social security	797	63,468	27,892	510	1,631	0	108,165
Education	0	121	0	0	0	0	1,275
Human health services and social work activities	0	474	63	0	0	0	6,381
Arts, entertainment and recreation	0	398	0	0	0	0	2,273
Other service activities	43	2,691	26	0	13	0	11,371
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	0	0	0	0	0	0	218,735
Activities of extraterritorial organizations and bodies	62	448	54	0	0	0	790
Total	5,199	92,664	44,993	11,618	68,752	1,097	949,227

¹ Includes stage 3 and stage 3 POCI loans at amortized cost amounting to €9.1 billion as of December 31, 2018.

² Includes stage 3 and stage 3 POCI loans at fair value through OCI amounting to €1 million as of December 31, 2018.

³ Includes stage 3 and stage 3 POCI off-balance sheet exposure amounting to €599 million as of December 31, 2018.

⁴ Includes the effect of netting agreements and cash collateral received where applicable. Excludes derivatives qualifying for hedge accounting.

⁵ Includes stage 3 and stage 3 POCI debt securities at amortized cost amounting to €73 million as of December 31, 2018.

⁶ Includes stage 3 and stage 3 POCI debt securities at fair value through OCI amounting to €2 million as of December 31, 2018.

⁷ Before reflection of collateral and limited to securities purchased under resale agreements and securities borrowed.

⁸ Includes stage 3 and stage 3 POCI repo and repo-style transactions at amortized cost amounting to €0 million as of December 31, 2018.

⁹ Includes stage 3 and stage 3 POCI repo and repo-style transactions at fair value through OCI amounting to €0 million as of December 31, 2018.

The above tables give an overview of our credit exposure by industry, allocated based on the NACE code of the counterparty. NACE (Nomenclature des Activités Economiques dans la Commune Européenne) is a standard European industry classification system.

The portfolio is subject to the same credit underwriting requirements stipulated in our “Principles for Managing Credit Risk”, including various controls according to single name, country, industry and product-specific concentration.

Material transactions, such as loans underwritten with the intention to syndicate, are subject to review by senior credit risk management professionals and (depending upon size) an underwriting credit committee and/or the Management Board. High emphasis is placed on structuring such transactions so that de-risking is achieved in a timely and cost-effective manner. Exposures within these categories are mostly to good quality borrowers and also subject to further risk mitigation as outlined in the description of our Credit Portfolio Strategies Group’s activities.

Our household loans exposure is principally associated with our Private Bank portfolios.

Our commercial real estate loans, primarily in the U.S. and Europe, are generally secured by first mortgages on the underlying real estate property. Deutsche Bank originates fixed and floating rate loans and selectively acquires (generally at substantial discount) sub- /non-performing loans sold by financial institutions. The underwriting process is stringent and the exposure is managed under separate portfolio limits. Credit underwriting policy guidelines provide that LTV ratios of generally less than 75 % are maintained. Additionally, given the significance of the underlying collateral independent external appraisals are commissioned for all secured loans by a valuation team (part of the independent Credit Risk Management function) which is also responsible for reviewing and challenging the reported real estate values regularly. Deutsche Bank originates loans for distribution in the banking market or via securitization. In this context Deutsche Bank frequently retains a portion of the syndicated loans but entirely sells securitized positions (except where regulation requires retention of economic risk). Mezzanine or other junior tranches of debt are retained only in exceptional cases. The bank also participates in conservatively underwritten unsecured lines of credit to well-capitalized real estate investment trusts and other public companies.

Commercial real estate property valuations and rental incomes can be significantly impacted by macro-economic conditions and underlying properties to idiosyncratic events. Accordingly, the portfolio is categorized as higher risk and hence subject to the aforementioned tight restrictions on concentration.

Our credit exposure to our ten largest counterparties accounted for 8 % of our aggregated total credit exposure in these categories as of December 31, 2019 compared with 8 % as of December 31, 2018. Our top ten counterparty exposures were with well-rated counterparties or otherwise related to structured trades which show high levels of risk mitigation.

Overall credit exposure to the industry sector Financial and Insurance Activities comprises of predominantly investment-grade exposures. The total Loans across all applicable measurement categories amounts to €98.4 billion, Total Repo and repo style transaction across all applicable measurement categories amounts to €85.9 billion and Commitment activities amounts to €57.3 billion as of December 31, 2019 within Financial and Insurance activities and is principally associated with Investment Bank and Private Bank Portfolios, the same are majorly held in Europe and North America region.

Main credit exposure categories by geographical region

in € m.	Dec 31, 2019						
	Loans				Off-balance sheet		OTC derivatives
	at amortized cost ¹	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI ²	Revocable and irrevocable lending commitments ³	Contingent liabilities	at fair value through P&L ⁴
Europe	307,871	4,469	2,435	1,778	114,586	29,836	18,964
Of which:							
Germany	214,155	316	5	245	65,468	12,078	1,572
United Kingdom	7,927	607	373	230	7,960	2,587	6,337
France	3,106	70	0	209	5,905	1,322	1,264
Luxembourg	8,320	1,193	1,084	46	4,374	652	859
Italy	22,347	298	109	0	3,127	3,721	1,389
Netherlands	9,679	83	162	457	9,015	1,805	2,123
Spain	17,265	257	54	59	2,262	3,246	916
Ireland	4,783	157	280	124	2,241	172	545
Switzerland	6,818	30	85	262	5,880	2,213	194
Poland	2,771	0	5	0	316	130	60
Belgium	1,347	0	0	67	1,773	421	285
Other Europe	9,352	1,458	279	78	6,267	1,489	3,420
North America	79,522	4,543	483	2,155	88,260	8,332	6,628
Of which:							
U.S.	66,991	3,891	389	2,016	83,894	7,842	4,943
Cayman Islands	3,560	318	30	0	764	20	481
Canada	1,155	23	0	116	2,230	81	1,007
Other North America	7,816	310	64	22	1,371	389	197
Asia/Pacific	39,584	1,780	248	820	6,962	9,652	1,946
Of which:							
Japan	1,752	16	0	112	599	333	405
Australia	1,577	320	63	0	1,587	104	357
India	7,717	126	149	0	646	2,392	128
China	4,816	38	0	45	725	1,503	308
Singapore	5,722	185	37	30	761	833	210
Hong Kong	4,315	380	0	18	1,182	628	146
Other Asia/Pacific	13,685	714	0	614	1,461	3,860	392
Other geographical areas	6,857	1,554	14	122	1,632	1,412	501
Total	433,834	12,346	3,181	4,874	211,440	49,232	28,039

							Dec 31, 2019
in € m.	Debt Securities			Repo and repo-style transactions ⁷			Total
	at amortized cost ⁵	at fair value through P&L	at fair value through OCI ⁶	at amortized cost ⁸	at fair value through P&L	at fair value through OCI ⁹	
Europe	11,267	37,936	24,791	7,884	15,046	390	577,251
Of which:							
Germany	3,986	5,353	6,864	4,488	661	28	315,219
United Kingdom	2,647	9,712	2,273	604	6,522	0	47,778
France	705	4,714	6,302	319	2,748	0	26,664
Luxembourg	969	3,094	3,099	121	861	0	24,673
Italy	288	5,388	916	144	679	0	38,406
Netherlands	726	2,051	584	297	100	0	27,082
Spain	139	2,010	513	1,082	501	0	28,303
Ireland	636	1,321	19	0	1,140	0	11,418
Switzerland	51	679	101	0	69	0	16,382
Poland	0	30	1,988	0	0	0	5,301
Belgium	204	854	577	0	0	0	5,528
Other Europe	917	2,730	1,554	829	1,765	362	30,499
North America	9,985	31,654	8,325	3,140	42,038	0	285,065
Of which:							
U.S.	9,574	30,600	7,718	1,750	19,661	0	239,267
Cayman Islands	393	509	9	1,293	22,132	0	29,510
Canada	0	277	599	0	240	0	5,730
Other North America	18	268	0	97	5	0	10,558
Asia/Pacific	3,048	18,130	5,471	3,114	13,980	659	105,394
Of which:							
Japan	69	2,582	9	173	9,451	0	15,500
Australia	1,906	3,867	653	155	331	94	11,014
India	656	1,862	1,998	0	202	306	16,182
China	0	1,345	0	0	983	0	9,763
Singapore	11	1,305	874	0	290	0	10,260
Hong Kong	224	517	287	0	1	0	7,699
Other Asia/Pacific	182	6,653	1,649	2,786	2,721	258	34,977
Other geographical areas	0	2,115	627	90	220	367	15,512
Total	24,300	89,835	39,214	14,228	71,284	1,415	983,222

¹ Includes stage 3 and stage 3 POCI loans at amortized cost amounting to €9.6 billion as of December 31, 2019.

² Includes stage 3 and stage 3 POCI loans at fair value through OCI amounting to €22 million as of December 31, 2019.

³ Includes stage 3 and stage 3 POCI off-balance sheet exposure amounting to €1.4 billion as of December 31, 2019.

⁴ Includes the effect of netting agreements and cash collateral received where applicable. Excludes derivatives qualifying for hedge accounting.

⁵ Includes stage 3 and stage 3 POCI debt securities at amortized cost amounting to €96 million as of December 31, 2019.

⁶ Includes stage 3 and stage 3 POCI debt securities at fair value through OCI amounting to €1.4 million as of December 31, 2019.

⁷ Before reflection of collateral and limited to securities purchased under resale agreements and securities borrowed.

⁸ Includes stage 3 and stage 3 POCI repo and repo-style transactions at amortized cost amounting to €0 million as of December 31, 2019.

⁹ Includes stage 3 and stage 3 POCI repo and repo-style transactions at fair value through OCI amounting to €0 million as of December 31, 2019.

Dec 31, 2018							
in € m.	Loans				Off-balance sheet		OTC derivatives
	at amortized cost ¹	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI ²	Revocable and irrevocable lending commitments ³	Contingent liabilities	at fair value through P&L ⁴
Europe	293,979	3,829	9,905	1,785	111,675	31,174	16,390
Of which:							
Germany	207,429	497	304	390	61,587	12,193	1,403
United Kingdom	5,553	671	1,331	278	7,304	3,127	5,766
France	2,415	123	212	81	5,025	2,460	826
Luxembourg	7,543	533	6,920	41	6,682	875	933
Italy	21,363	373	99	0	3,417	3,416	1,174
Netherlands	7,968	125	41	384	9,384	1,470	1,984
Spain	16,729	320	57	67	2,507	3,167	931
Ireland	5,792	230	324	166	3,430	153	772
Switzerland	5,960	31	127	208	3,996	2,419	251
Poland	3,135	0	5	0	301	132	53
Belgium	988	2	53	84	1,986	395	264
Other Europe	9,104	924	431	85	6,057	1,366	2,033
North America	65,716	4,383	2,365	2,311	91,672	9,274	8,011
Of which:							
U.S.	53,195	4,036	2,358	2,209	85,445	8,797	6,196
Cayman Islands	2,562	55	7	0	2,151	17	756
Canada	2,181	48	0	102	2,649	76	828
Other North America	7,778	244	0	0	1,427	384	232
Asia/Pacific	38,176	1,794	471	863	7,052	9,591	2,391
Of which:							
Japan	1,682	37	0	123	334	236	362
Australia	1,224	177	417	11	2,016	135	358
India	7,355	188	18	3	782	2,061	115
China	4,530	60	0	18	346	1,101	399
Singapore	6,136	238	0	109	1,063	992	192
Hong Kong	4,026	203	0	17	1,023	586	138
Other Asia/Pacific	13,223	893	37	582	1,489	4,480	827
Other geographical areas	6,667	1,456	0	132	1,651	1,566	625
Total	404,537	11,462	12,741	5,092	212,049	51,605	27,417

							Dec 31, 2018
in € m.	Debt Securities			Repo and repo-style transactions ⁷			Total
	at amortized cost ⁵	at fair value through P&L	at fair value through OCI ⁶	at amortized cost ⁸	at fair value through P&L	at fair value through OCI ⁹	
Europe	4,467	36,459	24,922	4,394	14,342	316	553,638
Of which:							
Germany	1,443	6,685	9,597	925	899	2	303,352
United Kingdom	182	14,552	2,499	966	4,379	0	46,608
France	714	3,061	1,559	0	3,681	0	20,157
Luxembourg	167	1,332	3,474	89	1,206	0	29,796
Italy	249	2,707	1,146	578	1,040	0	35,563
Netherlands	592	1,785	1,219	0	179	0	25,130
Spain	168	2,146	504	379	529	0	27,504
Ireland	91	920	215	0	1,277	0	13,370
Switzerland	40	560	119	112	316	0	14,139
Poland	0	130	2,387	0	0	0	6,144
Belgium	139	542	481	0	0	0	4,935
Other Europe	682	2,038	1,724	1,344	836	315	26,938
North America	237	34,356	14,491	1,942	45,548	0	280,306
Of which:							
U.S.	220	33,112	13,915	1,275	30,428	0	241,186
Cayman Islands	0	631	9	655	14,094	0	20,937
Canada	0	419	556	0	847	0	7,707
Other North America	17	194	10	12	178	0	10,476
Asia/Pacific	495	19,343	5,037	4,567	8,625	226	98,632
Of which:							
Japan	63	3,142	8	2,752	5,808	0	14,545
Australia	0	3,977	510	19	523	0	9,366
India	267	2,172	1,849	0	79	61	14,948
China	0	2,124	0	0	614	0	9,192
Singapore	114	1,403	671	0	325	0	11,242
Hong Kong	0	520	222	0	11	0	6,746
Other Asia/Pacific	51	6,006	1,777	1,797	1,266	165	32,594
Other geographical areas	0	2,506	543	714	237	555	16,651
Total	5,199	92,664	44,993	11,618	68,752	1,097	949,227

¹ Includes stage 3 and stage 3 POCI loans at amortized cost amounting to €9.1 billion as of December 31, 2018.

² Includes stage 3 and stage 3 POCI loans at fair value through OCI amounting to €1 million as of December 31, 2018.

³ Includes stage 3 and stage 3 POCI off-balance sheet exposure amounting to €599 million as of December 31, 2018.

⁴ Includes the effect of netting agreements and cash collateral received where applicable. Excludes derivatives qualifying for hedge accounting.

⁵ Includes stage 3 and stage 3 POCI debt securities at amortized cost amounting to €73 million as of December 31, 2018.

⁶ Includes stage 3 and stage 3 POCI debt securities at fair value through OCI amounting to €2 million as of December 31, 2018.

⁷ Before reflection of collateral and limited to securities purchased under resale agreements and securities borrowed.

⁸ Includes stage 3 and stage 3 POCI repo and repo-style transactions at amortized cost amounting to €0 million as of December 31, 2018.

⁹ Includes stage 3 and stage 3 POCI repo and repo-style transactions at fair value through OCI amounting to €0 million as of December 31, 2018.

The above tables give an overview of our credit exposure by geographical region, allocated based on the counterparty's country of domicile, see also section "Credit Exposure to Certain Eurozone Countries" of this report for a detailed discussion of the "country of domicile view".

Our largest concentration of credit risk within loans from a regional perspective is in our home market Germany, with a significant share in households, which includes the majority of our mortgage lending and home loan business.

Within OTC derivatives, tradable assets as well as repo and repo-style transactions, our largest concentrations from a regional perspective were in Europe and North America.

Credit Exposure to Certain Eurozone Countries

Certain eurozone countries are presented within the table below due to concerns relating to sovereign risk.

In our "country of domicile view" we aggregate credit risk exposures to counterparties by allocating them to the domicile of the primary counterparty, irrespective of any link to other counterparties, or in relation to credit default swaps underlying reference assets from, these eurozone countries. Hence we also include counterparties whose group parent is located outside of these countries and exposures to special purpose entities whose underlying assets are from entities domiciled in other countries.

The following table, which is based on the country of domicile view, presents our gross position, the included amount thereof of undrawn / contingent exposure and our net exposure to these eurozone countries. The gross exposure reflects our net credit risk exposure grossed up for net credit derivative protection purchased with underlying reference assets domiciled in one of these countries, guarantees received and collateral. Such collateral is particularly held with respect to the retail portfolio, but also for financial institutions predominantly based on derivative margining arrangements, as well as for corporates. In addition, the amounts also reflect the allowance for credit losses. In some cases, our counterparties' ability to draw on undrawn commitments is limited by terms included in the specific contractual documentation. Net credit exposures are presented after effects of collateral held, guarantees received and further risk mitigation, including net notional amounts of credit derivatives for protection sold/bought. The provided gross and net exposures to certain European countries do not include credit derivative tranches and credit derivatives in relation to our correlation business which, by design, is structured to be credit risk neutral. Additionally, the tranche and correlated nature of these positions does not allow a meaningful disaggregated notional presentation by country, e.g., as identical notional exposures represent different levels of risk for different tranche levels.

Gross position, included undrawn exposure and net exposure to certain eurozone countries – Country of Domicile View

in € m.	Sovereign		Financial Institutions		Corporates		Retail		Other		Total	
	Dec 31, 2019	Dec 31, 2018	Dec 31, 2019	Dec 31, 2018	Dec 31, 2019	Dec 31, 2018	Dec 31, 2019	Dec 31, 2018	Dec 31, 2019	Dec 31, 2018	Dec 31, 2019 ¹	Dec 31, 2018
Greece												
Gross	437	53	1,342	821	464	406	4	5	0	1	2,248	1,286
Undrawn / contingent	0	0	42	35	7	4	1	1	0	0	51	41
Net	437	35	323	277	14	(5)	2	2	0	1	776	311
Ireland												
Gross	302	418	1,280	662	7,256	9,016	26	26	3,501	3,875 ²	12,364	13,998
Undrawn / contingent	0	0	16	23	2,439	3,279	2	1	531	802 ²	2,988	4,105
Net	270	339	649	198	4,156	6,186	6	6	3,397	3,777 ²	8,478	10,506
Italy												
Gross	6,260	3,628	3,805	3,188	13,331	11,893	18,451	18,449	95	264	41,941	37,422
Undrawn / contingent	0	1	38	34	5,384	5,211	1,733	1,790	0	0	7,154	7,035
Net	5,341	2,538	487	634	8,209	7,864	10,715	9,997	95	264	24,848	21,296
Portugal												
Gross	228	(204)	84	64	860	888	11	14	208	27	1,390	789
Undrawn / contingent	0	0	26	32	342	382	2	5	0	0	370	419
Net	281	(122)	85	61	638	832	4	7	208	27	1,217	805
Spain												
Gross	1,226	1,779	1,513	1,575	12,942	12,597	9,948	9,990	258	167	25,888	26,108
Undrawn / contingent	0	0	112	184	4,611	4,890	523	533	3	18	5,249	5,625
Net	1,191	1,766	467	910	8,514	10,257	2,536	2,668	310	256	13,019	15,857
Total gross	8,452	5,674	8,023	6,310	34,853	34,800	28,440	28,484	4,063	4,335	83,832	79,603
Total Undrawn / contingent	1	1	233	307	12,783	13,767	2,260	2,331	534	819	15,811	17,225
Total net³	7,521	4,555	2,011	2,080	21,532	25,134	13,264	12,680	4,010	4,325	48,338	48,775

¹ Approximately 72 % of the overall exposure as per December 31, 2019 will mature within the next 5 years.

² Other exposures to Ireland include exposures to counterparties where the domicile of the group parent is located outside of Ireland as well as exposures to special purpose entities whose underlying assets are from entities domiciled in other countries.

³ Total net exposure excludes credit valuation reserves for derivatives amounting to €49.8 million as of December 31, 2019 and €86.3 million as of December 31, 2018.

Net exposure to the above selected eurozone countries decreased by €437 million in 2019 driven by decreased exposure in Spain and Ireland, partly offset by an increase in Italy.

Sovereign Credit Risk Exposure to Certain Eurozone Countries

The amounts below reflect a net “country of domicile view” of our sovereign exposure.

Sovereign credit risk exposure to certain eurozone countries

in € m.	Dec 31, 2019				Dec 31, 2018			
	Direct Sovereign exposure ¹	Net Notional of CDS referencing sovereign debt	Net sovereign exposure	Memo Item: Net fair value of CDS referencing sovereign debt ²	Direct Sovereign exposure ¹	Net Notional of CDS referencing sovereign debt	Net sovereign exposure	Memo Item: Net fair value of CDS referencing sovereign debt ²
Greece	437	0	437	0	53	(18)	35	0
Ireland	265	4	270	2	334	5	339	(0)
Italy	6,170	(828)	5,341	334	3,627	(1,089)	2,538	58
Portugal	228	54	281	6	(204)	82	(122)	5
Spain	1,222	(31)	1,191	112	1,773	(8)	1,766	27
Total	8,322	(801)	7,521	454	5,583	(1,028)	4,555	90

¹ Includes sovereign debt classified as financial assets/liabilities at fair value through profit or loss and loans carried at amortized cost. Direct Sovereign exposure is net of guarantees received and collateral.

² The amounts reflect the net fair value in relation to credit default swaps referencing sovereign debt of the respective country representing the counterparty credit risk.

The increase of €3.0 billion in net sovereign exposure compared with year-end 2018 mainly reflects increases in debt securities in Italy within Investment Bank portfolio.

Credit Exposure Classification

In the section below, we show the credit exposure of Corporate Bank and Investment bank together. The classification is presented on major products such as, loans, off-balance sheet, derivatives, debt securities and reverse repo transactions.

Following the business resegmentation in 2019, there was a split in the business divisions of the former Corporate & Investment Bank group division and such businesses were grouped separately in the new Corporate Bank and Investment Bank group divisions. Accordingly, the balances between the current year for Corporate Bank and Investment Bank and previous year for Corporate and Investment Bank are not fully comparable. For further information please refer to the “Main Credit Exposure categories by Business Division” provided earlier in this section.

Corporate Bank and Investment Bank credit exposure

The tables below show our Corporate Bank and Investment Bank Credit Exposure by product types and internal rating bands. Please refer to section "Measuring Credit Risk" for more details about our internal ratings.

Main Corporate Bank and Investment Bank credit exposure categories according to our internal creditworthiness categories of our counterparties – gross

		Dec 31, 2019						
in € m. (unless stated otherwise)		Loans			Off-balance sheet		OTC derivatives	
Ratingband	Probability of default in % ¹	at amortized cost	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI	Revocable and irrevocable lending commitments	Contingent liabilities	at fair value through P&L ²
iAAA–iAA	> 0.00 ≤ 0.04	18,508	184	20	237	23,850	3,364	3,234
iA	> 0.04 ≤ 0.11	31,859	868	599	754	45,040	11,706	4,144
iBBB	> 0.11 ≤ 0.5	58,139	1,380	234	2,447	55,361	22,441	3,199
iBB	> 0.5 ≤ 2.27	47,505	4,595	643	1,002	26,160	4,642	2,261
iB	> 2.27 ≤ 10.22	25,967	2,525	275	283	17,913	3,207	844
iCCC and below	> 10.22 ≤ 100	11,477	967	305	2	3,450	1,563	40
Total		193,456	10,519	2,077	4,724	171,774	46,922	13,722

		Dec 31, 2019						
in € m. (unless stated otherwise)		Debt Securities			Repo and repo-style transactions			Total
Ratingband	Probability of default in % ¹	at amortized cost	at fair value through P&L	at fair value through OCI	at amortized cost	at fair value through P&L	at fair value through OCI	Total
iAAA–iAA	> 0.00 ≤ 0.04	1,422	48,992	0	847	30,382	–	131,040
iA	> 0.04 ≤ 0.11	392	5,864	8	1,522	8,745	–	111,501
iBBB	> 0.11 ≤ 0.5	366	11,414	76	408	7,320	–	162,785
iBB	> 0.5 ≤ 2.27	373	14,525	233	3,265	20,498	–	125,701
iB	> 2.27 ≤ 10.22	449	1,700	225	1,344	1,101	–	55,833
iCCC and below	> 10.22 ≤ 100	99	558	0	1,039	153	–	19,654
Total		3,102	83,053	543	8,425	68,199	–	606,514

¹ Reflects the probability of default for a one year time horizon.

² Includes the effect of netting agreements and cash collateral received where applicable.

Main Corporate Bank and Investment Bank credit exposure categories according to our internal creditworthiness categories of our counterparties – net

		Dec 31, 2019 ¹						
in € m. (unless stated otherwise)		Loans			Off-balance sheet		OTC derivatives	
Ratingband	Probability of default in % ²	at amortized cost	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI	Revocable and irrevocable lending commitments	Contingent liabilities	at fair value through P&L
iAAA–iAA	> 0.00 ≤ 0.04	12,575	184	20	237	22,566	2,535	2,840
iA	> 0.04 ≤ 0.11	25,249	318	190	754	43,953	9,814	3,098
iBBB	> 0.11 ≤ 0.5	33,115	751	234	1,489	52,334	19,470	3,005
iBB	> 0.5 ≤ 2.27	21,734	2,305	408	600	23,497	4,071	2,089
iB	> 2.27 ≤ 10.22	6,610	287	52	175	16,348	2,104	821
iCCC and below	> 10.22 ≤ 100	4,053	543	204	2	3,066	1,115	40
Total		103,336	4,388	1,109	3,257	161,764	39,108	11,893

		Dec 31, 2019 ¹						
in € m. (unless stated otherwise)		Debt Securities			Repo and repo-style transactions			Total
Ratingband	Probability of default in % ²	at amortized cost	at fair value through P&L	at fair value through OCI	at amortized cost	at fair value through P&L	at fair value through OCI	Total
iAAA–iAA	> 0.00 ≤ 0.04	1,422	48,992	0	2	1,169	–	92,540
iA	> 0.04 ≤ 0.11	392	5,864	8	0	13	–	89,653
iBBB	> 0.11 ≤ 0.5	366	11,414	76	6	100	–	122,362
iBB	> 0.5 ≤ 2.27	220	14,152	225	90	12	–	69,402
iB	> 2.27 ≤ 10.22	443	1,672	229	0	0	–	28,742
iCCC and below	> 10.22 ≤ 100	96	523	0	439	0	–	10,081
Total		2,939	82,618	538	537	1,293	–	412,781

¹ Net of eligible collateral, guarantees and hedges based on IFRS requirements.

² Reflects the probability of default for a one year time horizon.

Corporate and Investment Bank Credit Exposure

The tables below show our Corporate and Investment Bank Credit Exposure for 2018 by product types and internal rating bands.

Main Corporate and Investment Bank credit exposure categories according to our internal creditworthiness categories of our counterparties – gross

		Dec 31, 2018						
in € m. (unless stated otherwise)					Loans	Off-balance sheet		OTC derivatives
Ratingband	Probability of default in % ¹	at amortized cost	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI	Revocable and irrevocable lending commitments	Contingent liabilities	at fair value through P&L ²
iAAA–iAA	> 0.00 ≤ 0.04	12,632	25	7,879	164	20,043	4,398	9,926
iA	> 0.04 ≤ 0.11	29,455	266	518	775	44,927	10,104	7,113
iBBB	> 0.11 ≤ 0.5	29,761	1,061	519	2,734	54,477	23,743	5,789
iBB	> 0.5 ≤ 2.27	31,393	5,384	1,587	1,333	27,754	5,888	3,006
iB	> 2.27 ≤ 10.22	19,828	3,522	1,665	84	16,263	3,504	996
iCCC and below	> 10.22 ≤ 100	12,009	1,204	364	1	4,868	1,234	197
Total		135,078	11,462	12,532	5,092	168,332	48,871	27,028

		Dec 31, 2018						
in € m. (unless stated otherwise)		Debt Securities			Repo and repo-style transactions			Total
Ratingband	Probability of default in % ¹	at amortized cost	at fair value through P&L	at fair value through OCI	at amortized cost	at fair value through P&L	at fair value through OCI	
iAAA–iAA	> 0.00 ≤ 0.04	87	54,365	8	2,929	33,339	–	145,795
iA	> 0.04 ≤ 0.11	38	6,885	122	1,279	9,967	–	111,448
iBBB	> 0.11 ≤ 0.5	112	8,686	114	275	6,190	–	133,459
iBB	> 0.5 ≤ 2.27	189	16,657	639	3,775	14,236	–	111,841
iB	> 2.27 ≤ 10.22	105	1,365	149	2,704	891	–	51,078
iCCC and below	> 10.22 ≤ 100	49	492	0	387	61	–	20,867
Total		579	88,451	1,032	11,348	64,684	–	574,488

¹ Reflects the probability of default for a one year time horizon.

² Includes the effect of netting agreements and cash collateral received where applicable.

Main Corporate and Investment Bank credit exposure categories according to our internal creditworthiness categories of our counterparties – net

		Dec 31, 2018 ¹						
in € m. (unless stated otherwise)					Loans	Off-balance sheet		OTC derivatives
Ratingband	Probability of default in % ²	at amortized cost	trading - at fair value through P&L	Designated / mandatory at fair value through P&L	at fair value through OCI	Revocable and irrevocable lending commitments	Contingent liabilities	at fair value through P&L
iAAA–iAA	> 0.00 ≤ 0.04	10,064	25	7,755	164	18,804	3,872	3,890
iA	> 0.04 ≤ 0.11	25,535	266	518	775	43,491	8,444	3,292
iBBB	> 0.11 ≤ 0.5	22,151	729	518	2,641	52,159	21,321	3,637
iBB	> 0.5 ≤ 2.27	18,076	4,066	1,018	1,302	26,568	4,630	2,351
iB	> 2.27 ≤ 10.22	6,434	2,880	655	9	15,083	2,262	776
iCCC and below	> 10.22 ≤ 100	3,571	1,049	364	1	4,172	701	69
Total		85,831	9,014	10,828	4,892	160,277	41,229	14,015

		Dec 31, 2018 ¹						
in € m. (unless stated otherwise)		Debt Securities			Repo and repo-style transactions			Total
Ratingband	Probability of default in % ²	at amortized cost	at fair value through P&L	at fair value through OCI	at amortized cost	at fair value through P&L	at fair value through OCI	
iAAA–iAA	> 0.00 ≤ 0.04	87	54,365	8	1,863	359	–	101,256
iA	> 0.04 ≤ 0.11	38	6,885	122	51	269	–	89,686
iBBB	> 0.11 ≤ 0.5	112	8,686	114	115	112	–	112,294
iBB	> 0.5 ≤ 2.27	132	16,519	640	1,331	602	–	77,236
iB	> 2.27 ≤ 10.22	105	1,365	150	0	25	–	29,742
iCCC and below	> 10.22 ≤ 100	49	492	0	367	0	–	10,837
Total		523	88,313	1,033	3,728	1,367	–	421,050

¹ Net of eligible collateral, guarantees and hedges based on IFRS requirements.

² Reflects the probability of default for a one year time horizon.

SCL Risk Mitigation for Credit Exposure

Our Strategic Corporate Lending (“SCL”) helps mitigate the risk of our corporate credit exposures. The notional amount of SCL’s risk reduction activities increased from € 31.1 billion as of December 31, 2018, to € 31.3 billion as of December 31, 2019.

As of year-end 2019, SCL mitigated the credit risk of €30.3 billion of loans and lending-related commitments, through synthetic collateralized loan obligations supported predominantly by financial guarantees. This position totalled € 30.9 billion as of December 31, 2018.

SCL also held credit derivatives with an underlying notional amount of € 1.0 billion as of December 31, 2019. The position totalled € 0.2 billion as of December 31, 2018. The credit derivatives used for our portfolio management activities are accounted for at fair value.

Private Bank Credit exposure

Due to the re-segmentation in 2019, the balances between the current year for Private Bank (PB) and previous year for Private and Commercial Bank (PCB) are not fully comparable. For further information please refer to the “Main Credit Exposure categories by Business Division” provided earlier in this section.

Private Bank credit exposure, credit exposure stage 3 and net credit costs

	Dec 31, 2019			
	Total exposure in € m.	of which loan book in € m.	Credit exposure stage 3 in € m.	Net credit costs as a % of total exposure ¹
PB Germany (excl. WM) ²	190,038	153,954	2,289	0.08%
Consumer Finance	31,130	15,913	914	0.53%
Mortgage				(0.01%)
Business Finance	144,455	135,164	1,343)
Financial Markets	1,576	926	17	0.08%
Other ³	12,984	2,121	14	(0.02%)
	(107)	(170)	2	(0.19%)
PCB International	36,660	32,467	1,586	0.48%
Consumer Finance	11,693	9,020	243	0.67%
Mortgage	14,413	14,334	682	(0.17%)
Business Finance	9,821	9,059	660	1.24%
Other	734	54	1	(0.03%)
Wealth Management	51,934	43,333	1,038	0.02%
Total	278,632	229,754	4,913	0.12%

¹ Net credit costs for the twelve months period ended at the respective balance sheet date divided by the total exposure at that balance sheet date.

² including Digital Ventures.

³ The total has small reconciling breaks, primarily driven from few minor positions like hedge accounting etc.

Private and Commercial Bank (PCB) credit exposure, credit exposure stage 3 and net credit costs

	Dec 31, 2018			
	Total exposure in € m.	of which loan book in € m.	Credit exposure stage 3 in € m.	Net credit costs as a % of total exposure ¹
PCB Germany (excl. WM)	242,277	195,435	2,737	0.09%
Consumer Finance	33,392	16,029	905	0.66%
Mortgage	153,040	143,985	1,397	(0.01%)
Business Finance	28,039	20,582	357	0.14%
Commercial Mortgage	10,102	9,660	67	(0.09%)
Financial Markets	17,099	4,574	10	(0.01%)
Other	605	605	0	0%
PCC International	38,598	34,119	1,825	0.44%
Consumer Finance	11,056	8,342	381	0.86%
Mortgage	17,419	17,333	835	0%
Business Finance	9,119	8,400	608	0.82%
Other	1,005	44	2	0%
Wealth Management	47,479	39,830	853	0.02%
Total PCB credit exposure	328,353	269,384	5,415	0.12%

¹ Net credit costs for the twelve months period ended at the respective balance sheet date divided by the total exposure at that balance sheet date.

Consumer finance is divided into personal instalment loans, credit lines and credit cards. Consumer finance business is uncollateralized, loan risk depends on client quality. Various lending requirements are stipulated, including (but not limited to) client rating, maximum loan amounts and maximum tenors, and are adapted to regional conditions and/or circumstances of the borrower (i.e., for consumer loans a maximum loan amount taking into account customer net income). Given the largely homogeneous nature of this portfolio, counterparty credit-worthiness and ratings are predominately derived by utilizing an automated decision engine.

Mortgage business is the financing of residential properties (principally owner-occupied, but also buy-to-let and commercial properties) sold by various business channels in Europe, primarily in Germany but also in Spain and Italy. The level of credit risk of the mortgage loan portfolio is determined by assessing the quality of the client and the underlying collateral. The loan amounts are generally larger than consumer finance loans and they are extended for longer time horizons. Based on our underwriting criteria and processes and the diversified portfolio (customers/properties) with respective collateralization, the mortgage portfolio is categorized as lower risk, while consumer finance is categorized as medium risk.

Business finance represents credit products for small businesses, SME up to large corporates. Products range from current accounts and credit lines to investment loans or revolving facilities, factoring, leasing and derivatives. Smaller clients below a turnover of € 2.5 million are limited to current accounts and loans. Clients are located primarily in Germany, but credit can also be extended to subsidiaries abroad, mostly in Europe. The debtors of factoring clients may be located worldwide. The respective credit exposure is usually insured through Hermes guarantees or trade insurance.

Commercial mortgage business is the financing of commercial properties, mostly office, retail, hotels and residential properties. Financing is made via SPV, through investment funds or directly. Focus locations are prime real estate locations primarily in Western Europe with Germany as the most important market.

Financial Market represents treasury investments in corporates, banks and financial institutions as well as sovereigns. Products are mostly covered and uncovered bonds, in loan exposure the majority represents Bundesbank exposure as well as loans to German sub-sovereigns and public institutions.

The Wealth Management Business Unit offers customized wealth management solutions and private banking services including discretionary portfolio management and traditional and alternative investment solutions, complemented by structured risk management, wealth planning, lending and family office services for wealth, high-net-worth (HNW) and ultra-high-net-worth (UHNW) individuals and family offices. Wealth Management's total exposure is divided into Lombard Lending (against readily marketable liquid collateral / securities) and Structured Lending (against less liquid collateral). While the level of credit risk for the Lombard portfolio is determined by assessing the quality of the underlying collateral, the level of credit risk for the structured portfolio is determined by assessing both the quality of the client and the collateral. Products range from secured Lombard and mortgage loans to current accounts (Europe only), credit lines and other loans; to a lesser extent derivatives and contingencies. Clients are located globally.

PB mortgage loan-to-value¹

	Dec 31, 2019
≤ 50 %	67 %
> 50 ≤ 70 %	16 %
> 70 ≤ 90 %	9 %
> 90 ≤ 100 %	3 %
> 100 ≤ 110 %	2 %
> 110 ≤ 130 %	2 %
> 130 %	1 %

¹ When assigning the exposure to the corresponding LTV buckets, the exposure amounts are distributed according to their relative share of the underlying assessed real estate value.

The table below shows the Private and Commercial Bank mortgage lending exposure grouped by loan-to-value buckets for 2018.

PCB mortgage loan-to-value¹

	Dec 31, 2018
≤ 50 %	67 %
> 50 ≤ 70 %	16 %
> 70 ≤ 90 %	9 %
> 90 ≤ 100 %	3 %
> 100 ≤ 110 %	2 %
> 110 ≤ 130 %	2 %
> 130 %	1 %

¹ When assigning the exposure to the corresponding LTV buckets, the exposure amounts are distributed according to their relative share of the underlying assessed real estate value.

The LTV expresses the amount of exposure as a percentage of the underlying real estate value.

Our LTV ratios are calculated using the total exposure divided by the current determined value of the respective properties. These values are monitored and updated if necessary on a regular basis. The exposure of transactions that are additionally backed by liquid collateral is reduced by the respective collateral values, whereas any prior charges increase the corresponding total exposure. The LTV calculation includes exposure which is secured by real estate collateral. Any mortgage lending exposure that is collateralized exclusively by any other type of collateral is not included in the LTV calculation.

The creditor's creditworthiness, the LTV and the quality of collateral is an integral part of our risk management when originating loans and when monitoring and steering our credit risks. In general, we are willing to accept higher LTV's, the better the creditor's creditworthiness is. Nevertheless, restrictions of LTV apply e.g. for countries with negative economic outlook or expected declines of real estate values.

As of December 31, 2019, 67 % of our exposure related to the mortgage lending portfolio had a LTV ratio below or equal to 50 %, unchanged to the prior year.

Credit Exposure from Derivatives

All exchange traded derivatives are cleared through central counterparties ("CCPs"), the rules and regulations of which provide for daily margining of all current and future credit risk positions emerging out of such transactions. To the extent possible, we also use CCP services for OTC derivative transactions ("OTC clearing"); we thereby benefit from the credit risk mitigation achieved through the CCP's settlement system.

The Dodd-Frank Act provides for an extensive framework for the regulation of OTC derivatives, including mandatory clearing, platform trading and transaction reporting of certain OTC derivatives, as well as rules regarding the registration of, and capital, margin and business conduct standards for, swap dealers, security-based swap dealers, major swap participants and major security-based swap participants. The Dodd-Frank Act and related CFTC rules introduced in 2013 mandatory OTC clearing in the United States for certain standardized OTC derivative transactions, including certain interest rate swaps and index credit default swaps. The European Regulation (EU) No 648/2012 on OTC Derivatives, Central Counterparties and Trade Repositories ("EMIR") introduced a number of risk mitigation techniques for non-centrally cleared OTC derivatives in 2013 and the reporting of OTC and exchange traded derivatives in 2014. Mandatory clearing for certain standardized OTC derivatives transactions in the EU began in June 2016, and margin requirements for uncleared OTC derivative transactions in the EU started in February 2017. Deutsche Bank implemented the exchange of both initial and variation margin in the EU from February 2017 for the first category of counterparties subject to the EMIR margin for uncleared derivatives requirements. All other in-scope entities followed the variation margin requirements from March 1, 2017. Deutsche Bank further implemented the exchange of initial margin with the second, third and fourth categories of counterparties beginning in September 2017, September 2018 and September 2019, respectively. Initial margin requirements are subject to a phased implementation schedule which will be fully applied by September 2020.

The CFTC adopted final rules in 2016 that require additional interest rate swaps to be cleared, with a phased implementation schedule ending in October 2018. Deutsche Bank implemented the CFTC's expanded clearing requirements for the relevant interest rate swaps subject to the passed compliance, covering identified instruments denominated in AUD, CAD, CHF, HKD, MXN, NOK, PLN, SEK and SGD. In January 2020, also pursuant to the Dodd-Frank Act, the CFTC re-proposed regulations to impose position limits on certain commodities and economically equivalent swaps, futures and options. In December 2019, the CFTC issued a proposal on the cross-border application of U.S. swap rules, building on the CFTC's cross-border guidance from 2013 and related no-action relief letters. These rules have not been finalized. The SEC has also finalized rules regarding registration, reporting, capital, risk mitigation techniques, business conduct standards and trade acknowledgement and verification requirements for security-based swap dealers and major security-based swap participants. The SEC adopted in December 2019 supplemental guidance and rule amendments addressing the cross-border application of certain rules regulating security-based swaps which also establishes a firm timeline for security-based swap (SBS) dealer registration. The compliance date for Deutsche Bank to register with the SEC as a security-based swap dealer will be October 6, 2021.

Finally, U.S. prudential regulators (the Federal Reserve, the FDIC, the Office of the Comptroller of the Currency, the Farm Credit Administration and the Federal Housing Finance Agency) have adopted final rules establishing margin requirements for non-cleared swaps and security-based swaps between non-prudentially regulated swap dealers and certain counterparties, and the CFTC has adopted final rules establishing margin requirements for non-cleared swaps between non-prudentially regulated swap dealers and certain counterparties. The final non-cleared margin rules follow a phased implementation schedule, with certain initial margin and variation margin requirements in effect as of September 2016 and additional variation margin requirements in effect as of March 1, 2017 for all covered counterparties. Deutsche Bank implemented the exchange of both initial and variation margin for uncleared derivatives in the U.S. from September 2016, for the first category of counterparties subject to the U.S. prudential regulators' margin requirements. Additional initial margin requirements for smaller counterparties are phased in on an annual basis from September 2017 through September 2020, with the relevant compliance dates depending in each case on the transactional volume of the parties and their affiliates. The U.S. regulatory agencies have proposed delaying the initial margin compliance date until September 2021 for certain swap dealers with lower levels of transactional volume. The SEC has also established margin requirements for non-cleared security-based swaps.

The following table shows a breakdown of notional amounts and gross market value of derivative transactions along with a breakdown of notional amounts of OTC derivative assets and liabilities on the basis of clearing channel.

Notional amounts of derivatives on basis of clearing channel and type of derivative

Dec 31, 2019

in € m.	Notional amount maturity distribution				Positive market value	Negative market value	Net market value
	Within 1 year	> 1 and ≤ 5 years	After 5 years	Total			
Interest rate related:							
OTC	11,116,114	8,622,042	5,377,422	25,115,579	244,738	226,854	17,884
Bilateral (Amt)	2,453,120	2,496,053	1,757,652	6,706,825	200,701	184,611	16,090
CCP (Amt)	8,662,994	6,125,989	3,619,770	18,408,754	44,037	42,243	1,794
Exchange-traded	4,050,938	1,142,410	372	5,193,720	631	590	42
Total Interest rate related	15,167,052	9,764,453	5,377,794	30,309,299	245,369	227,444	17,925
Currency related:							
OTC	4,345,697	913,352	431,769	5,690,818	70,947	67,033	3,914
Bilateral (Amt)	4,250,460	912,881	431,769	5,595,110	70,524	66,543	3,981
CCP (Amt)	95,237	471	0	95,708	423	490	(67)
Exchange-traded	17,169	0	0	17,169	3	22	(19)
Total Currency related	4,362,866	913,352	431,769	5,707,987	70,949	67,055	3,894
Equity/index related:							
OTC	98,330	56,328	7,985	162,642	6,478	8,607	(2,129)
Bilateral (Amt)	98,330	56,328	7,985	162,642	6,478	8,607	(2,129)
CCP (Amt)	0	0	0	0	0	0	0
Exchange-traded	183,700	37,390	5,884	226,974	1,883	2,252	(368)
Total Equity/index related	282,030	93,718	13,869	389,617	8,362	10,859	(2,497)
Credit derivatives related							
OTC	102,131	558,757	82,345	743,233	10,245	11,229	(984)
Bilateral (Amt)	38,651	157,306	35,102	231,058	2,062	2,667	(605)
CCP (Amt)	63,480	401,452	47,243	512,175	8,183	8,562	(379)
Exchange-traded	0	0	0	0	0	0	0
Total Credit derivatives related	102,131	558,757	82,345	743,233	10,245	11,229	(984)
Commodity related:							
OTC	2,743	5,640	1,194	9,577	20	501	(481)
Bilateral (Amt)	2,743	5,640	1,194	9,577	18	495	(477)
CCP (Amt)	0	0	0	0	2	6	(4)
Exchange-traded	18,502	570	7	19,080	30	36	(5)
Total Commodity related	21,246	6,210	1,201	28,657	51	537	(486)
Other:							
OTC	45,811	2,530	109	48,449	666	706	(40)
Bilateral (Amt)	45,811	2,530	109	48,449	666	706	(40)
CCP (Amt)	0	0	0	0	0	0	0
Exchange-traded	31,868	153	0	32,020	70	107	(37)
Total Other	77,678	2,682	109	80,470	736	813	(77)
Total OTC business	15,710,826	10,158,649	5,900,824	31,770,299	333,094	314,930	18,164
Total bilateral business	6,889,114	3,630,737	2,233,811	12,753,662	280,449	263,628	16,820
Total CCP business	8,821,711	6,527,912	3,667,013	19,016,636	52,645	51,302	1,343
Total exchange-traded business	4,302,177	1,180,523	6,263	5,488,963	2,617	3,006	(389)
Total	20,013,003	11,339,172	5,907,087	37,259,262	335,711	317,936	17,775
Positive market values after netting and cash collateral received	-	-	-	-	28,615	-	-

The gross exposure of OTC derivative prior to netting and cash collateral of € 1.77 billion, which is part of the “asset held for sale” classification is not included in our disclosure for credit exposure from derivative. This exposure is associated with the Prime Finance platform being transferred to BNP Paribas. For further information please refer to Note 22 “Non-Current Assets and Disposal Groups Held for Sale” to the consolidated financial statement.

Dec 31, 2018

in € m.	Notional amount maturity distribution				Positive market value	Negative market value	Net market value
	Within 1 year	> 1 and ≤ 5 years	After 5 years	Total			
Interest rate related:							
OTC	12,741,035	9,791,856	5,605,269	28,138,160	202,480	181,453	21,028
Bilateral (Amt)	2,511,405	2,706,991	1,871,607	7,090,004	176,248	156,339	19,909
CCP (Amt)	10,229,630	7,084,865	3,733,661	21,048,156	26,233	25,114	1,119
Exchange-traded	5,643,533	1,813,582	367	7,457,483	560	357	203
Total Interest rate related	18,384,569	11,605,439	5,605,636	35,595,643	203,040	181,809	21,231
Currency related:							
OTC	4,277,488	1,063,548	440,037	5,781,073	85,221	81,555	3,666
Bilateral (Amt)	4,217,941	1,063,386	440,037	5,721,364	84,592	80,765	3,827
CCP (Amt)	59,547	162	0	59,709	629	790	(161)
Exchange-traded	23,137	0	0	23,137	5	7	(2)
Total Currency related	4,300,625	1,063,548	440,037	5,804,211	85,226	81,562	3,664
Equity/index related:							
OTC	265,587	145,152	16,391	427,130	15,645	19,925	(4,280)
Bilateral (Amt)	265,587	145,152	16,391	427,130	15,645	19,925	(4,280)
CCP (Amt)	0	0	0	0	0	0	0
Exchange-traded	605,254	110,450	10,974	726,678	10,407	9,969	438
Total Equity/index related	870,841	255,602	27,365	1,153,808	26,052	29,894	(3,843)
Credit derivatives related							
OTC	115,256	615,668	123,651	854,575	8,197	8,382	(184)
Bilateral (Amt)	71,996	175,015	49,365	296,375	3,138	3,142	(3)
CCP (Amt)	43,260	440,653	74,287	558,200	5,059	5,240	(181)
Exchange-traded	0	0	0	0	0	0	0
Total Credit derivatives related	115,256	615,668	123,651	854,575	8,197	8,382	(184)
Commodity related:							
OTC	5,028	1,015	1,432	7,476	99	1,090	(991)
Bilateral (Amt)	5,028	1,015	1,432	7,476	99	1,090	(991)
CCP (Amt)	0	0	0	0	0	0	0
Exchange-traded	22,727	1,333	0	24,060	246	289	(43)
Total Commodity related	27,755	2,348	1,432	31,535	345	1,379	(1,034)
Other:							
OTC	11,854	2,555	86	14,494	213	337	(124)
Bilateral (Amt)	11,853	2,555	86	14,493	213	336	(124)
CCP (Amt)	1	0	0	1	0	0	0
Exchange-traded	5,244	3	0	5,247	13	46	(33)
Total Other	17,098	2,558	86	19,741	226	383	(157)
Total OTC business	17,416,248	11,619,795	6,186,866	35,222,909	311,855	292,741	19,115
Total bilateral business	7,083,810	4,094,114	2,378,919	13,556,843	279,935	261,597	18,338
Total CCP business	10,332,438	7,525,680	3,807,948	21,666,066	31,921	31,144	777
Total exchange-traded business	6,299,896	1,925,368	11,341	8,236,605	11,231	10,668	563
Total	23,716,144	13,545,163	6,198,208	43,459,514	323,086	303,409	19,678
Positive market values after netting and cash collateral received	-	-	-	-	29,393	-	-

Equity Exposure

The table below presents the carrying values of our equity investments according to IFRS definition split by trading and nontrading for the respective reporting dates. We manage our respective positions within our market risk and other appropriate risk frameworks.

Composition of our Equity Exposure

in € m.	Dec 31, 2019	Dec 31, 2018
Trading Equities	18,640	56,673
Nontrading Equities ¹	2,660	2,835
Total Equity Exposure	21,300	59,507

¹ Includes equity investment funds amounting to €586 million as of December 31, 2019 and €605 million as of December 31, 2018.

As of December 31, 2019, our Trading Equities exposure was mainly composed of €11.8 billion from Capital Release Unit activities and €4.2 billion from Investment Bank. Overall trading equities decreased by €38.0 billion year on year driven mainly by unwinding of trades in the Equities business along with lower client positions.

Asset Quality

The Asset Quality section under IFRS 9 describes the quality of debt instruments subject to impairment, which under IFRS 9 consist of debt instruments measured at amortized cost, financial instruments at fair value through other comprehensive income (FVOCI) as well as off balance sheet lending commitments such as loan commitments and financial guarantees (hereafter collectively referred to as "Financial Assets").

Overview of financial assets subject to impairment

The following tables provide an overview of the exposure amount and allowance for credit losses by financial asset class broken down into stages as per IFRS 9 requirements.

Overview of financial assets subject to impairment

in € m.	Dec 31, 2019					Dec 31, 2018				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Amortized cost¹										
Gross carrying amount	645,967	24,680	7,531	2,150	680,328	637,037	32,335	7,452	1,963	678,787
Allowance for credit losses ²	549	492	3,015	36	4,093	509	501	3,247	3	4,259
Fair value through OCI										
Fair value	45,083	397	23	0	45,503	50,932	247	2	1	51,182
Allowance for credit losses	16	9	10	0	35	11	1	0	(0)	13
Off-balance sheet										
Notional amount	251,930	5,864	1,424	0	259,218	252,039	10,021	599	0	262,659
Allowance for credit losses ³	128	48	166	0	342	132	73	84	0	289

¹ Financial Assets at Amortized Cost consist of: Loans at Amortized Cost, Cash and central bank balances, Interbank balances (w/o central banks), Central bank funds sold and securities purchased under resale agreements, Securities borrowed and certain subcategories of Other assets.

² Allowance for credit losses do not include allowance for country risk amounting to €3 million as of December 31, 2019 and €6 million as of December 31, 2018.

³ Allowance for credit losses do not include allowance for country risk amounting to €4 million as of December 31, 2019 and €5 million as of December 31, 2018.

Financial assets at amortized cost

The following tables provide an overview of the gross carrying amount and credit loss allowance by financial asset class broken down into stages as per IFRS 9 requirements.

Development of exposures and allowance for credit losses in the reporting period

in € m.	Dec 31, 2019				
	Gross carrying amount				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Balance, beginning of year	637,037	32,335	7,452	1,963	678,787
Movements in financial assets including new business	86,882	(6,503)	1,022	418	81,819
Transfers due to changes in creditworthiness	(1,652)	327	1,325	N/M	0
Changes due to modifications that did not result in derecognition	(4)	(0)	(40)	0	(45)
Changes in models	N/M	N/M	N/M	N/M	N/M
Financial assets that have been derecognized during the period	(81,545)	(1,691)	(2,343)	(272)	(85,852)
Recovery of written off amounts	0	0	70	0	70
Foreign exchange and other changes	5,249	213	45	41	5,548
Balance, end of reporting period	645,967	24,680	7,531	2,150	680,328

Financial assets at amortized cost subject to impairment remained roughly stable with a slight increase of € 2 billion in 2019 across all stages:

Stage 1 exposures increased by € 9 billion or 1 %.

Stage 2 exposures decreased by € 8 billion or 24 % driven by Brokerage cash / margin receivables in Investment Bank as well as Loans at Amortized Cost in Corporate Bank.

Stage 3 exposures increased by € 266 million or 3 % in 2019 driven by new defaults across business divisions, partly offset by write-offs in shipping.

in € m.	Dec 31, 2018				
	Gross carrying amount				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Balance, beginning of year	663,707	30,305	7,726	2,019	703,756
Movements in financial assets including new business	29,175	5,743	1,058	(61)	35,914
Transfers due to changes in creditworthiness	1,240	(2,344)	1,104	0	0
Changes due to modifications that did not result in derecognition	(11)	(8)	(208)	0	(227)
Changes in models	0	0	0	0	0
Financial assets that have been derecognized during the period	(65,682)	(1,766)	(2,411)	(4)	(69,863)
Recovery of written off amounts	0	0	146	0	146
Foreign exchange and other changes	8,608	405	37	10	9,060
Balance, end of reporting period	637,037	32,335	7,452	1,963	678,787

Financial assets at amortized cost subject to impairment dropped by € 25 billion or 4 % in 2018 mainly driven by Stage 1:

Stage 1 exposures decreased by € 27 billion or 4 % driven by Cash and central bank balances due to reductions in deposits and short-term borrowings.

Stage 2 exposures increased by € 2 billion or 7 % driven by Loans at amortized cost in former CIB.

Stage 3 exposures decreased by € 274 million or 4 % in 2018 driven by former CIB, mainly reflecting de-risking activities in our shipping portfolio. This reduction was partly offset by an increase in former PCB driven by the former Postbank business, partly as a result of non-recurring effects.

in € m.	Dec 31, 2019				
	Allowance for Credit Losses ³				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Balance, beginning of year	509	501	3,247	3	4,259
Movements in financial assets including new business	(57)	102	550	40	636
Transfers due to changes in creditworthiness	120	(106)	(14)	N/M	0
Changes due to modifications that did not result in derecognition	N/M	N/M	N/M	N/M	N/M
Changes in models	0	0	0	0	0
Financial assets that have been derecognized during the period ²	0	0	(872)	(26)	(898)
Recovery of written off amounts	0	0	96	0	96
Foreign exchange and other changes	(22)	(4)	8	18	0
Balance, end of reporting period	549	492	3,015	36	4,093
Provision for Credit Losses excluding country risk ¹	62	(4)	536	40	636

¹ Movements in financial assets including new business, transfers due to changes in creditworthiness and changes in models add up to Provision for Credit Losses excluding country risk.

² This position includes charge offs of allowance for credit losses.

³ Allowance for credit losses does not include allowance for country risk amounting to €3 million as of December 31, 2019.

Allowance for credit losses against financial assets at amortized cost subject to impairment dropped by €166 million or 4 % in 2019 mainly driven by Stage 3:

Stage 1 allowances increased by €40 million or 8 % driven by an increase in Loans at Amortized Cost in Investment Bank and Private Bank.

Stage 2 allowances remained roughly stable with a slight decrease of €8 million or 2 %.

Stage 3 allowances decreased by €198 million or 6 % driven by NPL sales in Private Bank as well as write-offs in shipping in Capital Release Unit, which were partly offset by new defaults in Corporate Bank and Investment Bank.

Our Stage 3 coverage ratio (defined as Allowance for credit losses in Stage 3 (excluding POCI) divided by Financial assets at amortized cost in Stage 3 (excluding POCI)) amounted to 40 % in the current fiscal year, compared to 44 % in the prior year.

in € m.	Dec 31, 2018				
	Allowance for Credit Losses ³				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Balance, beginning of year	462	494	3,638	3	4,596
Movements in financial assets including new business	(132)	215	440	(17)	507
Transfers due to changes in creditworthiness	199	(137)	(62)	N/M	0
Changes due to modifications that did not result in derecognition	N/M	N/M	N/M	N/M	N/M
Changes in models	0	0	0	0	0
Financial assets that have been derecognized during the period ²	(6)	(17)	(972)	0	(995)
Recovery of written off amounts	0	0	172	0	172
Foreign exchange and other changes	(14)	(54)	30	17	(21)
Balance, end of reporting period	509	501	3,247	3	4,259
Provision for Credit Losses excluding country risk ¹	66	78	379	(17)	507

¹ Movements in financial assets including new business, transfers due to changes in creditworthiness and changes in models add up to Provision for Credit Losses excluding country risk.

² This position includes charge offs of allowance for credit losses.

³ Allowance for credit losses does not include allowance for country risk amounting to €6 million as of December 31, 2018.

Allowance for credit losses against financial assets at amortized cost subject to impairment dropped by €338 million or 7 % in 2018 mainly driven by Stage 3:

Stage 1 allowances increased by €47 million or 10 % driven by additional provisions in former CIB to reflect for a weakening macroeconomic outlook as well as a one-off adjustment to the calculation methodology on certain loans on which we hold insurance protection.

Stage 2 allowances remained almost stable.

Stage 3 allowances decreased by €391 million or 11 % driven by former CIB, where charge offs partly related to de-risking activities in our shipping portfolio overcompensated additional provisions.

Financial assets at amortized cost by business division

Dec 31, 2019										
in € m.	Gross Carrying Amount					Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
	Corporate Bank	174,685	4,769	1,921	0	181,375	82	63	843	0
Investment Bank	159,301	4,894	575	1,830	166,600	146	60	117	36	358
Private Bank	251,699	14,376	4,520	321	270,915	313	360	1,834	0	2,508
Asset Management	1,965	101	0	0	2,066	1	1	0	0	2
Capital Release Unit	16,051	378	502	0	16,930	1	7	221	0	230
Corporate & Other	42,266	163	13	0	42,442	5	2	1	0	8
Total	645,967	24,680	7,531	2,150	680,328	549	492	3,015	36	4,093

Dec 31, 2018										
in € m.	Gross Carrying Amount					Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
	Corporate Bank	178,822	6,120	1,544	0	186,487	77	66	793	0
Investment Bank	154,309	9,880	461	1,613	166,263	124	56	41	(3)	218
Private Bank	253,548	14,376	4,413	271	272,608	298	366	2,049	0	2,712
Asset Management	1,998	304	2	0	2,303	0	0	0	0	1
Capital Release Unit	39,311	1,096	1,031	79	41,517	6	12	364	6	388
Corporate & Other	9,050	559	1	0	9,609	3	1	1	0	5
Total	637,037	32,335	7,452	1,963	678,787	509	501	3,247	3	4,259

Financial assets at amortized cost by industry sector

Dec 31, 2019

in € m.	Gross Carrying Amount					Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
	Agriculture, forestry and fishing	613	43	42	1	699	1	2	10	0
Mining and quarrying	2,647	4	141	1	2,793	4	0	15	0	19
Manufacturing	26,784	1,498	923	122	29,327	32	33	481	0	546
Electricity, gas, steam and air conditioning supply	4,609	160	70	0	4,839	4	5	4	0	13
Water supply, sewerage, waste management and remediation activities	708	11	64	0	783	1	0	10	0	11
Construction	2,987	208	307	144	3,646	4	4	227	1	235
Wholesale and retail trade, repair of motor vehicles and motorcycles	19,404	978	653	11	21,046	19	18	389	(0)	426
Transport and storage	4,259	488	249	0	4,995	6	6	64	0	76
Accommodation and food service activities	2,240	93	31	74	2,437	5	2	15	0	22
Information and communication	5,633	472	32	0	6,138	10	17	16	0	43
Financial and insurance activities	299,108	3,756	431	824	304,119	95	30	189	2	317
Real estate activities	42,868	1,831	311	399	45,410	43	13	80	15	152
Professional, scientific and technical activities	9,253	512	195	232	10,193	8	8	98	4	117
Administrative and support service activities	5,909	400	189	25	6,523	6	6	52	(5)	59
Public administration and defense, compulsory social security	20,972	794	43	0	21,809	3	5	5	0	13
Education	354	18	2	0	373	0	0	1	0	2
Human health services and social work activities	3,264	187	15	2	3,469	5	6	7	0	18
Arts, entertainment and recreation	837	24	10	0	872	3	0	4	0	7
Other service activities	8,707	387	74	210	9,378	10	8	39	19	75
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	182,912	12,817	3,748	106	199,583	290	330	1,310	(0)	1,930
Activities of extraterritorial organizations and bodies	1,895	0	1	0	1,896	0	0	1	0	1
Total	645,967	24,680	7,531	2,150	680,328	549	492	3,015	36	4,093

Dec 31, 2018

in € m.	Gross Carrying Amount					Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
	Agriculture, forestry and fishing	533	38	60	0	631	1	2	21	0
Mining and quarrying	2,970	273	147	0	3,390	8	1	5	0	15
Manufacturing	26,695	1,291	783	66	28,836	25	24	449	1	498
Electricity, gas, steam and air conditioning supply	3,476	286	77	0	3,839	3	16	5	0	24
Water supply, sewerage, waste management and remediation activities	777	10	10	0	796	0	0	7	0	7
Construction	3,108	289	338	88	3,823	4	4	244	1	254
Wholesale and retail trade, repair of motor vehicles and motorcycles	19,119	859	593	0	20,572	19	18	403	(0)	440
Transport and storage	4,314	875	539	0	5,728	7	6	201	0	214
Accommodation and food service activities	1,692	166	35	121	2,014	3	2	17	0	23
Information and communication	4,443	286	46	0	4,774	8	13	27	0	48
Financial and insurance activities	318,867	10,526	373	633	330,400	81	33	153	7	274
Real estate activities	33,166	2,801	380	401	36,748	35	17	84	(9)	128
Professional, scientific and technical activities	8,169	498	151	190	9,008	7	8	83	0	98
Administrative and support service activities	7,091	189	62	32	7,374	8	3	19	(4)	25
Public administration and defense, compulsory social security	12,054	1,089	81	1	13,224	4	7	5	0	16
Education	612	19	8	0	638	1	0	7	0	9
Human health services and social work activities	3,246	209	12	2	3,468	7	5	5	0	18
Arts, entertainment and recreation	818	24	14	0	856	2	0	5	0	7
Other service activities	7,788	486	104	239	8,617	9	4	34	4	51
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	177,927	12,121	3,639	191	193,878	276	336	1,473	4	2,088
Activities of extraterritorial organizations and bodies	173	0	1	0	173	0	0	0	0	0
Total	637,037	32,335	7,452	1,963	678,787	509	501	3,247	3	4,259

Financial assets at amortized cost by region

Dec 31, 2019

in € m.	Gross Carrying Amount					Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
	Germany	262,104	12,872	3,259	321	278,556	266	279	1,311	(0)
Western Europe (excluding Germany)	131,432	5,516	2,979	1,631	141,558	152	150	1,418	39	1,760
Eastern Europe	5,929	230	75	0	6,234	2	5	39	0	45
North America	166,357	3,467	612	71	170,507	83	39	32	3	156
Central and South America	3,952	532	103	9	4,595	2	7	29	(1)	38
Asia/Pacific	65,128	1,862	489	119	67,597	34	10	186	(5)	225
Africa	2,637	172	13	0	2,823	7	2	1	0	10
Other	8,429	30	0	0	8,458	2	0	0	0	2
Total	645,967	24,680	7,531	2,150	680,328	549	492	3,015	36	4,093

in € m.	Gross Carrying Amount					Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
	Dec 31, 2018									
Germany	291,850	12,247	3,088	303	307,488	247	275	1,303	0	1,825
Western Europe (excluding Germany)	119,622	7,499	3,072	1,543	131,736	122	175	1,604	5	1,907
Eastern Europe	6,309	401	88	0	6,798	5	4	38	0	47
North America	147,300	7,572	554	20	155,446	66	32	48	1	147
Central and South America	4,717	558	155	0	5,430	7	2	22	0	31
Asia/Pacific	55,490	3,353	374	98	59,315	32	9	200	(4)	237
Africa	1,996	470	78	0	2,544	7	4	31	0	42
Other	9,753	234	43	0	10,031	22	0	1	0	24
Total	637,037	32,335	7,452	1,963	678,787	509	501	3,247	3	4,259

Financial assets at amortized cost by rating class

in € m.	Gross Carrying Amount					Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
	Dec 31, 2019									
iAAA–iAA	209,611	380	0	0	209,992	2	0	0	0	2
iA	93,098	259	0	0	93,357	7	0	0	0	7
iBBB	150,213	1,922	0	0	152,135	39	7	0	0	46
iBB	146,655	6,695	1	0	153,351	191	58	0	0	249
iB	40,495	10,625	1	1	51,122	263	192	0	0	455
iCCC and below	5,894	4,799	7,529	2,149	20,371	49	236	3,015	36	3,335
Total	645,967	24,680	7,531	2,150	680,328	549	492	3,015	36	4,093

in € m.	Gross Carrying Amount					Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
	Dec 31, 2018									
iAAA–iAA	235,913	2,315	0	0	238,229	2	0	0	0	3
iA	81,579	3,027	0	0	84,606	6	1	0	0	7
iBBB	138,596	2,508	0	0	141,104	36	8	0	0	43
iBB	137,768	8,318	0	232	146,318	177	61	0	0	238
iB	35,725	10,378	0	11	46,114	239	187	0	0	426
iCCC and below	7,456	5,788	7,452	1,720	22,416	49	243	3,247	3	3,542
Total	637,037	32,335	7,452	1,963	678,787	509	501	3,247	3	4,259

Our existing commitments to lend additional funds to debtors with Stage 3 financial assets at amortized cost amounted to € 279 million as of December 31, 2019 and € 117 million as of December 31, 2018.

Collateral held against financial assets at amortized cost in stage 3

in € m.	Dec 31, 2019			Dec 31, 2018		
	Gross Carrying Amount	Collateral	Guarantees	Gross Carrying Amount	Collateral	Guarantees
Financial Assets at Amortized Cost (Stage 3)	7,531	2,855	243	7,452	2,714	221

¹ Stage 3 consists here only of non-POCI assets

In 2019, collateral and guarantees held against financial assets as amortized cost in stage 3 increased by € 163 million, or 6 %, driven by Private Bank.

Due to full collateralization we did not recognize an allowance for credit losses against Financial assets at amortized cost in Stage 3 for € 832 million in 2019 and € 642 million in 2018.

Modified Assets at Amortized Cost

A financial asset is considered modified when its contractual cash flows are renegotiated or otherwise modified. Renegotiation or modification may or may not lead to derecognition of the old and recognition of the new financial instrument. This section covers modified financial assets that have not been derecognized.

Under IFRS 9, when the terms of a Financial Asset are renegotiated or modified and the modification does not result in derecognition, a gain or loss is recognized in the income statement as the difference between the original contractual cash flows and the modified cash flows discounted at the original effective interest rate (EIR). For modified financial assets the determination of whether the asset's credit risk has increased significantly reflects the comparison of:

- The remaining lifetime probability of default (PD) at the reporting date based on the modified terms; with
- The remaining lifetime PD estimated based on data at initial recognition and based on the original contractual terms.

Modified Assets Amortized Cost

in € m.	Dec 31, 2019					Dec 31, 2018				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Amortized cost carrying amount prior to modification	4	1	42	0	47	11	8	222	0	241
Net modification gain/losses recognized	(4)	(0)	(40)	0	(45)	(11)	(8)	(208)	0	(227)

In 2019 we have observed the decrease of € 194 million, or 80 %, in modified assets at amortized cost due to a large disposal in the shipping portfolio and the completion of the respective financing agreements without a debt waiver.

We have observed immaterial amounts of modified assets that have been upgraded to stage 1. We have not observed any subsequent re-deterioration of those assets into stages 2 and 3.

In 2018, the first year after the implementation of the IFRS 9 requirements, we have observed immaterial amounts of modified assets that have been upgraded to stage 1. We have not observed any subsequent re-deterioration of those assets into stages 2 and 3.

Financial Assets at Fair value through Other Comprehensive Income

The fair value of financial assets at Fair value through Other Comprehensive Income (FVOCI) subject to impairment was € 46 billion at December 31, 2019, compared to € 51 billion at December 31, 2018. Allowance for credit losses against these assets remained at very low levels (€ 35 million as of December 31, 2019 and € 13 million as of December 31, 2018). Due to immateriality no further breakdown will be provided for financial assets at FVOCI.

Off-balance sheet lending commitments and guarantee business

The following tables provide an overview of the nominal amount and credit loss allowance for our off-balance sheet financial asset class broken down into stages as per IFRS 9 requirements.

Development of nominal amount and allowance for credit losses

in € m.	Dec 31, 2019				
	Nominal Amount				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Balance, beginning of year	252,039	10,021	599	0	262,659
Movements including new business	(507)	(3,256)	(213)	0	(3,976)
Transfers due to changes in creditworthiness	(99)	(933)	1,032	0	0
Changes in models	0	0	0	0	0
Foreign exchange and other changes	496	33	6	0	535
Balance, end of reporting period	251,930	5,864	1,424	0	259,218

in € m.	Dec 31, 2018				
	Nominal Amount				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Balance, beginning of year¹	243,566	7,114	1,448	0	252,129
Movements including new business	6,765	3,923	(1,191)	0	9,496
Transfers due to changes in creditworthiness	752	(1,089)	338	0	0
Changes in models	0	0	0	0	0
Foreign exchange and other changes	957	73	4	0	1,035
Balance, end of reporting period	252,039	10,021	599	0	262,659

¹ Revocable commitments were included in impairment relevant exposures in Q4 2018. As a consequence, Balance, beginning of year was restated compared to our interim reports 2018.

in € m.	Dec 31, 2019				
	Allowance for Credit Losses ²				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Balance, beginning of year	132	73	84	0	289
Movements including new business	(13)	(5)	88	0	70
Transfers due to changes in creditworthiness	9	(12)	3	0	0
Changes in models	0	0	0	0	0
Foreign exchange and other changes	(1)	(7)	(9)	0	(17)
Balance, end of reporting period	128	48	166	0	342
Provision for Credit Losses excluding country risk ¹	(4)	(17)	90	0	70

¹ The above table breaks down the impact on provision for credit losses from movements in financial assets including new business, transfers due to changes in creditworthiness and changes in models.

² Allowance for credit losses does not include allowance for country risk amounting to € 4 million as of December 31, 2019.

in € m.	Dec 31, 2018				
	Allowance for Credit Losses ²				
	Stage 1	Stage 2	Stage 3	Stage 3 POCI	Total
Balance, beginning of year	117	36	119	0	272
Movements including new business	(0)	31	(13)	0	18
Transfers due to changes in creditworthiness	2	(0)	(2)	0	0
Changes in models	0	0	0	0	0
Foreign exchange and other changes	14	6	(20)	0	(0)
Balance, end of reporting period	132	73	84	0	289
Provision for Credit Losses excluding country risk ¹	1	31	(15)	0	18

¹ The above table breaks down the impact on provision for credit losses from movements in financial assets including new business, transfers due to changes in creditworthiness and changes in models.

² Allowance for credit losses does not include allowance for country risk amounting to € 5 million as of December 31, 2018.

Legal Claims

Assets subject to enforcement activity consist of assets, which have been fully or partially written off and the Group still continues to pursue recovery of the asset. Such enforcement activity comprises for example cases where the bank continues to devote resources (e.g. our Legal Department/CRM workout unit) towards recovery, either via legal channels or third party recovery agents. Enforcement activity also applies to cases where the Bank maintains outstanding and unsettled legal claims. This is irrespective of whether amounts are expected to be recovered and the recovery timeframe. It may be common practice in certain jurisdictions for recovery cases to span several years.

Amounts outstanding on financial assets that were written off during the reporting period and are still subject to enforcement activity amounted to € 152 million in fiscal year 2019, mainly in CB and PB. In 2018, legal claims amounted to € 224 million, mainly related to the former CIB.

Renegotiated and forborne assets at amortized costs

For economic or legal reasons we might enter into a forbearance agreement with a borrower who faces or will face financial difficulties in order to ease the contractual obligation for a limited period of time. A case-by-case approach is applied for our corporate clients considering each transaction and client -specific facts and circumstances. For consumer loans we offer forbearances for a limited period of time, in which the total or partial outstanding or future instalments are deferred to a later point of time. However, the amount not paid including accrued interest during this period must be re-compensated at a later point of time. Repayment options include distribution over residual tenor, a one-off payment or a tenor extension. Forbearances are restricted and depending on the economic situation of the client, our risk management strategies and the local legislation. In case a forbearance agreement is entered into, an impairment measurement is conducted as described below, an impairment charge is taken if necessary and the loan is subsequently recorded as impaired.

In our management and reporting of forborne assets at amortized costs, we are following the EBA definition for forbearances and non-performing loans (Implementing Technical Standards (ITS) on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013). Once the conditions mentioned in the ITS are met, we report the loan as being forborne; we remove the asset from our forbearance reporting, once the discontinuance criteria in the ITS are met (i.e., the contract is considered as performing, a minimum two year probation period has passed, regular payments of more than an insignificant aggregate amount of principal or interest have been made during at least half of the probation period, and none of the exposures to the debtor is more than 30 days past-due at the end of the probation period).

Forborne financial assets at amortized cost

in € m.	Dec 31, 2019				Dec 31, 2018			
	Performing		Non-performing		Performing		Non-performing	
	Stage 2	Stage 2	Stage 3	Total forborne loans at amortized cost	Nonimpaired	Nonimpaired	Impaired	Total forborne loans at amortized cost
German	985	31	1,227	2,243	1,046	49	1,200	2,295
Non-German	780	59	1,714	2,552	741	55	1,750	2,546
Total	1,765	90	2,940	4,796	1,787	104	2,950	4,841

Development of forborne financial assets at amortized cost

in € m.	Dec 31, 2019	Dec 31, 2018
Balance beginning of period	4,841	5,089
Classified as forborne during the year	1,702	1,679
Transferred to non forborne during the year (including repayments)	(1,408)	(1,574)
Charge-offs	(342)	(386)
Exchange rate and other movements	1	33
Balance end of period	4,796	4,841

Forborne assets at amortized cost slightly decreased by €45 million, or 1 % in 2019.

In 2018 the reduction in forborne assets at amortized cost was €248 million or 5 %, mainly driven by non-performing exposures in the former CIB mainly reflecting the ongoing de-risking of our shipping portfolio as well as in former PCB, among others caused by disposals.

Collateral Obtained

We obtain collateral on the balance sheet only in certain cases by either taking possession of collateral held as security or by calling upon other credit enhancements. Collateral obtained is made available for sale in an orderly fashion or through public auctions, with the proceeds used to repay or reduce outstanding indebtedness. Generally we do not occupy obtained properties for our business use. The commercial and residential real estate collateral obtained in 2019 refers predominantly to our exposures in Spain.

Collateral Obtained during the reporting period

in € m.	2019	2018
Commercial real estate	8	7
Residential real estate ¹	46	57
Other	0	0
Total collateral obtained during the reporting period	55	64

¹ Carrying amount of foreclosed residential real estate properties amounted to €51 million as of December 31, 2019 and €62 million as of December 31, 2018.

The collateral obtained, as shown in the table above, excludes collateral recorded as a result of consolidating securitization trusts under IFRS 10. In 2019 as well as in 2018 the Group did not obtain any collateral related to these trusts.

Derivatives – Credit Valuation Adjustment

We establish counterparty Credit Valuation Adjustment (CVA) for OTC derivative transactions to cover expected credit losses. The adjustment amount is determined by assessing the potential credit exposure to a given counterparty and taking into account any collateral held, the effect of any relevant netting arrangements, expected loss given default and the credit risk, based on available market information, including CDS spreads.

Treatment of default situations under derivatives

Unlike standard loan assets, we generally have more options to manage the credit risk in our derivatives transactions when movement in the current replacement costs or the behavior of our counterparty indicate that there is the risk that upcoming payment obligations under the transactions might not be honored. In these situations, we are frequently able under the relevant derivatives agreements to obtain additional collateral or to terminate and close-out the derivative transactions at short notice.

The master agreements for OTC derivative transactions executed with our clients usually provide for a broad set of standard or bespoke termination rights, which allow us to respond swiftly to a counterparty's default or to other circumstances which indicate a high probability of failure. Considering the severe systemic disruptions to the financial system, that could be caused by a disorderly failure of a CCP, the Financial Stability Board ("FSB") has recommended to subject CCPs to resolution regimes that apply the same objectives and provisions that apply to global systemically important banks (G-SIBs).

Our contractual termination rights are supported by internal policies and procedures with defined roles and responsibilities which ensure that potential counterparty defaults are identified and addressed in a timely fashion. These procedures include necessary settlement and trading restrictions. When our decision to terminate derivative transactions results in a residual net obligation owed by the counterparty, we restructure the obligation into a non-derivative claim and manage it through our regular work-out process. As a consequence, for accounting purposes we typically do not show any nonperforming derivatives.

Wrong-way risk occurs when exposure to a counterparty is adversely correlated with the credit quality of that counterparty. In compliance with Article 291(2) and (4) CRR we, excluding DB PFK AG, had established a monthly process to monitor several layers of wrong-way risk (specific wrong-way risk, general explicit wrong-way risk at country/industry/region levels and general implicit wrong-way risk, whereby relevant exposures arising from transactions subject to wrong-way risk are automatically selected and presented for comment to the responsible credit officer). A wrong-way risk report is then sent to Credit Risk senior management on a monthly basis. In addition, we, excluding DB PFK AG, utilized our established process for calibrating our own alpha factor (as defined in Article 284 (9) CRR) to estimate the overall wrong-way risk in our derivatives and securities financing transaction portfolio. DB PFK AG derivative counterparty risk is immaterial to the Group and collateral held is typically in the form of cash.

Trading Market Risk Exposures

Value-at-Risk Metrics of Trading Units of Deutsche Bank Group

The tables and graph below present the value-at-risk metrics calculated with a 99 % confidence level and a one-day holding period for our trading units.

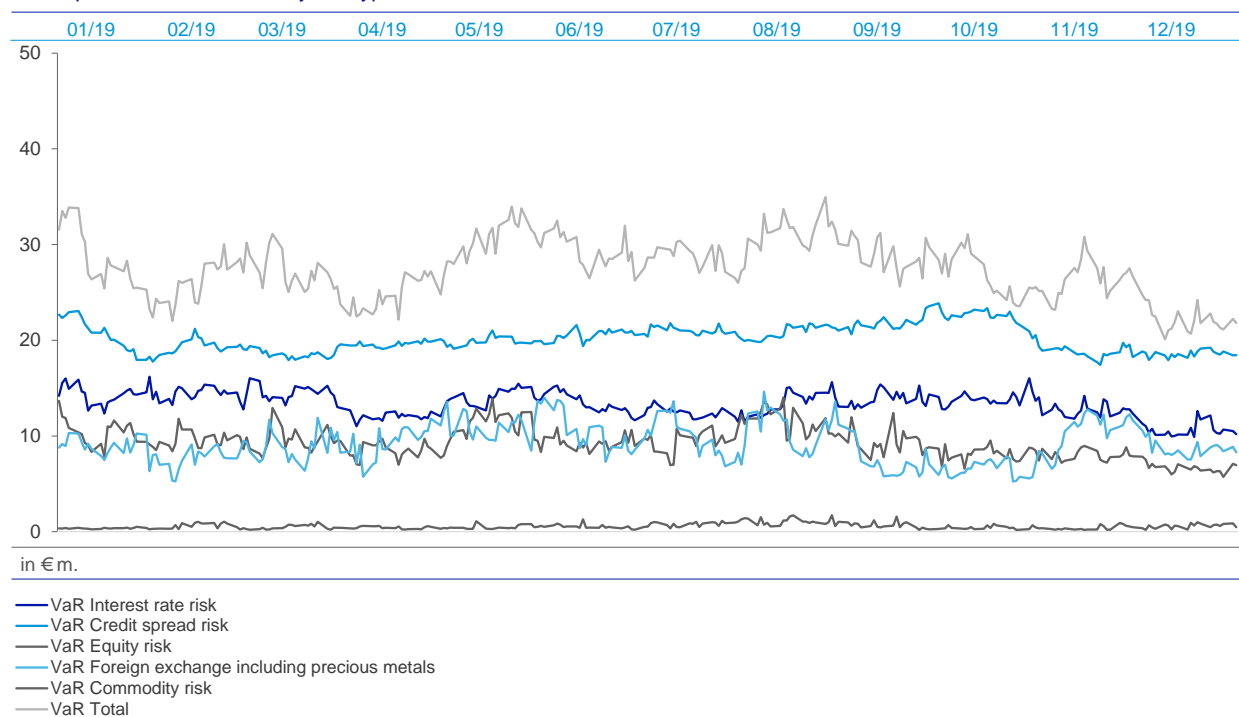
Value-at-Risk of our Trading Units by Risk Type

in € m.	Total		Diversification effect		Interest rate risk		Credit spread risk		Equity price risk		Foreign exchange risk ¹		Commodity price risk	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Average	27.5	27.5	(25.0)	(25.5)	13.3	17.6	20.2	16.4	9.3	10.0	9.2	8.3	0.6	0.6
Maximum	34.9	40.9	(29.4)	(35.0)	16.2	32.6	23.9	24.0	14.0	14.5	14.6	13.0	1.7	1.3
Minimum	20.1	19.8	(20.9)	(20.2)	9.9	12.4	17.4	13.0	5.7	6.9	5.2	3.8	0.2	0.2
Period-end	21.8	32.1	(22.5)	(26.9)	10.2	14.1	18.4	22.3	6.9	13.0	8.3	9.2	0.5	0.3

¹ Includes value-at-risk from gold and other precious metal positions.

² Figures for 2019 as of December 31 2019. Figures for 2018 as of December 31 2018.

Development of value-at-risk by risk types in 2019



The average value-at-risk over 2019 was €27.5 million, unchanged compared to the full year 2018, where on average credit spread risk increased offset by reduction in interest rate risk.

The period end value-at-risk decrease was driven by reductions coming from across risk classes due to de-risking activities.

Regulatory Trading Market Risk Measures

The table below presents the stressed value-at-risk metrics calculated with a 99 % confidence level and a one-day holding period for our trading units.

Average, Maximum and Minimum Stressed Value-at-Risk by Risk Type

in € m.	Total		Diversification effect		Interest rate risk		Credit spread risk		Equity price risk		Foreign exchange risk ¹		Commodity price risk	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Average	82.6	84.1	(74.0)	(81.9)	48.0	58.3	72.3	69.3	15.4	16.1	19.5	20.0	1.4	2.4
Maximum	103.8	124.7	(115.4)	(106.7)	65.3	89.9	87.8	79.7	32.7	78.1	50.1	38.2	5.9	7.7
Minimum	52.7	61.2	(57.9)	(66.1)	33.9	35.2	56.7	59.0	5.3	2.4	10.2	7.7	0.2	0.5
Period-end	78.8	96.2	(67.1)	(75.3)	43.8	57.6	67.7	70.1	13.3	21.3	20.1	21.7	1.1	0.7

¹ Includes value-at-risk from gold and other precious metal positions.

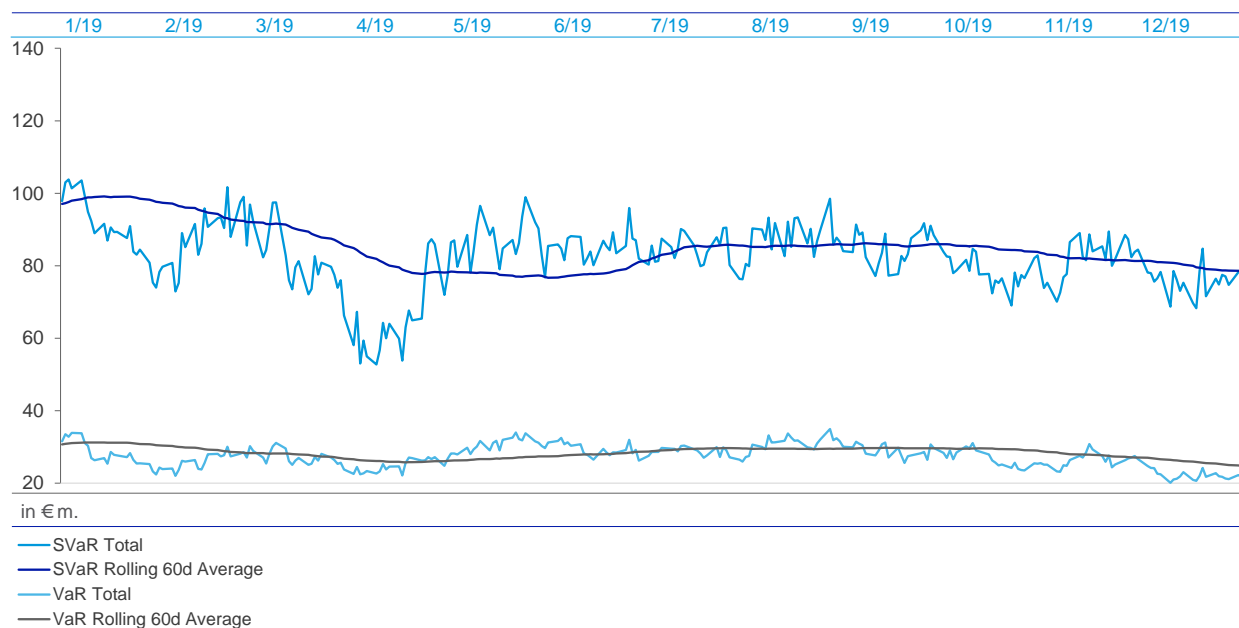
² Figures for 2019 as of Dec 31 2019. Figures for 2018 as of Dec 31 2018

The average stressed value-at-risk over 2019 was € 82.6 million, a decrease of € 1.5 million compared to the full year 2018 driven by a reduction in interest rate risk.

The period end stressed value-at-risk reduction was driven mainly by decreases coming from across interest rate and equities risk classes due to de-risking activities.

The following graph compares the development of the daily value-at-risk with the daily stressed value-at-risk and their 60 day averages, calculated with a 99 % confidence level and a one-day holding period for our trading units. Amounts are shown in millions of euro.

Development of value-at-risk and stressed value-at-risk in 2019



For regulatory reporting purposes, the incremental risk charge for the respective reporting dates represents the higher of the spot value at the reporting dates, and their preceding 12-week average calculation.

Average, Maximum and Minimum Incremental Risk Charge of Trading Units (with a 99.9 % confidence level and one-year capital horizon)^{1,2,3}

in € m.	Total		Global Credit Trading		Core Rates		APAC Local Markets		Emerging Markets - Debt		Other ⁴	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Average	480.4	680.6	178.5	335.8	168.6	271.1	174.1	224.8	37.3	(11.9)	(78.2)	(139.2)
Maximum	609.0	847.6	213.6	403.4	193.4	481.9	211.2	451.9	49.2	17.3	(58.5)	(111.3)
Minimum	324.2	550.8	139.0	274.6	134.7	159.1	127.3	72.1	25.5	(29.2)	(102.4)	(177.1)
Period-end	389.4	805.4	139.0	383.6	134.7	388.6	127.3	188.0	47.0	5.8	(58.5)	(160.5)

¹ Amounts show the bands within which the values fluctuated during the 12-weeks preceding December 31, 2019 and December 31, 2018, respectively.

² Business line breakdowns have been updated for 2019 reporting to better reflect the current business structure.

³ All liquidity horizons are set to 12 months.

⁴ Other includes Capital Release Unit, central hedging components and other business lines with low IRC materiality.

⁵ IRC is allocated on a contributory basis to individual positions.

⁶ Business lines can have negative values due to short exposures but this is also impacted by the allocation process.

The incremental risk charge as at the end of 2019 was € 389 million a decrease of € 416 million (-52 %) compared with year end 2018. The 12-week average of the incremental risk charge as at the end of 2019 was € 480 million and thus € 200 million (29 %) lower compared with the average for the 12-week period ended December 31, 2018. The decrease in incremental risk charge is driven by a decrease in credit exposures in the Global Credit Trading, Core Rates and APAC Local Markets business areas when compared to the full year 2018. This is partly impacted by a particularly high level at the end of December 2018 due to Asian sovereign exposures that were soon exited but also due to de-risking following the change in strategy in the second half of 2019.

Market Risk Standardized Approach

As of December 31, 2019, the securitization positions, for which the specific interest rate risk is calculated using the market risk standardized approach, generated capital requirements of € 148 million corresponding to risk weighted-assets of € 1.9 billion. As of December 31, 2018 these positions generated capital requirements of € 418 million corresponding to risk weighted-assets of € 5.2 billion. The reduction over 2019 was driven by de-risking of the securitization portfolios.

Of the securitization positions, the capital requirement for the nth-to-default credit default swaps was € 1.2 million corresponding to risk weighted-assets of € 14.7 million compared with € 2.6 million and € 33 million as of December 31, 2018.

The capital requirement for Collective Investment Undertakings under the market risk standardized approach was € 21 million corresponding to risk weighted-assets of € 269 million as of December 31, 2019, compared with € 14 million and € 180 million as of December 31, 2018.

The capital requirement for longevity risk under the market risk standardized approach was € 13 million corresponding to risk-weighted assets of € 163 million as of December 31, 2019, compared with € 14 million and € 180 million as of December 31, 2018.

Results of Regulatory Backtesting of Trading Market Risk

The value at risk is backtested against two measures of changes in the portfolio value on a one day holding period.

Buy-and-hold income is the hypothetical change in the portfolio's value based on a comparison between the portfolio's end-of-day value and, assuming unchanged positions, its value at the end of the subsequent day.

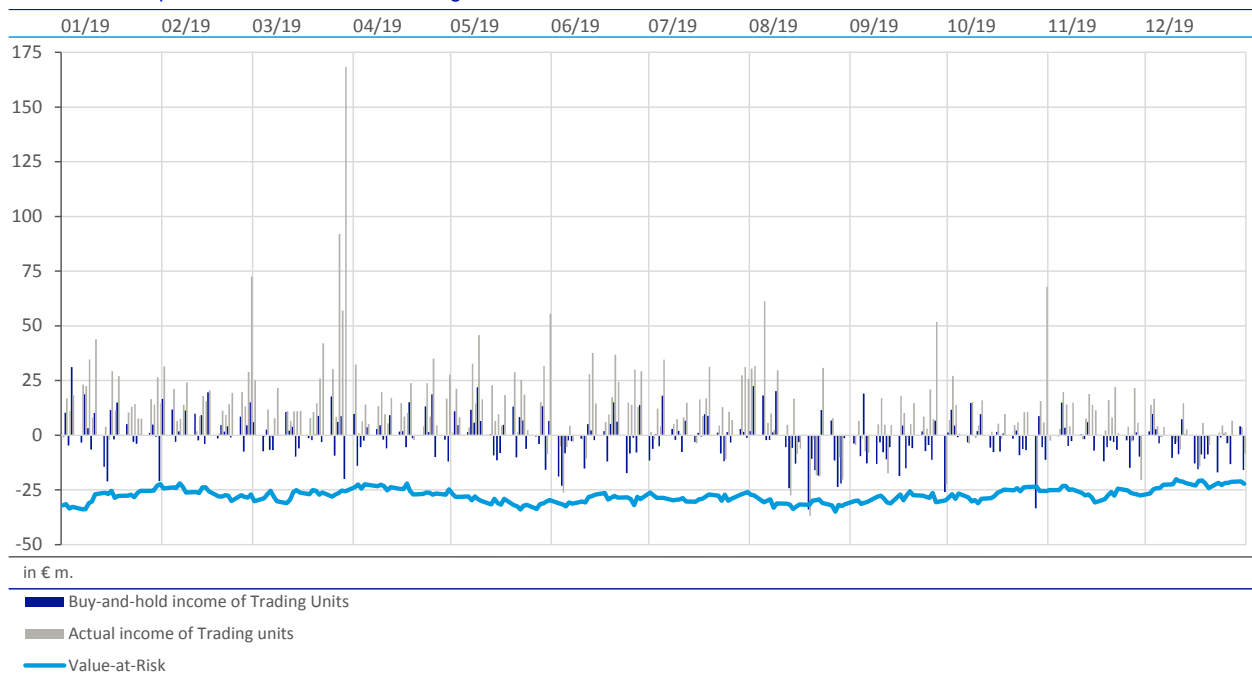
Actual income is the change in the portfolios' value based on a comparison between the portfolio's end-of-day value and its actual value at the end of the subsequent day excluding fees, commissions, net interest income and Credit & Debt Valuation Adjustments (CVA & DVA). Since December 2019 this additionally excludes income from hedges in the CVA calculation and any profit and loss arising from the default of a counterparty.

In 2019 we observed two global outliers, where our loss on a buy-and-hold basis exceeded the value-at-risk of our Trading Books, compared with one outlier in 2018. The first outlier occurred in August driven by losses coming from across business lines predominately due to movements in credit spread and interest rate risk factors. The second outlier was in October coming from the Global Credit Trading business following a selloff in a single name exposure. Both of these were also Actual Backtesting outliers.

Based on the backtesting results, our analysis of the underlying reasons for outliers and enhancements included in our value-at-risk methodology we continue to believe that our value-at-risk model will remain an appropriate measure for our trading market risk under normal market conditions. The following graph shows the trading units daily buy-and-hold income in comparison to the value-at-risk as of the close of the previous business day for the trading days of the reporting period. The value-at-risk is presented in negative amounts to visually compare the estimated potential loss of our trading positions with the buy and hold income. Figures are shown in millions of euro. The chart shows that our trading units achieved a positive buy and hold income for 44 % of the trading days in 2019 (versus 52 % in 2018), as well as displaying the global outliers experienced in 2019.

The capital requirements for the value-at-risk model, for which the backtesting results are shown here, accounts for 1.3 % of the total capital requirement for the Group.

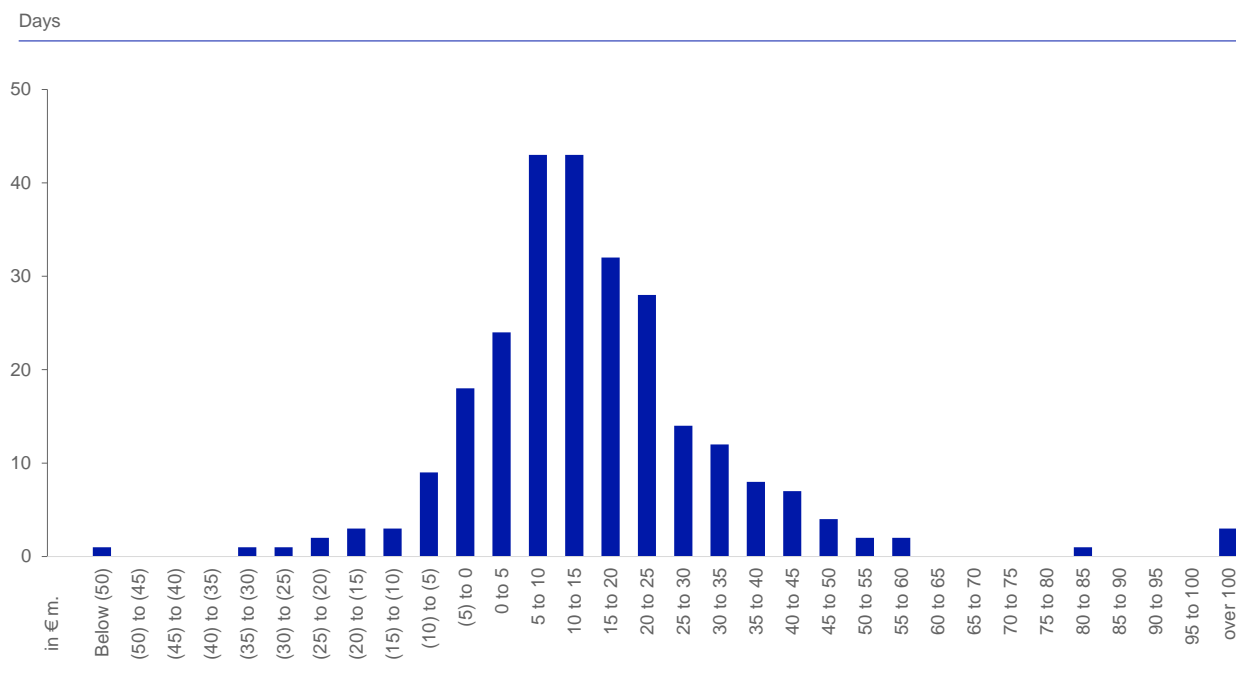
EU MR4 – Comparison of VAR estimates with gains/losses



Daily Income of our Trading Units

The following histogram shows the distribution of daily income of our trading units. Daily income is defined as total income which consists of new trades, fees & commissions, buy & hold income, reserves, carry and other income. It displays the number of trading days on which we reached each level of trading income shown on the horizontal axis in millions of euro.

Distribution of daily income of our trading units in 2019



Our trading units achieved a positive revenue for 85 % of the trading days in 2019 compared with 86 % in the full year 2018.

Nontrading Market Risk Exposures

Economic Capital Usage for Nontrading Market Risk

The following table shows the Nontrading Market Risk economic capital usage by risk type:

Economic Capital Usage by risk type.

in € m.	Economic capital usage	
	Dec 31, 2019	Dec 31, 2018
Interest rate risk	3,409	1,416
Credit spread risk	56	271
Equity and Investment risk	1,566	1,239
Foreign exchange risk	1,782	1,713
Pension risk	1,259	1,588
Guaranteed funds risk	103	68
Total nontrading market risk portfolios	8,175	6,295

The economic capital figures do take into account diversification benefits between the different risk types.

Economic Capital Usage for Nontrading Market Risk totaled €8.2 billion as of December 31, 2019, which is €1.9 billion above our economic capital usage at year-end 2018.

- Interest rate risk. Economic capital charge for interest rate risk in the banking book, including gap risk, basis risk and option risk, such as the risk of a change in client behaviour embedded in modelled non-maturity deposits or prepayment risk. In total the economic capital usage for December 31, 2019 was €3,409 million, compared to €1,416 million for December 31, 2018. The increase in economic capital contribution was mainly driven by increased economic value interest rate risk exposure built-up to reduce earnings risk exposure.
- Credit spread risk. Economic capital charge for portfolios in the banking book subject to material credit spread risk. Economic capital usage was €56 million as of December 31, 2019, versus €271 million as of December 31, 2018. The decrease in economic capital contribution was driven by a combined effect of a reduction in credit spread risk exposures and higher diversification benefits with other risk types.
- Equity and Investment risk. Economic capital charge for equity risk from our non-consolidated investment holdings, such as our strategic investments and alternative assets, and from a structural short position in our own share price arising from our equity compensation plans. The economic capital usage was €1,566 million as of December 31, 2019, compared with €1,239 million as of December 31, 2018, predominately driven by an increased market value of our equity compensation short position.
- Foreign exchange risk. Foreign exchange risk predominantly arises from our structural position in unhedged capital and retained earnings in non-euro currencies in certain subsidiaries. Our economic capital usage was €1,782 million as of December 31, 2019, versus €1,713 million as of December 31, 2018, mainly driven by a new currency hedging strategy.
- Pension risk. This risk arises from our defined benefit obligations, including interest rate risk and inflation risk, credit spread risk, equity risk and longevity risk. The economic capital usage was €1,259 million and €1,588 million as of December 31, 2019 and December 31, 2018 respectively. The economic capital usage declined as a consequence of improved hedging of interest and credit spread risk and enhancements in the methodology with respect to overfunded Pension plans.
- Guaranteed funds risk. Economic capital usage was €103 million as of December 31, 2019, versus €68 million as of December 31, 2018. The increase in economic capital contribution was largely driven by lower diversification effects.

Interest Rate Risk in the Banking Book

The following table shows the impact on the Group's net interest income in the banking book as well as the change of the economic value for the banking book positions from interest rate changes under the six standard scenarios defined by Basel Committee on Banking Supervision (BCBS):

Economic value & net interest income interest rate risk in the banking book by scenario

in € bn.	Delta EVE		Delta NII ¹	
	Dec 31, 2019	Dec 31, 2018	Dec 31, 2019	Dec 31, 2018
Parallel up	(4.2)	0.8	3.0	2.9
Parallel down	0.5	(3.2)	(0.8)	(0.8)
Steeper	(1.2)	0.9	(0.5)	(0.5)
Flattener	(0.4)	(1.6)	2.7	2.7
Short rate up	(1.2)	(0.7)	3.6	3.6
Short rate down	0.4	(0.1)	(0.8)	(1.0)
Maximum	(4.2)	(3.2)	(0.8)	(1.0)
in € bn.	Dec 31, 2019	Dec 31, 2018		
Tier 1 Capital	50.6	55.1		

N/A – Not applicable

¹ Delta Net Interest Income (NII) reflects the difference between projected NII in the respective scenario with shifted rates vs. market implied rates. Sensitivities are based on a static balance sheet at constant exchange rates, excluding trading positions and DWS. Figures do not include Mark to Market (MtM) / Other Comprehensive Income (OCI) effects on centrally managed positions not eligible for hedge accounting.

A sudden parallel increase in the yield curve would positively impact the Group's earnings (net interest income) from the banking book positions. Deutsche Bank estimates that the total one-year net interest income change resulting from parallel yield curve shifts of +200 and (200) basis points (floored by a rate of zero or at the level of the current negative rate) would be €3.0 billion and €(0.8) billion, respectively, at December 31, 2019.

The maximum Economic Value of Equity (EVE) loss was €(4.2) billion as of December 2019, compared to €(3.2) billion as of December 2018. The increase in maximum EVE loss was mainly driven by increased economic value interest rate risk exposure built-up to reduce net interest income (NII) risk exposure. This led to a directional change of our structural risk position, and, as a result, the maximum negative EVE loss scenario changed from parallel down to parallel up. Our NII risk remained largely unchanged as the impact of an increase in NII risk sensitive liabilities was offset by the additional measures taken to reduce the NII risk exposure. As per December 2019 the maximum EVE loss represents 8.3 % of Tier 1 Capital.

The following table shows the variation of the economic value for Deutsche Bank's banking book positions resulting from downward and upward interest rate shocks by currency:

Economic value interest rate risk in the banking book by currency

in € bn.	Dec 31, 2019	
	-200 bp ¹	+200 bp
EUR	0.1	(2.9)
GBP	(0.0)	0.0
USD	0.3	(1.1)
JPY	0.0	(0.0)
Other	0.2	(0.2)
Total	0.5	(4.2)

¹ Floored at zero

The estimated change in the economic value resulting from the impact of the BCBS parallel yield curve shifts of -200 bps (floored by a rate of zero) and +200 bps would be €0.5 billion and €(4.2) billion, respectively, at December 31, 2019.

Operational risk exposure

Operational risk – risk profile

Operational risk losses by event type (profit and loss view)

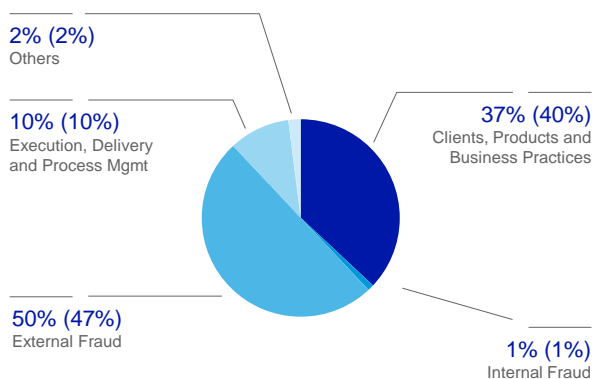
in € m.	2019	2018 ¹
Clients, Products and Business Practices	271	127
Internal Fraud	27	49
External Fraud	21	50
Execution, Delivery and Process Management	50	31
Others	5	20
Group	374	277

¹ 2018 loss figures revised from prior year presentation due to subsequent capture of losses and reclassification.

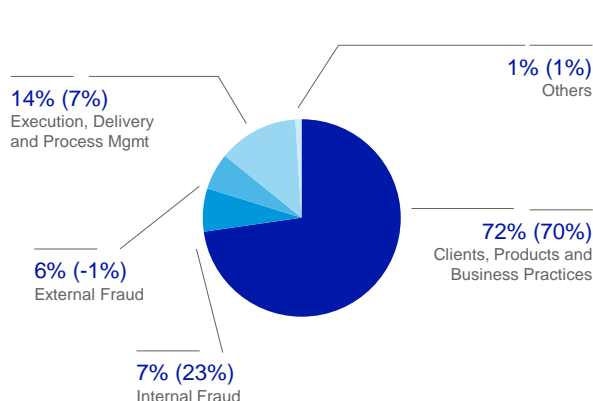
As of December 31, 2019, operational losses increased by €97 million or 35 % compared to year-end 2018. The increase was driven by the event types "Clients, Products and Business Practices" and "Execution, Delivery and Process Management", due to settlements reached and increased litigation reserves for unsettled cases in 2018.

Operational losses by event type occurred in the period 2019 (2014-2018)¹

Frequency of Operational Losses (first posting date)



Distribution of Operational Losses (posting date)



¹ Percentages in brackets correspond to loss frequency respectively to loss amount for losses occurred in 2014-2018 period. Frequency and amounts can change subsequently.

The above left chart "Frequency of Operational Losses" summarizes operational risk events which occurred in 2019 compared to the five-year period 2014-2018 in brackets based on the period in which a loss was first recognized for that event. For example, for a loss event that was first recognized in 2010 with an additional profit/loss event recognized in 2019, the frequency chart would not include the loss event, but the loss distribution chart (above right) would include the profit/loss recognized in the respective period.

Frequencies are driven by the event types “External Fraud” with a frequency of 50 % and the event type “Clients, Products and Business Practices” with 37 % of all observed loss events. “Execution, Delivery and Process Management” contributes 10 %. Others are stable at 2 %. The event type “Internal Fraud” has a low frequency, resulting in 1 % of the loss events in the period 2019.

The above right chart “Distribution of Operational Losses” summarizes operational risk loss postings recognized in the profit/loss in 2019 compared to the five-year period 2014-2018. The event type “Clients, Products and Business Practices” dominates the operational loss distribution with a share of 72 % and is determined by outflows related to litigation, investigations and enforcement actions. “Execution, Delivery and Process Management” has the second highest share (14 %). Finally, the event types “Internal Fraud” (7 %), “External Fraud” (6 %) and “Others” (1 %) are minor, compared to the other event types.

While we seek to ensure the comprehensive capture of operational risk loss events with a P&L impact of € 10.000 or greater, the totals shown in this section may be underestimated due to delayed detection and recording of loss events.

Liquidity Risk Exposure

Funding Markets and Capital Markets Issuance

2019 has been a positive year for credit markets. Through continued economic growth, avoidance of a no-deal Brexit and despite global trade tensions, credit spreads were able to tighten throughout the year.

Our 5 year senior preferred CDS contract, introduced in May 2019, traded within a range of 122 to 62 basis points. The peak was observed at the end of May, since then the spread has declined and as of year-end was trading at 63 basis points. The spreads on our bonds exhibited a similar behaviour. For example, our senior non-preferred 1.125 % EUR benchmark maturing in March 2025 traded in a range of 126 to 231 basis points, closing at 127 basis points at year end 2019.

Our revised 2019 issuance plan of € 10-12 billion, comprising debt issuance with an original maturity in excess of one year, was completed and we concluded 2019 having raised € 14 billion in term funding, already prefunding part of our 2020 issuance plan. This funding was broadly spread across the following funding sources: Senior non-preferred plain-vanilla issuance (€ 7.6 billion), senior preferred plain-vanilla issuance (€ 1.8 billion), covered bond issuance (€ 2.1 billion), and other senior preferred structured issuance (€ 2.4 billion). The (€ 14 billion) total is divided into Euro (€ 6.3 billion), US dollar (€ 6.4 billion), British Pound (€ 0.6 billion) and other currencies aggregated (€ 0.7 billion). In addition to direct issuance, we use long-term cross currency swaps to manage our non-Euro funding needs. Our investor base for 2019 issuances comprised asset managers and pension funds (47 %), retail customers (18 %), banks (12 %), governments and agencies (16 %), insurance companies (3 %) and other institutional investors (4 %). The geographical distribution was split between Germany (21 %), rest of Europe (35 %), US (16 %), Asia/Pacific (9 %) and Other (19 %).

The average spread of our issuance over 3-months-Euribor/Libor was 150 basis points for the full year. The average tenor was 5.1 years. Our issuance activities were higher in the first half of the year. We issued the following volumes over each quarter: Q1: € 7.8 billion, Q2: € 1.0 billion, Q3: € 0.9 billion and Q4: € 4.2 billion, respectively.

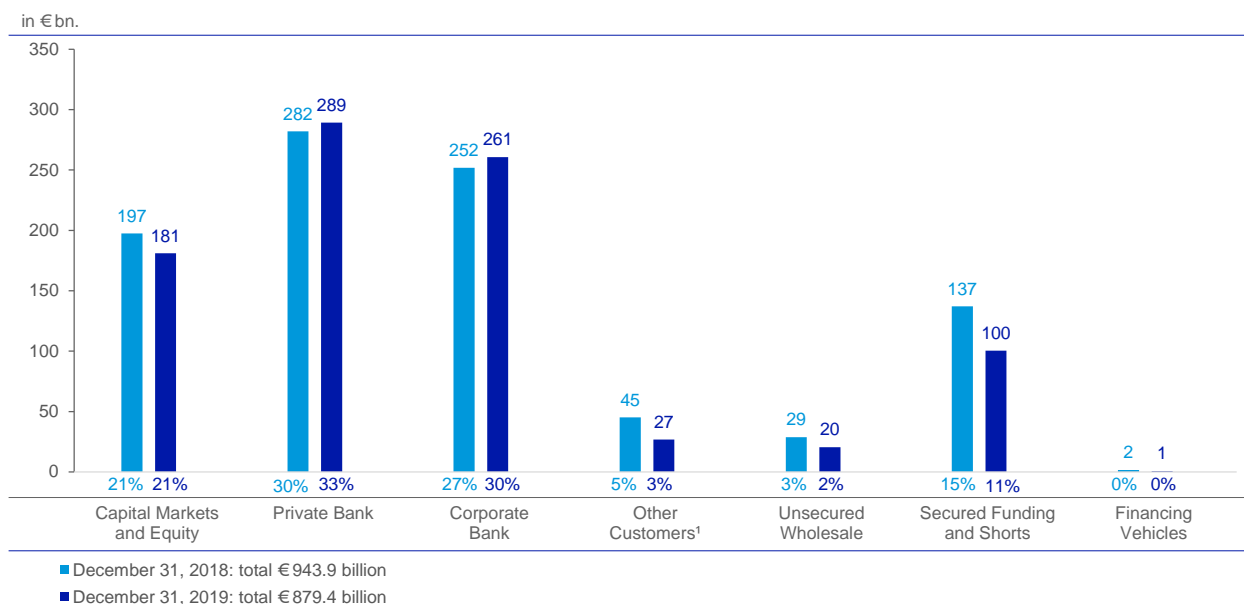
In 2020, our issuance plan is € 15-20 billion which we plan to cover by accessing the above sources including € 1 billion of capital instruments, whilst maintaining funding diversification. We also plan to raise a portion of this funding in U.S. dollar and may enter into cross currency swaps to manage any residual requirements. We have total capital markets maturities, excluding legally exercisable calls of approximately € 17 billion in 2020.

Funding Diversification

In 2019, total external funding decreased by € 64.4 billion from € 943.9 billion at December 31, 2018 to € 879.4 billion at December 31, 2019. The overall reduction was primarily driven by a decrease of balances in Secured Funding and Shorts by € 36.6 billion on the back of targeted reductions in the Capital Release Unit as well as from prepayments of TLTRO II funding. In addition, unsecured wholesale funding decreased by € 8.4 billion and other customer funding by € 18.4 billion, the latter primarily due to lower Prime Brokerage payables due to the unwind of the equity business. This decrease was partly offset by an increase of € 9.0 billion in our Corporate Bank and € 7.3 billion in our Private Bank business. The decrease of the Capital Markets and Equity volume by € 16.5 billion relates to lower equity as well as lower long term debt mainly due to maturities exceeding new issuances.

The overall proportion of our most stable funding sources (comprising Capital Markets and Equity, Private Bank and Corporate Bank) has increased from 77.5 % in 2018 to 83.1 % in 2019.

Composition of External Funding Sources



¹ Other Customers includes fiduciary, self-funding structures (e.g. X-markets) and margin/Prime Brokerage cash balances (shown on a net basis). Reference: Reconciliation to total balance sheet of €1,297.7 billion (€1,348.1 billion): Derivatives & settlement balances €335.7 billion (€325.0 billion), add-back for netting effect for margin/Prime Brokerage cash balances (shown on a net basis) €52.4 billion (€51.0 billion), other non-funding liabilities €30.1 billion (€28.3 billion) for December 31, 2019 and December 31, 2018, respectively. Liabilities held for sale from the transfer of business to BNP Paribas were allocated back to their original line items prior to reclassification, to reflect their economic impact on funding: €2.5 billion to derivatives & settlement balances (non-funding relevant) and €6.9 billion to payables from Prime Brokerage, with a net impact of additional €3.7 billion on other customer funding (funding relevant) and €3.2 billion add-back effect for netting of margin/Prime Brokerage cash balances (reconciliation item). In line with our strategic announcement on July 7, 2019, funding buckets have been reclassified from Retail and Transaction Banking to Private Bank and Corporate Bank, comparative figures as of December 31, 2018 are restated.

Maturity of unsecured wholesale funding, ABCP and capital markets issuance¹

								Dec 31, 2019
in € m.	Not more than 1 month	Over 1 month but not more than 3 months	Over 3 months but not more than 6 months	Over 6 months but not more than 1 year	Sub-total less than 1 year	Over 1 year but not more than 2 years	Over 2 years	Total
Deposits from banks	1,275	2,179	3,602	339	7,396	92	211	7,699
Deposits from other wholesale customers	682	4,466	754	1,819	7,720	605	1,064	9,389
CDs and CP	260	569	857	983	2,670	1	0	2,671
ABCP	0	0	0	0	0	0	0	0
Senior non-preferred plain vanilla	136	2,503	1,584	7,677	11,899	19,175	33,007	64,081
Senior preferred plain vanilla	0	0	0	5	5	1,800	1,039	2,844
Senior structured	220	692	659	2,692	4,262	2,926	14,301	21,490
Covered bonds/ABS	173	1,166	244	2,214	3,797	4,068	13,617	21,482
Subordinated liabilities	3	722	2,742	493	3,959	23	9,622	13,605
Other	107	0	0	0	107	0	776	883
Total	2,855	12,297	10,440	16,223	41,816	28,690	73,637	144,143
Of which:								
Secured	173	1,166	244	2,214	3,797	4,068	13,617	21,482
Unsecured	2,682	11,131	10,197	14,009	38,019	24,622	60,021	122,661

¹ Includes additional Tier 1 notes reported as additional equity components in the financial statements. Liabilities with call features are shown at earliest legally exercisable call date. No assumption is made as to whether such calls would be exercised.

The total volume of unsecured wholesale liabilities, ABCP and capital markets issuance maturing within one year amount to €42 billion as of December 31, 2019, and should be viewed in the context of our total Liquidity Reserves of €222 billion.

Dec 31, 2018

in € m.	Not more than 1 month	Over 1 month but not more than 3 months	Over 3 months but not more than 6 months	Over 6 months but not more than 1 year	Sub-total less than 1 year	Over 1 year but not more than 2 years	Over 2 years	Total
Deposits from banks	1,119	1,542	4,064	1,181	7,906	151	271	8,328
Deposits from other wholesale customers	1,820	1,868	5,413	5,044	14,145	1,017	1,459	16,621
CDs and CP	823	946	1,313	889	3,972	7	0	3,979
ABCP	0	0	0	0	0	0	0	0
Senior non-preferred plain vanilla	600	5,276	7,463	5,812	19,150	8,954	44,256	72,360
Senior preferred plain vanilla	0	0	0	0	0	5	1,012	1,017
Senior structured	626	951	1,186	1,655	4,418	3,490	15,630	23,538
Covered bonds/ABS	213	972	553	407	2,145	3,848	15,666	21,659
Subordinated liabilities	9	731	2,226	32	2,998	2,217	9,605	14,820
Other	0	0	0	0	0	0	0	0
Total	5,209	12,285	22,219	15,022	54,734	19,690	87,898	162,322
Of which:								
Secured	213	972	553	407	2,145	3,848	15,666	21,659
Unsecured	4,997	11,313	21,666	14,615	52,590	15,842	72,232	140,663

The following table shows the currency breakdown of our short-term unsecured wholesale funding, of our ABCP funding and of our capital markets issuance.

Unsecured wholesale funding, ABCP and capital markets issuance (currency breakdown)

in € m.	Dec 31, 2019					Dec 31, 2018				
	in EUR	in USD	in GBP	in other CCYs	Total	in EUR	in USD	in GBP	in other CCYs	Total
Deposits from banks	1,330	5,558	13	798	7,699	2,400	5,241	22	665	8,328
Deposits from other wholesale customers	8,968	162	204	56	9,389	15,482	678	269	192	16,621
CDs and CP	884	678	196	913	2,671	2,279	769	94	838	3,979
ABCP	0	0	0	0	0	0	0	0	0	0
Senior non-preferred plain vanilla	29,365	27,696	1,822	5,198	64,081	33,736	31,549	1,163	5,913	72,360
Senior preferred plain vanilla	1,064	1,780	0	0	2,844	1,017	0	0	0	1,017
Senior structured	8,181	10,856	28	2,425	21,490	8,858	11,564	22	3,094	23,538
Covered bonds/ABS	21,482	0	0	0	21,482	21,659	0	0	0	21,659
Subordinated liabilities	3,509	4,213	0	5,884	13,605	6,338	7,498	801	183	14,820
Other	883	0	0	0	883	0	0	0	0	0
Total	75,666	50,943	2,261	15,274	144,143	91,768	57,298	2,372	10,884	162,322
Of which:										
Secured	21,482	0	0	0	21,482	21,659	0	0	0	21,659
Unsecured	54,184	50,943	2,261	15,274	122,661	70,110	57,298	2,372	10,884	140,663

Liquidity Reserves

Composition of our liquidity reserves by parent company (including branches) and subsidiaries

in € bn.	Dec 31, 2019		Dec 31, 2018	
	Carrying Value	Liquidity Value	Carrying Value	Liquidity Value
Available cash and cash equivalents (held primarily at central banks)	134	134	184	184
Parent (incl. foreign branches)	91	91	148	148
Subsidiaries	43	43	36	36
Highly liquid securities (includes government, government guaranteed and agency securities)	67	64	60 ¹	58
Parent (incl. foreign branches)	45	42	31	28
Subsidiaries	23	22	30	30
Other unencumbered central bank eligible securities	21	15	15	11
Parent (incl. foreign branches)	17	13	11	8
Subsidiaries	4	2	3	2
Total liquidity reserves	222	213	259	252
Parent (incl. foreign branches)	153	146	191	184
Subsidiaries	69	67	69	68

¹ As a result of calculation methodology changes and rounding effects, this differs from the €61 billion number shown in the 2018 annual report

As of December 31, 2019, our liquidity reserves amounted to €222 billion compared with €259 billion as of December 31, 2018. The decrease of €37 billion comprised approximately a €49 billion decrease in cash and cash equivalents, offset by an increase of €7 billion in highly liquid securities and €6 billion increase in other unencumbered securities. The development was largely driven by management action to actively reduce excess liquidity and invest in higher yielding assets as part of our strategy. The quarterly average of our liquidity reserves for this year is €243 billion compared with €271 billion during 2018. In the table above the carrying value represents the market value of our liquidity reserves while the liquidity value reflects our assumption of the value that could be obtained, primarily through secured funding, taking into account the experience observed in secured funding markets at times of stress.

Liquidity Coverage Ratio

Our weighted average LCR of 142 % (twelve months average) has been calculated in accordance with the Commission Delegated Regulation (EU) 2015/61 and the EBA Guidelines on LCR disclosure to complement the disclosure of liquidity risk management under Article 435 CRR.

The year-end LCR as of December 31, 2019 stands at 141.2 % compared to 140.4 % as of December 31, 2018.

LCR components

in € bn. (unless stated otherwise)	Dec 31, 2019	Dec 31, 2018
	Total adjusted weighted value (average)	Total adjusted weighted value (average)
Number of data points used in the calculation of averages	12	12
High Quality Liquid Assets	219	250
Total net cash outflows	154	172
Liquidity Coverage Ratio (LCR) in %	142 %	145 %

Funding Risk Management

Structural Funding

All funding matrices (the aggregate currency, the USD and the GBP funding matrix) were in line with the respective risk appetite as of year ends 2019 and 2018.

Stress Testing and Scenario Analysis

During 2019, our stressed Net Liquidity Position remained well above the risk appetite and finished 2019 with a surplus of €24 billion.

Global All Currency Daily Stress Testing Results

in € bn.	Dec 31, 2019			Dec 31, 2018		
	Funding Gap ¹	Gap Closure ²	Net Liquidity Position	Funding Gap ¹	Gap Closure ²	Net Liquidity Position
Systemic market risk	115	190	75	93	209	116
1 notch downgrade (DB specific)	103	192	90	63	193	131
Severe downgrade (DB specific)	223	260	37	222	278	57
Combined ³	236	260	24	231	279	48

¹ Funding gap caused by impaired rollover of liabilities and other projected outflows.

² Based on liquidity generation through Liquidity Reserves and other business mitigants.

³ Combined impact of systemic market risk and severe downgrade.

Global EUR Daily Stress Testing Results

in €	Dec 31, 2019			Dec 31, 2018		
	Funding Gap ¹	Gap Closure ²	Net Liquidity Position	Funding Gap ¹	Gap Closure ²	Net Liquidity Position
Combined ³	135	144	8	117	144	28

¹ Funding gap caused by impaired rollover of liabilities and other projected outflows.

² Based on liquidity generation through Liquidity Reserves and other business mitigants.

³ Combined impact of systemic market risk and severe downgrade.

Global USD Daily Stress Testing Results

in € bn.	Dec 31, 2019			Dec 31, 2018		
	Funding Gap ¹	Gap Closure ²	Net Liquidity Position	Funding Gap ¹	Gap Closure ²	Net Liquidity Position
Combined ³	75	84	9	83	96	13

¹ Funding gap caused by impaired rollover of liabilities and other projected outflows.

² Based on liquidity generation through Liquidity Reserves and other business mitigants.

³ Combined impact of systemic market risk and severe downgrade.

Global GBP Daily Stress Testing Results

in € bn.	Dec 31, 2019			Dec 31, 2018		
	Funding Gap ¹	Gap Closure ²	Net Liquidity Position	Funding Gap	Gap Closure	Net Liquidity Position
Combined ³	7	9	2	6	9	3

¹ Funding gap caused by impaired rollover of liabilities and other projected outflows.

² Based on liquidity generation through Liquidity Reserves and other business mitigants.

³ Combined impact of systemic market risk and severe downgrade.

The following table presents the amount needed to meet collateral requirements from contractual obligations in the event of a one- or two-notch downgrade by rating agencies for all currencies..

Contractual Obligations

in € m.	Dec 31, 2019		Dec 31, 2018	
	One-notch downgrade	Two-notch downgrade	One-notch downgrade	Two-notch downgrade
Contractual derivatives funding or margin requirements	415	749	688	994
Other contractual funding or margin requirements	0	0	0	0

Asset Encumbrance

This section refers to asset encumbrance in the group of institutions consolidated for banking regulatory purposes pursuant to the German Banking Act. Therefore this excludes insurance companies or companies outside the finance sector. Assets pledged by our insurance subsidiaries are included in Note 20 "Assets Pledged and Received as Collateral" of the consolidated financial statements, and restricted assets held to satisfy obligations to insurance companies' policy holders are included within Note 37 "Information on Subsidiaries" of the consolidated financial statements.

Encumbered assets primarily comprise those on- and off-balance sheet assets that are pledged as collateral against secured funding, collateral swaps, and other collateralized obligations. Additionally, in line with EBA technical standards on regulatory asset encumbrance reporting, assets placed with settlement systems, including default funds and initial margins, as well as other assets pledged which cannot be freely withdrawn such as mandatory minimum reserves at central banks, are considered encumbered. We also include derivative margin receivable assets as encumbered under these EBA guidelines.

Readily available assets are those on- and off-balance sheet assets that are not otherwise encumbered, and which are in freely transferrable form. Unencumbered financial assets at fair value, other than securities borrowed or purchased under resale agreements and positive market value from derivatives, and available for sale investments are all assumed to be readily available.

The readily available value represents the on- and off-balance sheet carrying amount or fair value rather than any form of stressed liquidity value (see the "Liquidity Reserves" for an analysis of unencumbered liquid assets available under a liquidity stress scenario). Other unencumbered on- and off-balance sheet assets are those assets that have not been pledged as collateral against secured funding or other collateralized obligations, or are otherwise not considered to be readily available. Included in this category are securities borrowed or purchased under resale agreements and positive market value from derivatives. Similarly, for loans and other advances to customers, these would only be viewed as readily available to the extent they are already in a pre-packaged transferrable format, and have not already been used to generate funding. This represents the most conservative view given that an element of such loans currently shown in Other assets could be packaged into a format that would be suitable for use to generate funding.

Encumbered and unencumbered assets

in € bn. (unless stated otherwise)	Dec 31, 2019			
	Carrying value			
	Assets	Encumbered assets	Unencumbered assets	
Readily available			Other	
Debt securities	153	46	108	0
Equity instruments	18	8	10	0
Other assets:				
Cash and due from banks & Interest earning deposits with Banks	147	12	135	0
Securities borrowed or purchased under resale agreements ¹	14	0	0	14
Financial assets at fair value through profit and loss ²				
Trading assets	13	0	13	0
Positive market value from derivative financial instruments	333	0	0	333
Securities borrowed or purchased under resale agreements ¹	71	0	0	71
Other financial assets at fair value through profit or loss	3	0	3	0
Financial assets at fair value through other comprehensive income ²	6	0	5	1
Loans	458	70	10	378
Other assets	80	48	0	32
Total	1,297	184	282	831

¹ Securities borrowed and securities purchased under resale agreements are all shown as other unencumbered. The use of the underlying collateral is separately captured in the off-balance sheet table below.

² Excludes Debt securities and Equity instruments (separately disclosed above).

in € bn. (unless stated otherwise)	Dec 31, 2019			
	Fair value of collateral received			
	Assets	Encumbered assets	Unencumbered assets	
Readily available			Other	
Collateral received:	252	200	47	4
Debt securities	215	171	43	0
Equity instruments	33	29	4	0
Other collateral received	4	0	0	4

in € bn. (unless stated otherwise)	Dec 31, 2018			
	Carrying value			
	Assets	Encumbered assets	Unencumbered assets	
Readily available			Other	
Debt securities	143	56	87	0
Equity instruments	56	42	15	0
Other assets:				
Cash and due from banks & Interest earning deposits with Banks	197	12	185	0
Securities borrowed or purchased under resale agreements ¹	12	0	0	12
Financial assets at fair value through profit and loss ²				
Trading assets	12	0	12	0
Positive market value from derivative financial instruments	320	0	0	320
Securities borrowed or purchased under resale agreements ¹	69	0	0	69
Other financial assets at fair value through profit or loss	21	0	21	0
Financial assets at fair value through other comprehensive income ²	6	0	5	1
Loans	441	75	5	360
Other assets	71	41	0	31
Total	1,348	225	330	793

¹ Securities borrowed and securities purchased under resale agreements are all shown as other unencumbered. The use of the underlying collateral is separately captured in the off-balance sheet table below.

² Excludes Debt securities and Equity instruments (separately disclosed above).

in € bn. (unless stated otherwise)	Dec 31, 2018			
	Fair value of collateral received			
	Assets	Encumbered assets	Unencumbered assets	
Readily available			Other	
Collateral received:	292	240	47	5
Debt securities	185	149	37	0
Equity instruments	102	92	10	0
Other collateral received	5	0	0	5

Maturity Analysis of Assets and Financial Liabilities

Treasury manages the maturity analysis of assets and liabilities. Modeling of assets and liabilities is necessary in cases where the contractual maturity does not adequately reflect the liquidity risk position. The most significant example in this context would be immediately repayable deposits from retail and transaction banking customers which have consistently displayed high stability throughout even the most severe financial crises.

The modeling profiles are part of the overall liquidity risk management framework (see section "Liquidity Stress Testing and Scenario Analysis" for short-term liquidity positions ≤ 1 year and section "Structural Funding" for long-term liquidity positions > 1 year) which is defined and approved by the Management Board.

The following tables present a maturity analysis of our total assets based on carrying value and upon earliest legally exercisable maturity as of December 31, 2019 and 2018, respectively.

Analysis of the earliest contractual maturity of assets

Dec 31, 2019

in € m.	On demand (incl. Overnight and one day notice)	Up to one month	Over 1 month to no more than 3 months	Over 3 months but no more than 6 months	Over 6 months but no more than 9 months	Over 9 months but no more than 1 year	Over 1 year but no more than 2 years	Over 2 years but no more than 5 years	Over 5 years	Total
Cash and central bank balances	130,338	4,152	205	54	20	2,601	222	0	0	137,592
Interbank balances (w/o central banks)	5,639	3,338	172	98	135	231	0	0	22	9,636
Central bank funds sold	0	0	0	0	0	0	0	0	0	0
Securities purchased under resale agreements	16	5,668	2,158	1,142	163	445	881	3,329	0	13,801
With banks	11	5,011	781	474	20	104	610	2,709	0	9,720
With customers	5	657	1,377	668	143	341	271	620	0	4,081
Securities borrowed	328	100	0	0	0	0	0	0	0	428
With banks	38	0	0	0	0	0	0	0	0	38
With customers	290	100	0	0	0	0	0	0	0	390
Financial assets at fair value through profit or loss	461,076	43,798	8,883	1,783	226	1,371	452	5,927	7,196	530,713
Trading assets	110,559	0	0	0	0	0	0	0	315	110,875
Fixed-income securities and loans	93,000	0	0	0	0	0	0	0	12	93,012
Equities and other variable-income securities	17,017	0	0	0	0	0	0	0	303	17,320
Other trading assets	543	0	0	0	0	0	0	0	0	543
Positive market values from derivative financial instruments	332,931	0	0	0	0	0	0	0	0	332,931
Non-trading financial assets mandatory at fair value through profit or loss	17,586	43,798	8,883	1,783	226	1,371	452	5,921	6,881	86,901
Securities purchased under resale agreements	4,791	38,563	6,796	743	91	121	156	2,105	0	53,366
Securities borrowed	12,623	4,355	930	0	0	0	10	0	0	17,918
Fixed-income securities and loans	0	493	1,079	865	135	388	285	3,780	5,344	12,369
Other non-trading financial assets mandatory at fair value through profit or loss	172	387	78	176	0	862	0	35	1,537	3,247
Financial assets designated at fair value through profit or loss	0	0	0	0	0	0	0	6	0	7
Positive market values from derivative financial instruments qualifying for hedge accounting	0	121	272	129	38	15	180	578	1,446	2,780
Financial assets at fair value through other comprehensive income	12	3,315	2,395	2,989	1,417	2,055	4,603	15,570	13,148	45,503
Securities purchased under resale agreements	0	1,408	0	0	0	0	7	0	0	1,415
Securities borrowed	0	0	0	0	0	0	0	0	0	0
Debt securities	0	1,618	1,848	2,561	1,065	1,851	4,187	13,016	13,068	39,214
Loans	12	289	546	428	352	204	409	2,554	80	4,874
Other	0	0	0	0	0	0	0	0	0	0
Loans	16,410	45,045	20,166	15,716	9,554	8,778	29,985	80,631	203,556	429,841
To banks	85	1,859	1,064	670	238	468	234	1,213	370	6,201
To customers	16,325	43,186	19,102	15,046	9,316	8,310	29,751	79,418	203,186	423,640
Retail	2,264	8,699	3,419	2,361	1,531	1,044	4,295	15,325	156,824	195,762
Corporates and other customers	14,061	34,487	15,683	12,685	7,785	7,266	25,456	64,094	46,362	227,878
Other financial assets	62,134	7,807	1,455	557	249	2,767	2,252	12,277	7,697	97,196
Total financial assets	675,954	113,345	35,706	22,468	11,801	18,263	38,574	118,314	233,065	1,267,490
Other assets	10,921	264	3,220	103	109	197	347	1,632	13,392	30,185
Total assets	686,875	113,609	38,926	22,571	11,910	18,459	38,921	119,946	246,458	1,297,674

Analysis of the earliest contractual maturity of assets

Dec 31, 2018¹

in € m.	On demand (incl. Overnight and one day notice)	Up to one month	Over 1 month to no more than 3 months	Over 3 months but no more than 6 months	Over 6 months but no more than 9 months	Over 9 months but no more than 1 year	Over 1 year but no more than 2 years	Over 2 years but no more than 5 years	Over 5 years	Total
Cash and central bank balances	182,778	2,596	224	0	22	3,070	40	0	0	188,731
Interbank balances (w/o central banks)	4,234	3,182	202	110	131	422	0	0	599	8,881
Central bank funds sold	0	0	0	0	0	0	0	0	0	0
Securities purchased under resale agreements	40	2,537	1,415	887	461	521	1,067	1,294	0	8,222
With banks	1	2,015	173	588	447	266	0	1,136	0	4,626
With customers	39	522	1,242	299	14	255	1,067	158	0	3,595
Securities borrowed	2,880	517	0	0	0	0	0	0	0	3,396
With banks	49	60	0	0	0	0	0	0	0	110
With customers	2,830	456	0	0	0	0	0	0	0	3,287
Financial assets at fair value through profit or loss	497,441	37,864	14,877	2,174	2,830	5,872	2,274	4,617	5,395	573,344
Trading assets	152,456	0	0	0	0	0	0	0	281	152,738
Fixed-income securities and loans	96,650	0	0	0	0	0	0	0	18	96,668
Equities and other variable-income securities	55,250	0	0	0	0	0	0	0	264	55,514
Other trading assets	556	0	0	0	0	0	0	0	0	556
Positive market values from derivative financial instruments	320,058	0	0	0	0	0	0	0	0	320,058
Non-trading financial assets mandatory at fair value through profit or loss	24,927	37,855	14,782	2,174	2,830	5,872	2,274	4,617	5,112	100,444
Securities purchased under resale agreements	5,478	32,550	3,231	616	372	78	110	2,098	9	44,543
Securities borrowed	19,213	4,331	625	2	0	0	39	0	0	24,210
Fixed-income securities and loans	1	739	10,855	1,556	2,458	4,590	1,777	2,501	3,763	28,239
Other non-trading financial assets mandatory at fair value through profit or loss	235	235	72	0	0	1,204	348	18	1,340	3,453
Financial assets designated at fair value through profit or loss	0	9	95	0	0	0	0	0	1	104
Positive market values from derivative financial instruments qualifying for hedge accounting	0	143	179	220	21	23	322	641	1,480	3,028
Financial assets at fair value through other comprehensive income	3	3,101	2,290	2,945	3,982	4,403	6,858	16,371	11,228	51,182
Securities purchased under resale agreements	0	1,097	0	0	0	0	0	0	0	1,097
Securities borrowed	0	0	0	0	0	0	0	0	0	0
Debt securities	0	1,692	1,717	2,519	3,811	4,307	6,252	13,494	11,203	44,993
Loans	3	312	574	426	171	96	606	2,877	25	5,092
Other	0	0	0	0	0	0	0	0	0	0
Loans	15,812	39,559	23,116	14,432	9,585	8,324	23,928	67,648	197,892	400,297
To banks	170	1,644	1,394	1,017	120	131	544	406	1,179	6,605
To customers	15,642	37,915	21,722	13,415	9,465	8,194	23,383	67,242	196,713	393,691
Retail	2,238	7,109	3,702	1,735	857	887	4,794	15,099	151,001	187,422
Corporates and other customers	13,404	30,806	18,020	11,680	8,609	7,307	18,589	52,143	45,712	206,269
Other financial assets	65,390	7,813	446	418	108	2,917	835	2,416	1,844	82,187
Total financial assets	768,578	97,311	42,750	21,187	17,142	25,551	35,324	92,987	218,438	1,319,269
Other assets	13,198	91	91	124	158	197	34	984	13,991	28,868
Total assets	781,777	97,402	42,841	21,311	17,300	25,749	35,358	93,972	232,430	1,348,137

¹ The figures for 2018 have been restated.

The following tables present a maturity analysis of our total liabilities based on carrying value and upon earliest legally exercisable maturity as of December 31, 2019 and 2018, respectively.

Analysis of the earliest contractual maturity of liabilities

Dec 31, 2019

in € m.	On demand (incl. Over-night and one day notice)	Up to one month	Over 1 month to no more than 3 months	Over 3 months but no more than 6 months	Over 6 months but no more than 9 months	Over 9 months but no more than 1 year	Over 1 year but no more than 2 years	Over 2 years but no more than 5 years	Over 5 years	Total
Deposits	364,007	20,305	92,964	35,712	17,979	15,110	7,205	8,675	10,251	572,208
Due to banks	43,745	1,631	8,834	5,338	1,065	665	2,153	5,453	7,972	76,856
Due to customers	320,262	18,674	84,130	30,374	16,914	14,445	5,052	3,222	2,279	495,352
Retail	135,727	4,746	57,398	16,271	8,895	5,854	579	654	171	230,296
Corporates and other customers	184,534	13,929	26,732	14,102	8,018	8,591	4,473	2,569	2,108	265,056
Trading liabilities	353,571	0	0	0	0	0	0	0	0	353,571
Trading securities	36,692	0	0	0	0	0	0	0	0	36,692
Other trading liabilities	373	0	0	0	0	0	0	0	0	373
Negative market values from derivative financial instruments	316,506	0	0	0	0	0	0	0	0	316,506
Financial liabilities designed at fair value through profit or loss (without loan commitments and financial guarantees)	9,860	15,487	10,201	5,066	4,802	954	162	983	2,816	50,332
Securities sold under repurchase agreements	7,617	14,965	10,016	4,795	4,555	754	2	16	2	42,723
Long-term debt	89	160	112	256	223	137	159	951	2,675	4,761
Other financial liabilities designated at fair value through profit or loss	2,154	362	74	14	25	63	1	16	139	2,847
Investment contract liabilities	0	0	0	0	0	544	0	0	0	544
Negative market values from derivative financial instruments qualifying for hedge accounting	0	140	147	42	105	97	64	491	343	1,431
Central bank funds purchased	218	0	0	0	0	0	0	0	0	218
Securities sold under repurchase agreements	1,493	960	158	22	0	205	13	37	7	2,897
Due to banks	1,248	750	32	22	0	205	0	0	0	2,257
Due to customers	246	210	127	0	0	0	13	37	7	640
Securities loaned	258	0	0	0	0	0	0	0	0	259
Due to banks	15	0	0	0	0	0	0	0	0	16
Due to customers	243	0	0	0	0	0	0	0	0	243
Other short term borrowings	1,861	518	1,477	604	229	529	0	0	0	5,218
Long-term debt	0	630	14,841	11,320	7,194	4,104	28,724	37,228	32,433	136,473
Debt securities - senior	0	572	3,139	4,811	6,992	3,232	27,178	32,215	23,047	101,187
Debt securities - subordinated	0	0	15	2,023	0	13	0	1,295	3,588	6,934
Other long-term debt - senior	0	54	11,687	4,480	198	855	1,522	3,529	5,695	28,019
Other long-term debt - subordinated	0	3	0	7	4	3	24	190	101	333
Trust Preferred Securities	0	0	0	1,257	0	756	0	0	0	2,013
Other financial liabilities	78,597	1,088	1,653	280	254	253	875	1,493	867	85,361
Total financial liabilities	809,867	39,129	121,442	54,304	30,564	22,553	37,043	48,908	46,716	1,210,524
Other liabilities	24,990	0	0	0	0	0	0	0	0	24,990
Total equity	0	0	0	0	0	0	0	0	62,160	62,160
Total liabilities and equity	834,857	39,129	121,442	54,304	30,564	22,553	37,043	48,908	108,876	1,297,674
Off-balance sheet commitments given	39,558	7,525	12,808	14,979	8,110	18,609	33,148	90,696	35,238	260,672
Banks	594	1,025	1,145	1,365	1,265	2,158	1,609	2,147	2,481	13,791
Retail	17,028	769	701	364	82	1,086	301	227	9,468	30,025
Corporates and other customers	21,936	5,731	10,962	13,249	6,763	15,365	31,237	88,322	23,290	216,856

Analysis of the earliest contractual maturity of liabilities

Dec 31, 2018

in € m.	On demand (incl. Over-night and one day notice)	Up to one month	Over 1 month to no more than 3 months	Over 3 months but no more than 6 months	Over 6 months but no more than 9 months	Over 9 months but no more than 1 year	Over 1 year but no more than 2 years	Over 2 years but no more than 5 years	Over 5 years	Total
Deposits	348,026	26,750	109,965	26,422	10,517	10,021	11,563	9,662	11,479	564,405
Due to banks	46,399	2,487	8,699	6,059	913	1,624	2,284	5,470	8,045	81,980
Due to customers	301,627	24,263	101,266	20,363	9,604	8,397	9,279	4,193	3,434	482,425
Retail	125,292	9,731	74,012	3,878	1,736	1,176	917	970	603	218,314
Corporates and other customers	176,335	14,532	27,254	16,486	7,868	7,221	8,362	3,223	2,831	264,111
Trading liabilities	361,411	0	0	0	0	0	0	0	0	361,411
Trading securities	59,629	0	0	0	0	0	0	0	0	59,629
Other trading liabilities	295	0	0	0	0	0	0	0	0	295
Negative market values from derivative financial instruments	301,487	0	0	0	0	0	0	0	0	301,487
Financial liabilities designed at fair value through profit or loss (without loan commitments and financial guarantees)	11,282	28,466	3,640	4,699	540	370	639	1,041	3,079	53,757
Securities sold under repurchase agreements	10,822	27,909	3,031	4,259	0	2	208	17	6	46,254
Long-term debt	255	33	238	234	416	155	391	936	2,949	5,607
Other financial liabilities designated at fair value through profit or loss	205	524	372	206	124	212	40	89	124	1,895
Investment contract liabilities	0	0	0	0	0	512	0	0	0	512
Negative market values from derivative financial instruments qualifying for hedge accounting	0	178	431	383	93	25	264	241	306	1,922
Central bank funds purchased	252	0	0	0	0	0	0	0	0	252
Securities sold under repurchase agreements	3,151	611	349	3	265	234	0	1	0	4,615
Due to banks	2,205	513	264	3	265	205	0	1	0	3,456
Due to customers	945	99	85	0	0	29	0	0	0	1,158
Securities loaned	3,357	1	1	0	0	0	0	0	0	3,359
Due to banks	1,320	1	0	0	0	0	0	0	0	1,322
Due to customers	2,036	0	1	0	0	0	0	0	0	2,037
Other short term borrowings	11,067	899	584	1,136	266	205	0	0	0	14,158
Long-term debt	0	1,735	28,579	9,505	5,017	2,480	22,627	47,762	34,377	152,083
Debt securities - senior	0	1,678	7,444	8,977	4,388	1,790	15,050	43,552	25,510	108,389
Debt securities - subordinated	0	28	1,943	109	1	0	1,314	1,232	2,089	6,717
Other long-term debt - senior	0	26	19,193	376	592	673	6,250	2,838	6,602	36,550
Other long-term debt - subordinated	0	3	0	42	36	17	13	141	175	427
Trust Preferred Securities	0	0	0	3,168	0	0	0	0	0	3,168
Other financial liabilities	96,571	976	1,785	134	44	1,024	268	101	59	100,962
Total financial liabilities	835,117	59,617	145,335	45,450	16,743	14,872	35,361	58,809	49,300	1,260,603
Other liabilities	18,797	0	0	0	0	0	0	0	0	18,797
Total equity	0	0	0	0	0	0	0	0	68,737	68,737
Total liabilities and equity	853,913	59,617	145,335	45,450	16,743	14,872	35,361	58,809	118,037	1,348,137
Off-balance sheet commitments given	39,720	9,767	13,480	19,872	9,390	15,678	27,793	91,753	36,200	263,654
Banks	20,274	5,010	7,445	10,854	5,178	8,539	14,394	46,720	19,178	137,593
Retail	8,192	1,246	388	86	115	577	343	79	4,360	15,386
Corporates and other customers	11,253	3,511	5,647	8,932	4,097	6,563	13,055	44,954	12,662	110,674

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Introduction

The 2019 Compensation Report provides detailed compensation information with regard to the overall Deutsche Bank Group.

The Compensation Report comprises the following three sections:

Management Board Compensation

The first section of the Report sets out the structure and design of the **compensation system** for the members of the Management Board of Deutsche Bank AG. The second section comprises the actual **compensation report** on the compensation and other benefits granted by the Supervisory Board to the members of the Management Board of Deutsche Bank AG. We also refer here to the Letter of the Supervisory Board.

Employee Compensation Report

The second section of the compensation report discloses information with regard to the compensation system and structure that applies to the employees in Deutsche Bank Group (including DWS Group). The report provides details on the Group Compensation Framework and it outlines the decisions on Variable Compensation for 2019. Furthermore, this part contains quantitative disclosures specific to employees identified as Material Risk Takers (MRTs) in accordance with the Remuneration Ordinance for Institutions (*Institutsvergütungsverordnung – InstVV*).

Supervisory Board Report and Disclosure

The third section provides information on the structure and level of compensation for Supervisory Board members of Deutsche Bank AG.

The report complies with the requirements of Section 314 (1) No. 6 of the German Commercial Code (Handelsgesetzbuch, "HGB"), the German Accounting Standard No. 17 ("DRS 17") "Reporting on Executive Body Remuneration", CRR, InstVV, and the recommendations of the German Corporate Governance Code.

Management Board Compensation

Management Board Compensation Governance

Compensation Control Committee

Prepares the resolutions regarding the compensation system and the compensation level and presents them to the Supervisory Board.

Supervisory Board

Passes resolutions on the compensation system and the compensation level. The resolved compensation system are presented to the Annual General Meeting.

Annual General Meeting

Passes resolutions on the approval of the compensation system and the compensation report.

The Supervisory Board, as a plenary body, is responsible for the structuring and design of the system for the compensation of the members of the Management Board as well as for determining their individual compensation. The Supervisory Board is supported by the Compensation Control Committee. The Compensation Control Committee controls and supports the appropriate structuring of the compensation policies and prepares the resolutions of the Supervisory Board regarding the individual compensation of the Management Board members. In addition, the Compensation Control Committee and/or the Supervisory Board will consult independent external consultants where this is considered necessary.

The Compensation Control Committee generally comprises four members. In accordance with regulatory requirements, at least one must have sufficient expertise and professional experience in the area of risk management and risk controlling and at least one other must be an employee representative.

The Supervisory Board regularly reviews the compensation system for the members of the Management Board. In the past, the Supervisory Board had made use of the possibility provided in § 120 (4) of the German Stock Corporation Act (Aktiengesetz – AktG) for the General Meeting to approve the system of compensation for Management Board members. The current system was approved by the Annual General Meeting in 2017. After the enactment of the German Act Implementing the Second Shareholder Rights Directive in late 2019, the Supervisory Board will review the compensation structures in 2020 in accordance with the new legal framework and present to the Annual General Meeting in 2021 for approval.

Compensation System

Compensation Principles

The compensation system and the determination of individual compensation are based on the six compensation principles outlined below. The compensation system was developed from these principles, and they provide guidance if questions of interpretation arise. Therefore, they are always taken into consideration by the Supervisory Board when passing a resolution on the compensation system and the assessment of individual compensation.

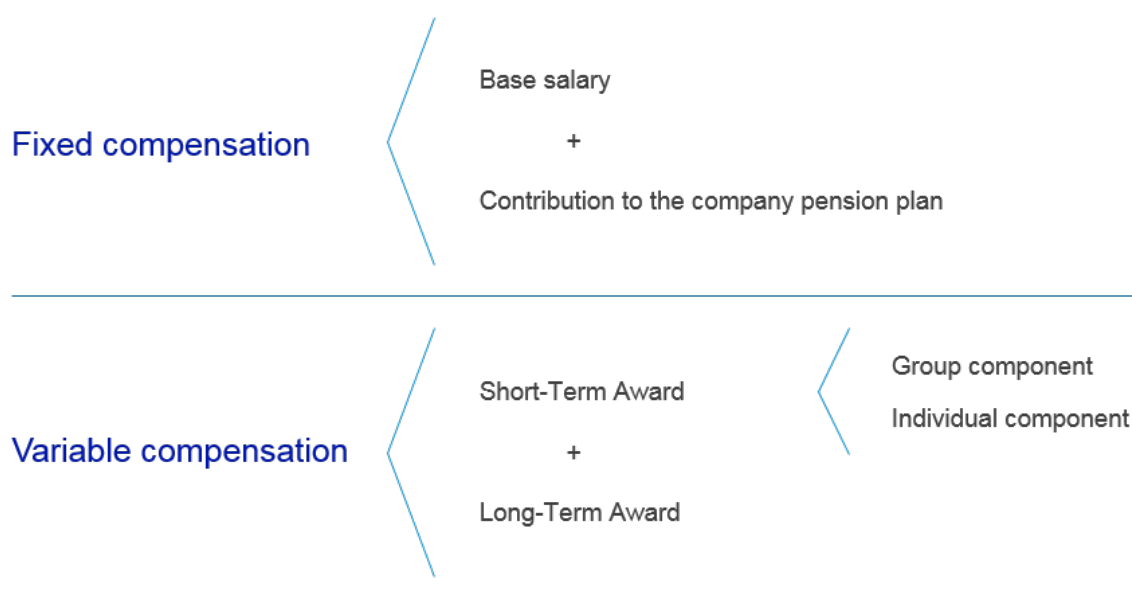
Governance	The structuring of the compensation system and determination of individual compensation takes place within the framework of the statutory and regulatory requirements. The Supervisory Board's objective is to offer, within the regulatory requirements, a compensation package that is in line with customary market practices and therefore competitive with comparable roles.
Group Strategy	Through the structure of the compensation policies the members of the Management Board are to be motivated to achieve the objectives set out in the Bank's strategies, to work continuously towards the positive development of the Group and to avoid unreasonably high risks.
Collective and Individual Performance of the Management Board Members	The variable, performance-related compensation is determined on the basis of the level of achievement of previously agreed objectives. For this purpose, collective and Deutsche Bank Group-related objectives applying equally to all Management Board members are set. In addition, the Supervisory Board sets individual objectives for each member of the Management Board separately, which particularly take into account the development of the business, infrastructure or regional areas of responsibility as the case may be. Such objectives may be financial or non-financial.
Regulatory or other compensation caps	Pursuant to the regulatory approaches under CRD 4, the ratio of fixed to variable compensation is generally limited to 1:1 (cap regulation), i.e. the amount of variable compensation must not exceed that of fixed compensation. However, lawmakers have also stipulated that shareholders can resolve to relax the requirement by setting the ratio of fixed to variable compensation to 1:2. In May 2014, the General Meeting approved the aforementioned setting to 1:2 with a majority of 91 %. The compensation system resolved by the Supervisory Board also provides fixed caps for the individual variable compensation components. In addition, the Supervisory Board is entitled to set an additional cap for the total compensation of the individual members of the Management Board. In the 2019 financial year, the additional cap was €9.85 million.
Sustainability	The total variable compensation for Management Board members is only to be granted on a deferred basis. The Long-Term Award, and therefore about 60 % of the deferred variable compensation, is to be granted in the form of equity-based compensation components, which only vest no less than five years after the grant in one tranche (cliff vesting) and are subject to an additional retention period of one year. The remaining portion is generally to be granted as non-equity-based compensation component and to vest in identical tranches over a period of seven years. During the deferral and retention period, deferred compensation is subject to specific forfeiture provisions. The total variable compensation may be reclaimed by the bank for up to two years after the expiry of the last deferral period in response to specific individual negative contributions to results made by the Management Board member (clawback).
Interests of the Shareholders	When designing the specific structure of the compensation system, determining individual compensation amounts, and structuring compensation delivery and allocation, the focus is on ensuring a close link between the interests of both the Management Board members and shareholders. While defining the variable compensation, this is achieved through the utilization of clearly defined key financial figures which are directly linked to the performance of Deutsche Bank.

The compensation system and the compensation structures they encompass are reflected in the individual Management Board members' contracts.

Compensation Structure

- Transparent Compensation Structures
- Clear link between compensation and previously agreed objectives
- Strong emphasis on the interests of the shareholders

Structure and compensation elements of the compensation policies



The compensation system applicable since January 2017 consist of non-performance-related (fixed) and performance-related (variable) components.

Non-Performance-Related Components (Fixed Compensation)

The fixed compensation is not linked to performance and consists of the base salary, allowances, contributions to the company pension plan and “fringe benefits”.

The annual base salary amounts to € 3.4 million for the Chairman of the Management Board. The President receives an annual base salary of €3 million. In principle, the annual base salary of ordinary Management Board members is €2.4 million, for the board member with responsibility for CIB, it was €3 million. When Mr. Ritchie, who was responsible for CIB, left the Management Board at the end of July 2019, CIB was split into the divisions CB and IB. These two new divisions have not been represented independently within the Management Board but were assumed by the Chairman of the Management Board. The base salary for a Management Board member that would be independently responsible for CB or IB, has not yet been determined.

Various factors were considered when determining the appropriate level of the base salary. First, the base salary rewards general assumption of the office of Management Board member and the related overall responsibility of the individual Management Board members. In addition, the compensation paid in the comparable market is taken into account when determining the amount of the base salary. However, a market comparison must take into consideration that the regulatory requirements pursuant to the German Remuneration Ordinance for Institutions (Institutsvergütungsverordnung – InstVV) in conjunction with Section 25a (5) of the German Banking Act (Kreditwesengesetz) set a cap for variable compensation at 200 % of the fixed compensation. Accordingly, the fixed compensation must be determined in a way that ensures competitive total compensation in line with market practice while taking into account the aforementioned requirements. The regulatory required cap was implemented in 2014.

In 2017, the Supervisory Board introduced an optional functional allowance which may be awarded to Management Board members who are assigned additional tasks and a particular responsibility extending beyond the assigned regular area of responsibility within the Management Board. Since August 2019, none of the Management Board members has received an optional functional allowance.

In addition, the Management Board members receive contributions to the company pension plan which form part of the fixed compensation according to regulatory provisions and are therefore to be taken into account when determining the ratio of fixed to variable compensation components. The annual contribution to the company pension plan was € 1,000,000 for those Management Board members who are responsible for AM and CIB. Since January 2019 or August 2019 respectively, neither area of responsibility has been independently represented within the Management Board. The annual contribution for all other Management Board members, including the Chairman, is € 650,000.

Additional non-performance-related components include “fringe benefits”. The “fringe benefits” comprise the monetary value of non-cash benefits such as company cars and driver services, insurance premiums, expenses for company-related social functions and security measures including payments, if applicable, of taxes on these benefits as well as taxable reimbursements of expenses.

Performance-Related Components (Variable Compensation)

The current compensation system provides that compensation must be linked to pre-defined transparent performance criteria. The structure allows for the agreement of individual and divisional objectives alongside collective objectives and makes it possible to achieve competitive pay levels in line with market practice on the basis of the respective member's area of responsibility and, at the same time, also meets in this respect the regulatory requirements.

The entire variable compensation is performance related. It consists of a short-term component, the so-called **Short-Term Award** and a long-term component, the so-called **Long-Term Award**.

Since 2017, the InstVV generally stipulates a three-year assessment period for the determination of the variable compensation for Management Board members. The bank takes account of this requirement by assessing each of the three objectives of the long-term component over a three-year period. If the relevant three years cannot be attributed to a member of the Management Board due to that member joining the bank only recently, the objective achievement level will be determined for the period that can be attributed to the Management Board member. If the minimum assessment period is shorter than three years, the deferral period of the variable compensation to be granted is extended by the number of years missing with respect to the minimum assessment period.

Short-Term Award (STA)

The STA is linked to the achievement of short term and medium-term objectives. Objectives include collective objectives to be achieved by the Management Board as a whole and individual objectives whose achievement level is determined separately for each member of the Management Board.

In order to distinguish collective objectives from individual objectives, the STA is divided into two components:

- the Group Component and
- the Individual Component.

Group Component

The objectives to be achieved form the basis for the calculation of the Group component as part of the STA. The key objective of the Group component is to link the variable compensation to the performance of the Bank.

In 2016, the Management Board decided to align part of the variable compensation for non-tariff employees of the Bank more closely with Group performance. This seeks to reward the contribution of all employees to the financial results of the Bank and the achievements in the implementation of its strategy. Management Board compensation is also closely linked to the performance of the Bank using selected key financial figures. The Supervisory Board decided to align the compensation policies for the Management Board members more closely with the compensation policies for employees. This is achieved by using the annual performance metrics underlying the Group component in the compensation system for employees as the reference value for the Group component of the STA since 2017.

In accordance with the strategy, four performance metrics constituting important indicators for the capital, risk, cost and return profile of the Bank form the reference value for the Group Component of the STA:

Common Equity Tier 1 (CET1) capital ratio (fully loaded)	The Common Equity Tier-1 Ratio of the Bank in relation to risk-weighted assets.
Leverage ratio	The Bank's Tier 1 capital as a percentage of its total leverage exposure pursuant to CRR/CRD 4.
Adjusted costs	Total noninterest expenses, excluding restructuring and severance, litigation and impairment of goodwill and other intangible assets.
Post-tax return on tangible equity (RoTE)	Net income (or loss) attributable to Deutsche Bank shareholders as a percentage of average tangible shareholders' equity. The latter is the shareholders' equity on the bank's balance sheet, excluding goodwill and other intangible assets.

The Supervisory Board regularly reviews the selection of the performance metrics. The above four objectives are equally weighted at up to 25 % in the determination of the Group Component of the STA, depending on the achievement level. If, overall, the performance metric-based objectives are not achieved during the period being evaluated, the Supervisory Board may determine that a Group component will not be granted.

Individual Component

The individual component of the STA rewards the achievement of short- and medium-term individual objectives. These objectives are established by the Supervisory Board as part of the objective setting agreement for the respective financial year's performance evaluation. The key objectives are designed to contribute to the applicable business policy and strategic objectives of the Bank, in line with each Management Board member's area of responsibility. In the process, both financial and non-financial success are taken into account. Objectives for the individual component may for example include revenue developments in the course of the year, project-related targets, diversity objectives or other developments in employee or client satisfaction.

As part of the annual objective setting agreement, corresponding key financial figures and/or measurement criteria are set for all objectives that are used to determine the objective achievement level. At least three objectives per financial year are set for each Management Board member.

Since the 2018 financial year, the **Balanced Scorecard** has been integrated in the compensation policies for the Management Board members. The Supervisory Board now determines the objective achievement level for a specific portion of the individual component of the Short Term Award, taking into account the results of the Balanced Scorecard. The Balanced Scorecard allows for the operationalization of strategic objectives by transforming the latter into concrete measures while simultaneously creating an overview of priorities across the Group. The Balanced Scorecard of Management Board Members consists of two components, (i) the key performance indicators (KPI) and (ii) the key deliverables, the achievement level of which is determined at the end of the financial year. The Balanced Scorecard contains key financial figures as well as (non-financial) key performance indicators for client business, personnel, control environment and innovation. In order to link the Balanced Scorecard to the remuneration of the members of the Management Board, the Supervisory Board resolved that 30 % of the individual component of the STA (i.e., 6-9 % of the total variable compensation) is reserved for KPIs coming from the Balanced Scorecard. The component of the Balanced Scorecard comprising the key deliverables is closely linked to the individual objectives.

The sum of all individual and divisional objectives determine 90 % of the individual component of the STA. The Supervisory Board decides on the remaining portion of 10 % of the individual component to reward outstanding contributions over the course of the financial year as an exercise of its discretionary authority. If, overall, the objectives are not achieved during the period being evaluated, the Supervisory Board may determine that an individual component will not be granted.

Minimum, Target and Maximum Values

The sum of Group-wide and individually agreed objectives amounts to a maximum of 40 % of the total variable compensation, depending on the achievement level of the aforementioned objectives. If, overall, the objectives are not achieved during the period being evaluated, the Supervisory Board may determine that an STA will not be granted.

in €	2019		
	Minimum	Target	Maximum
Chairman			
Group component	0	500,000	1,000,000
Individual component	0	1,400,000	2,800,000
STA total¹	0	1,900,000	3,800,000
Ordinary Board member			
Group component	0	500,000	1,000,000
Individual component (from - up to)	0	800,000	1,600,000
	0	up to 1,400,000	up to 2,800,000
STA total (from - up to)	0	1,300,000	2,600,000
	0	up to 1,900,000	up to 3,800,000

¹ STA: Short-Term Award.

Long-Term Award (LTA)

When determining the variable compensation, a clear focus is placed on the achievement of long-term objectives. Therefore, the target figure of the LTA constitutes a portion of no less than 60 % of the total variable target compensation. As with the short-term component, the Supervisory Board determines the collective long-term objectives for the Management Board members. The achievement level is determined on the basis of the definition of clear performance metrics and/or factors which are to be agreed for these objectives at the beginning of a financial year.

60 % of the variable compensation, as a minimum, relate to the long-term component

The Supervisory Board determined a total of three objectives for each Management Board member. Each objective is equally weighted at 1/3 in the assessment of the LTA. For 2019, the Supervisory Board determined the following three common objectives for all Management Board members.

The **relative performance of the Deutsche Bank** share in comparison to selected peer institutions is an objective within the framework of the LTA. This objective is intended to promote the sustainable performance of the Deutsche Bank share. The long-term nature of this objective is supported by the determination of the Relative Total Shareholder Return (RTSR) on the basis of a three-year assessment. The RTSR of Deutsche Bank is derived from the Total Shareholder Return of Deutsche Bank in relation to the average total shareholder returns of a selected peer group (calculated in Euros). This LTA portion is calculated from the average of the annual RTSR for the last three financial years (compensation year and the two preceding years). If the three-year average of the relative total shareholder return of Deutsche Bank is greater than 100 %, then the value of the RTSR portion increases proportionately to an upper limit of 150 % of the target figure, i.e., the value increases by 1 % for each percentage point above 100 %. If the three-year average of the relative total shareholder return is lower than 100 %, the value declines disproportionately. If the relative total shareholder return is calculated to be in the range of less than 100 % to 80 %, the value of the Award portion is reduced for each lower percentage point by 2 percentage points. In the range between 80 % and 60 %, the value of the Award portion is reduced for each lower percentage point by 3 percentage points. If the three-year average of the RTSR does not exceed 60 %, the value of the Award portion is set to zero.

The peer group used for the calculation of the relative total shareholder return is selected based on the criteria of generally comparable business activities, comparable size and international presence. The Supervisory Board reviews the composition of the peer group regularly.

In 2019, the peer group for the RTSR comprised the following banks:

Peer Group of Deutsche Bank

BNP Paribas	Société Générale	Barclays	Credit Suisse	UBS
Bank of America	Citigroup	JP Morgan Chase	HSBC	

The Supervisory Board sets an objective designed to promote the growing and strengthening of the Bank, based on the notion of actual **organic capital growth**. Organic Capital Growth is defined as the balance of the following changes (which are also reported in the Consolidated Statement of Changes in Equity) occurring during the financial year, divided by the Deutsche Bank Shareholders Equity attributable as at December 31 of the previous financial year.

- Total comprehensive income, net of tax
- Coupons on additional equity components, net of tax
- Remeasurement gains (losses) related to defined benefit plans, net of tax
- Option premiums and other effects from options on common shares
- Net gains (losses) on treasury shares sold

Consequently, "non-organic" changes in equity, in particular payment of a dividend or capital increase, are of no relevance to the achievement of the objective.

As in the last year, the third objective is the "Culture & Clients" factor. In this context, the Supervisory sets an objective which is linked to corporate culture, client satisfaction and dealing with clients. This objective is linked to the sustainable development of the intrabank environment or designed to foster the development of client relations for the 2019 financial year. One objective set by the Supervisory Board for all Management Board members is – this year again – the evaluation of the control environment within the Deutsche Bank Group.

The Long-Term Award can be a maximum of 150 % of the respective target figures.

Objectives

Objectives are established by the Supervisory Board as part of an objective setting agreement at the beginning of the respective financial year for purposes of performance evaluation. For all objectives, financial metrics are set to measure the achievement level of the objectives in a transparent way. The discretionary decision is strictly limited to 3 to 6 % with respect to the total variable compensation.

The allocation of the objectives to the individual compensation components is set out below.

	Relevant indicators	Relative weight
Short-Term Award (STA)	Group component ⁽¹⁾	
	CET1 ratio	25%
	Leverage ratio	25%
	Adjusted non-interest expenses	25%
	Post-tax return on tangible equity (RoTE)	25%
	Individual component ⁽²⁾	
	Individual Objectives	60%
Balanced Scorecard	30%	
Discretion	10%	
Long-Term Award (LTA) ⁽³⁾	Relative total shareholder return	33,34%
	Organic Capital Growth	33,33%
	Culture & Clients Factor / Control Environment	33,33%

(1) Joint strategic key objectives which also form base for the assessment of the group component as part of the compensation system for the employees of DB Group.

(2) Short-term individual and divisional objectives of quantitative and qualitative nature.

(3) Long-term group-wide objectives.

Maximum Compensation

Total Compensation/Target and Maximum Values

in €					2019	2018
	Base salary	Group component	STA ¹ Individual component	LTA ²	Total compensation	Total compensation
Chairman						
Target	3,400,000	500,000	1,400,000	3,400,000	8,700,000	8,700,000
Maximum	3,400,000	1,000,000	2,800,000	5,100,000	12,300,000	12,300,000
Ordinary Board member (CIB) ³						
Target	3,000,000	500,000	1,400,000	2,800,000	7,700,000	7,700,000
Maximum	3,000,000	1,000,000	2,800,000	4,200,000	11,000,000	11,000,000
Ordinary Board member (AM) ⁴						
Target	0	0	0	0	0	7,000,000
Maximum	0	0	0	0	0	10,200,000
Ordinary Board member (PB) ⁵						
Target	2,400,000	500,000	1,100,000	2,800,000	6,800,000	6,800,000
Maximum	2,400,000	1,000,000	2,200,000	4,200,000	9,800,000	9,800,000
Ordinary Board member (Infrastructure/Region)						
Target	2,400,000	500,000	800,000	2,800,000	6,500,000	6,500,000
Maximum	2,400,000	1,000,000	1,600,000	4,200,000	9,200,000	9,200,000

¹ STA: Short-Term Award.

² LTA: Long-Term Award.

³ Annual amounts until July 31, 2019. As of August 2019, the CEO has been responsible for the CB and the IB division, into which CIB was split.

⁴ In the financial year 2019, AM was not independently represented on the Management Board.

⁵ As of August 2019, the President has been responsible for the PB division. His Fixed Pay was 3,000,000 €.

The total compensation of a Management Board member is subject to additional caps. Due to regulatory requirements, the variable compensation is capped at 200 % of the fixed compensation. In addition, the Supervisory Board has in recent years set a cap for the overall total compensation, which will become mandatory in the future due to the German Law implementing the Shareholders' Rights Directive. For the 2019 financial year, the Supervisory Board has again capped compensation at a maximum of €9.85 million, so that even where the objective achievement level would result in higher compensation, compensation is capped at a maximum of €9.85 million.

Long-Term Incentive and Sustainability

According to the requirements of the InstVV at least 60 % of the total variable compensation must be granted on a deferred basis. Not less than half of this deferred portion must comprise equity-based compensation components, while the remaining portion is granted as deferred cash compensation. Both compensation components must be deferred over a multi-year period which, for the equity-based compensation components, must be followed by a retention period. During the period until payment or delivery, the compensation portions awarded on a deferred basis may be forfeited. At least half of the maximum of 40 % of the Variable Compensation granted on a non-deferred basis must consist of equity-based compensation components and only the remaining portion may be paid out directly in cash. Of the total Variable Compensation, no more than a maximum of 20 % may be paid out in cash immediately, while at least 80 % are paid or delivered at a later date.

Since 2014, the total variable compensation for Management Board members is only granted on a deferred basis.

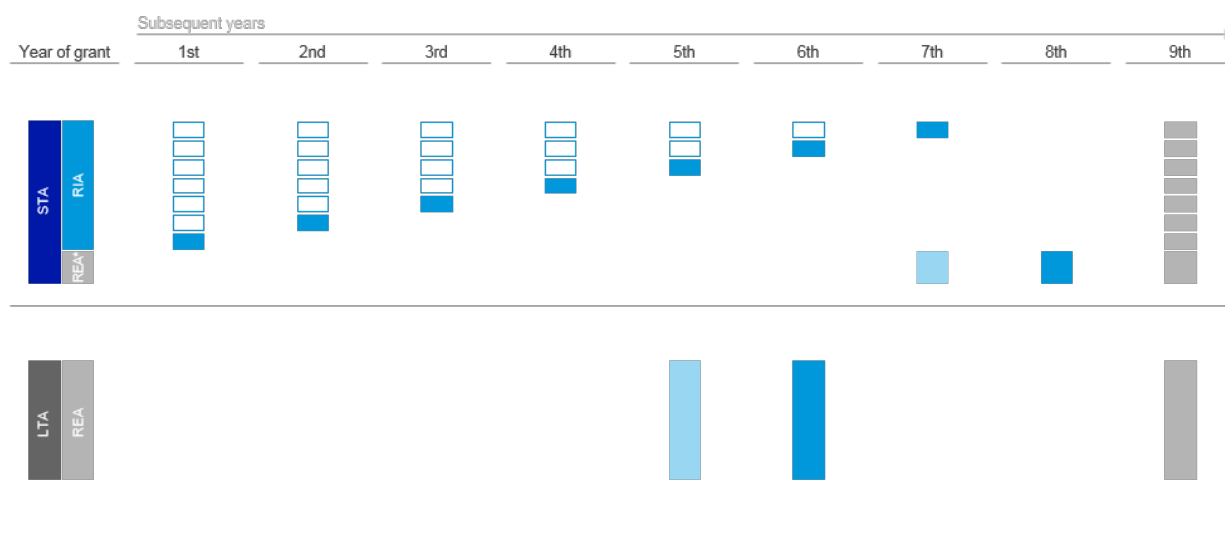
At least **50 %** of the variable compensation is granted equity-based

In order to bind the Management Board members even closer to the performance of the Bank and the Deutsche Bank share price, the Supervisory Board decided that as of the 2019 financial year, the long-term component (LTA) will only be granted in the form of Restricted Equity Awards. The short-term component (STA) is generally granted in the form of a cash compensation (Restricted Incentive Awards). However, should the STA amount to more than 50 % of the total variable compensation, the amount exceeding 50 % will also be granted in the form of Restricted Equity Awards. This is designed to ensure that at least 50 % of total variable compensation are granted in the form of equity-based compensation in accordance with regulatory requirements.

The InstVV requires in principle, that the combined (i) target assessment period and (ii) vesting period are at least eight years. With respect to the vesting schedule, the InstVV allows both, vesting in one tranche (“cliff vesting”) or in consecutive instalments (“tranche vesting”). The LTA is based on a three year assessment period, the Restricted Equity Awards granted for the LTA vest after five years in one tranche. The assessment period for the STA is only one year. Therefore, the Restricted Incentive Awards granted for the STA vest in seven identical tranches over a period of seven years. Any additional Restricted Equity Awards granted for the STA vest also after seven years, but in one tranche. All Restricted Equity Awards have an additional retention period of one year which follows the vesting period. Accordingly, Management Board members are first permitted to dispose of the equities after six or eight years respectively. During the deferral and retention period, the value of the Restricted Equity Awards is linked to the Bank’s share price and is therefore tied to the sustained performance of the Bank. Specific forfeiture provisions apply for Restricted Incentive Awards and Restricted Equity Awards during the deferral and retention period.

The following chart shows the time period for the payment or the delivery of the variable compensation components in the seven consecutive years following the grant year as well as the period of a possible clawback.

Timeframe for payment or delivery, non-forfeiture and possibility of clawback for the Management Board



* Only if required to achieve a portion of 50 % shares.
 ■ Vesting and/or non forfeiture, aligned with payment or delivery.
 ■ Vesting followed by a retention period until delivery; subject to individual forfeiture conditions during the retention period.
 ■ End of possibility to demand the return (“Clawback”) of already paid/delivered compensation components.

Forfeiture Conditions / Clawback

In order to create long-term incentives, the Restricted Equity Awards and the Restricted Incentive Awards compensation components are deferred or spread out over several years. Awards may be fully or partially forfeited, for example, due to individual misconduct (including a breach of regulations) or termination for cause, and also due to a negative Group result or individual negative contributions to results. In addition, the Awards may be completely forfeited if the statutory or regulatory minimum requirements for the core capital ratio are not met during this period.

The revision of the InstVV adopted in August 2017 requires that “clawback provisions” are to be agreed with the members of the management body (Geschäftsleiter) of significant institutions. Contrary to the forfeiture conditions, this clause allows the Supervisory Board to reclaim already paid out or delivered compensation components in response to specific individual negative contributions to results made by the Management Board member for up to two years after the expiry of the last deferral period.

Limitations in the Event of Exceptional Developments

In the event of exceptional developments, the total compensation for each Management Board member is limited to a maximum amount. In addition, the Supervisory Board and the members of the Management Board agreed on a possible limitation of the variable compensation which is included in the service contracts of the Management Board members and according to which the variable compensation may be limited to amounts below the provided maximum amounts or may not be granted altogether. Furthermore, statutory regulations provide that the Supervisory Board may reduce the compensation of the Management Board members to an appropriate level, if the situation of the company deteriorates in such a way following the determination of the compensation that the continued granting of the compensation would be unreasonable for the company. A payment of variable compensation elements will also not take place if the payment of Variable Compensation components is prohibited or restricted by the competent regulator in accordance with existing statutory requirements.

Shareholding Guidelines

- Long-term commitment of Management Board members to the Bank
- Identification with Deutsche Bank and its shareholders
- Link to performance of the Bank through deferred compensation

All members of the Management Board are required to hold a specified value of Deutsche Bank shares. This requirement fosters the identification of the Management Board members with Deutsche Bank and its shareholders and aims to ensure a sustainable link to the performance of the Bank.

For the Chairman, the number of shares to be held amounts to two times the annual base salary, i.e., the equivalent of €6,800,000. For other Management Board members, the number of shares to be held is one time the annual base salary, i.e., the equivalent of €2,400,000 or €3,000,000, respectively.

The share retention obligations must first be fulfilled on the date on which the Management Board member was granted an overall equity based variable compensation corresponding to 1 ½ times the retention obligations since his or her appointment to the Management Board. Deferred equity-based compensation may be taken into account at 75 % of its value towards fulfillment of the obligation.

Observance of the requirement is reviewed semi-annually as of June 30 and December 31. If the required number of shares is not met, the Management Board members must correct any deficiencies by the next review.

As compensation components are deferred or spread out over several years, another link to the performance of the Deutsche Bank share is established that should generally continue to exist even for the period after leaving the Management Board.

Pension benefits

The Supervisory Board allocates an entitlement to pension plan benefits to the Management Board members. These entitlements involve a pension plan with predefined contributions. Under this pension plan, a personal pension account is set up for each participating member of the Management Board after appointment to the Management Board.

Management Board members receive a contribution in the form of a contractually agreed fixed annual amount in Euro. The contribution accrues interest credited in advance, determined by means of an age-related factor, at an average rate of 4 % per year up to the age of 60. From the age of 61 onwards, an additional contribution in the amount of 4 % per year of the amount reached on December 31 of the previous year will be credited to the pension account. The Supervisory Board resolved that the interest for new Management Board members with employment contracts negotiated after January 1, 2020 will be reduced to 2 % p.a.

The annual contributions, taken together, form the pension amount available to pay the future pension benefit in case of a pension event (age limit, disability or death). The pension right is vested from the start.

Other Benefits upon Early Termination

The Management Board members are in principle entitled to receive a severance payment upon early termination of their appointment at the Bank's initiative, provided the Bank is not entitled to revoke the appointment or give notice under the contractual agreement for cause. The circumstances of the early termination of the appointment and the length of service on the Management Board are to be taken into account when determining the amount of the severance payment. The severance payment, as a rule, is two annual compensation amounts and is limited to the claims to compensation for the remaining term of the contract. The calculation of the severance payment is based on the annual compensation for the previous financial year and on the expected annual compensation for the current financial year, if applicable. The severance payment is determined and granted in accordance with the statutory and regulatory requirements, in particular with the provisions of the InstVV.

If a Management Board member leaves office in connection with a change of control, he/she is also, under certain conditions, entitled in principle to a severance payment. The exact amount of the severance payment is determined by the Supervisory Board within its sole discretion. According to the German Corporate Governance Codex, the severance payment will not exceed three annual compensation amounts and is limited to the claims to compensation for the remaining term of the contract. The calculation of the compensation is again based on the annual compensation for the previous financial year.

Management Board compensation for the 2019 financial year

Fixed Compensation

In the 2019 financial year, the annual base salary was €3,400,000 for the Chairman of the Management Board and €3,000,000 or €2,400,000 respectively for the other Management Board members. For the period from January to July 2019, the Management Board member Garth Ritchie was granted a functional allowance of €250,000 per month. The Supervisory Board had conferred on him an additional responsibility in connection with the implications of Brexit, in addition to his areas of responsibility according to the business allocation plan.

Variable Compensation

The Supervisory Board, acting on a proposal of the Compensation Control Committee, determined the variable compensation for the Management Board members for the 2019 financial year. The Supervisory Board calculated and determined the amount of the LTA and the Group component of the STA based on the level of achievement of the respective objectives and/or key performance figures.

Against the backdrop of the stated loss of the Bank for the 2019 financial year, the Management Board, jointly and unanimously, took the decision to irrevocably waive any entitlement to the determination and grant of the individual component of the STA for the 2019 financial year. The Management Board declared its waiver to the Supervisory Board. Therefore, the Supervisory Board refrained from determining and granting any variable compensation based on the individual component of the STA for the Management Board members for the 2019 financial year.

Level of Objective Achievement

In the 2019 financial year, the development of the four performance metrics for the **Group Component of the STA** was as follows: The 2019 target level for Common Equity Tier 1 capital ratio (CET1), Leverage ratio (please refer to section "Leverage Ratio" in the Risk Report for further detail) and Adjusted Cost KPIs, were achieved. The Group RoTE was significantly impacted by the bank's net loss of 5.3 billion euros in 2019.

Despite the very good performance of the CET1 ratio, Leverage ratio and Adjusted Cost KPIs, the Supervisory Board has determined that it was appropriate to balance carefully the calculated payout rate against the overall performance of the bank. As a result, the Supervisory Board decided – in alignment with the Management Board for the employees – to set an achievement level of 60 % for the Group Component.

60 % was the objective achievement level of the STA
Group component

The **individual component of the STA** is linked to the achievement of short-term and medium-term individual and divisional objectives determined for the Management Board members in 2019, including those from the Scorecard. In the year under review, the objectives were adjusted to the new strategy by the Supervisory Board with effect from July 1. All members of the Management Board shared the same target of creating a culture of customer focus, entrepreneurial spirit, technology driven and sustainable mindset and teamwork. In addition, the current Management Board members as of December 31, 2019 had the following objectives:

Christian Sewing

Mr. Sewing's most important objective in 2019 was the development and implementation of a new strategy, including but not limited to foundational elements such as achieving Deutsche Bank's cost and capital targets, the formation of the Corporate Bank as well as improving stakeholder engagement and driving the cultural transformation of Deutsche Bank.

Karl von Rohr

Mr. von Rohr's initial objective was to further reduce the number of pending legal disputes, with a focus on those with the highest risk. As the member of the Management Board responsible for Human Resources (until October), one objective was to introduce more agile working methods. With the assumption of responsibility for the Private Bank, the focus was on implementing the strategy for this area. Mr. von Rohr also took on Management Board responsibility for DWS, where he continued chairing the Supervisory Board of DWS Group GmbH & Co. KGaA. As Deputy Chairman of the Management Board and responsible for the Germany region, his objective was to strengthen the dialogue with customers and stakeholder representatives.

Fabrizio Campelli

Due to the short period of two months as a member of the Management Board in the 2019 financial year, no individual targets were agreed in accordance with the regulatory requirements.

Frank Kuhnke

In addition to his core COO objective of driving stability, efficiency and innovation in the areas of IT, Operations, Procurement, Vendor Management and Real Estate, Mr. Kuhnke held responsibility for a number of key transformation and remediation initiatives in particular in the areas of Group Data, CIB KYC remediation and defined the Data, Cloud and IT Strategy as he transitioned the IT, Technology and Innovation responsibility to a separate TDI organization. Mr. Kuhnke also took responsibility for the set-up and the business performance of the Capital Release Unit (CRU) from July 2019.

Stuart Lewis

As Chief Risk Officer, Mr. Lewis was given the objective to strengthen the Bank's risk appetite framework as a building block of the business strategy. Furthermore, the cooperation and alignment with the Finance and Technology divisions should be further strengthened. One of Mr. Lewis' objectives was to improve the control environment with regard to the key figures relevant to the risk function. With the assumption of responsibility for Compliance and Anti-Financial-Crime, these areas and Non-Financial-Risk-Management were to be further developed to further enhance control efficiency and effectiveness through delivery of synergies.

James von Moltke

One of the key targets for Mr. von Moltke in 2019 was the transformation of the liquidity reporting and management. A further objective was the revision of fund transfer pricing. In addition, the strategic program "Cost Catalyst" was continued in 2019, which aims to identify and eliminate structural cost inefficiencies, improve our cost culture and contribute to the achievement of Deutsche Bank's short- and long-term operational performance targets. With the adjustment of the strategy, an additional focus in the second half was on achieving the identified financial planning commitments, transformation milestones and implementing centralized cost measures.

Werner Steinmüller

It was agreed with Mr. Steinmüller to increase profitability in the Asia-Pacific region and to continue growth. A further goal was to intensify interaction and deepen the business relationship with customers. The implementation of the Bank's changed overall strategy in the Asia-Pacific region was one of the objectives in the second half of the year.

Due to the Management Board waiving the individual component, the Supervisory Board did not determine the objective achievement level of the individual performance of the Management Board.

In the 2019 financial year, the development of the three performance metrics for the Group Component of **the LTA** was as follows: Although the RTSR improved year-on-year, the average performance in the relevant three-year-period (2017 to 2019) was 78 % and as a result stayed once more below the performance of the peer group; this resulted in an achievement level of 54 %. Organic Capital Growth as defined developed negatively from 2017 to 2019; the resulting achievement level was 0 %. The strengthening of the control environment over a three-year period was evaluated based on feedback from internal audit and supervisory authorities; the achievement level over the three-year-period was 64 %. As a result of these factors, the overall achievement level resolved by the Supervisory Board is 39 %.

39 % was the LTA objective achievement level

Total Compensation

The members of the Management Board collectively received in/for the 2019 financial year compensation (without fringe benefits and pension service costs) totaling € 35,994,279 (2018: € 55,716,289). € 22,700,000 of this amount was for fixed compensation (2018: € 29,911,111). € 13,294,279 (2018: € 25,805,178) was received for performance-related components with long-term incentives.

The Supervisory Board determined the aforementioned compensation on an individual basis for 2019 and 2018 as follows:

in €	Base salary	Functional allowance	2019		2018		
			Group component	Individual component	Total compensation	Total compensation	
Christian Sewing	3,400,000	0	300,000	0	5,031,717	7,004,079	
Karl von Rohr	3,000,000	0	300,000	0	4,396,708	5,534,670	
Fabrizio Campelli ³	400,000	0	50,000	0	632,785	0	
Frank Kuhnke ⁴	2,400,000	0	300,000	0	3,796,708	0	
Stuart Lewis	2,400,000	0	300,000	0	3,796,708	6,098,003	
James von Moltke	2,400,000	0	300,000	0	3,796,708	5,098,003	
Werner Steinmüller	2,400,000	0	300,000	0	3,796,708	4,778,003	
Sylvie Matherat ⁵	1,400,000	0	175,000	373,333	2,588,079	4,538,003	
Garth Ritchie ⁵	1,750,000	1,750,000	175,000	653,333	4,968,079	8,618,003	
Frank Strauß ⁵	1,400,000	0	175,000	975,333	3,190,079	5,567,603	
John Cryan ⁶	0	0	0	0	0	1,889,668	
Kimberly Hammonds ⁷	0	0	0	0	0	1,824,168	
Nicolas Moreau ⁸	0	0	0	0	0	2,469,001	
Dr. Marcus Schenck ⁷	0	0	0	0	0	2,297,085	
Total	20,950,000	1,750,000	2,375,000	2,001,999	8,917,280	35,994,279	55,716,289

¹ STA: Short-Term Award.

² LTA: Long-Term Award.

³ Member since November 1, 2019.

⁴ Member since January 1, 2019.

⁵ Member until July 31, 2019.

⁶ Member until April 8, 2018.

⁷ Member until May 24, 2018.

⁸ Member until December 31, 2018. In his position as managing director of DWS Management GmbH a total compensation of € 2.916.667 was determined for 2018.

The employment contracts of the Management Board members contain an obligation of the members to ensure that any remuneration they may claim in their capacity as a member of any body, in particular a supervisory board, advisory board or similar body of any group entity of the Bank (§ 18 of the German Stock Corporation Act (Aktiengesetz – AktG)) will not accrue to them. Accordingly, Management Board members did not receive any compensation for mandates on boards of Deutsche Bank subsidiaries.

Share awards

The number of share awards granted to the members of the Management Board in the form of Restricted Equity Awards (REA) in 2020 for the 2019 financial year was calculated by dividing the respective amounts in Euro by the higher of both, the average Xetra closing price of the Deutsche Bank share during the last ten trading days in February 2020 or the Xetra closing price on February 28, 2020 (€9.2229).

Members of the Management Board

Units	Year	Restricted Equity Award(s) (deferred with additional retention period)
Christian Sewing	2019	144,392
	2018	340,722
Karl von Rohr	2019	118,911
	2018	247,583
Fabrizio Campelli ¹	2019	19,819
Frank Kuhnke ²	2019	118,911
Stuart Lewis	2019	118,911
	2018	229,230
James von Moltke	2019	118,911
	2018	247,583
Werner Steinmüller	2019	118,911
	2018	218,218
Sylvie Matherat ³	2019	69,365
	2018	196,195
Garth Ritchie ³	2019	79,589 ⁴
	2018	240,242
Frank Strauß ³	2019	97,045 ⁵
	2018	290,676
John Cryan ⁶	2018	69,405
Kimberly Hammonds ⁷	2018	75,630
Nicolas Moreau ⁸	2018	116,450
Dr. Marcus Schenck ⁷	2018	96,086

¹ Member since November 1, 2019.

² Member since January 1, 2019.

³ Member until July 31, 2019.

⁴ Thereof 10,224 shares are attributable to the STA, which vest after 7 years.

⁵ Thereof 27,680 shares are attributable to the STA, which vest after 7 years.

⁶ Member until April 8, 2018.

⁷ Member until May 24, 2018.

⁸ Member until December 31, 2018.

Management Board Share Ownership, Shareholding Guidelines

As of January 31, 2020 and February 15, 2019, respectively, the current members of the Management Board held Deutsche Bank shares as presented below:

Members of the Management Board		Number of shares
Christian Sewing	2020	114,892
	2019	73,237
Karl von Rohr	2020	9,803
	2019	5,601
Fabrizio Campelli ¹	2020	50,417
Frank Kuhnke	2020	15,407
	2019	7,094
Bernd Leukert ²	2020	1,500
Stuart Lewis	2020	145,743
	2019	103,561
James von Moltke	2020	55,959
	2019	24,967
Christiana Riley ²	2020	43,907
Werner Steinmüller	2020	174,035
	2019	146,905
Total	2020	611,663
	2019	361,365

¹ Member since November 1, 2019.

² Member since January 1, 2020.

The current members of the Management Board held an aggregate of 611,663 Deutsche Bank shares on January 31, 2020, amounting to approximately 0.03 % of Deutsche Bank shares issued on that date.

The following table shows the number of share awards held by the Management Board members as of February 15, 2019 and January 31, 2020 as well as the number of share awards newly granted, delivered or forfeited in this period.

Members of the Management Board	Balance as of Feb 15, 2019	Granted	Delivered	Forfeited	Balance as of Jan 31, 2020
Christian Sewing	61,681	341,146	37,411	–	365,416
Karl von Rohr	49,757	248,300	8,685	–	289,373
Fabrizio Campelli ¹	–	–	–	–	296,795
Frank Kuhnke	104,507	107,720	15,828	–	196,399
Bernd Leukert ²	–	–	–	–	–
Stuart Lewis	133,056	230,161	79,747	–	283,470
James von Moltke	146,607	247,584	58,822	–	335,369
Christiana Riley ²	–	–	–	–	255,057
Werner Steinmüller	170,878	220,299	51,663	–	339,514

¹ Member since November 1, 2019.

² Member since January 1, 2020.

All Management Board members fulfilled the retention obligations for shares in 2019 or are currently in the waiting period.

The Chairman of the Management Board, Mr. Sewing, voluntarily committed to invest 15 % of his net salary in Deutsche Bank shares from September 2019 until the end of December 2022. In each case, purchases took place on the 22nd day of each month or on the following trading day. All shares purchased by January 31, 2020 are included in the above table.

Pension Benefits

The following table shows the annual contributions, the interest credits, the account balances and the annual service costs for the years 2019 and 2018 as well as the corresponding defined benefit obligations for each member of the Management Board in office in 2019 as of December 31, 2019 and December 31, 2018. The different balances are attributable to the different lengths of service on the Management Board, the respective age-related factors, and the different contribution rates, as well as the individual pensionable compensation amounts and the previously mentioned additional individual entitlements.

Members of the Management Board in €	Annual contribution, in the year		Interest credit, in the year		Account balance, end of year		Service cost (IFRS), in the year		Present value of the defined benefit obligation (IFRS), end of year	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Christian Sewing	975,000	1,007,500	0	0	4,806,500	3,831,500	939,695	879,750	4,701,381	3,366,182
Karl von Rohr	812,500	845,000	0	0	3,180,501	2,368,001	819,511	796,009	3,261,910	2,249,165
Fabrizio Campelli ¹	180,918	0	0	0	180,918	0	174,626	0	178,170	0
Frank Kuhnke ²	871,000	0	0	0	871,000	0	849,657	0	868,111	0
Stuart Lewis	812,500	845,000	0	0	4,871,438	4,058,938	819,511	796,009	5,536,127	4,236,867
James von Moltke	936,000	975,000	0	0	2,414,750	1,478,750	907,600	864,990	2,382,139	1,334,670
Werner Steinmüller	650,000	650,000	60,251	32,934	2,216,519	1,506,268	667,193	688,942	2,259,433	1,542,860
Sylvie Matherat ³	0	754,000	0	0	0	2,127,168	0	755,261	0	2,125,681
Garth Ritchie ⁴	0	1,440,000	0	0	0	4,490,000	0	1,274,429	0	4,026,939
Frank Strauß ⁵	568,751	1,007,500	0	0	1,925,085	1,356,334	545,325	876,266	0	1,202,739

¹ Member since November 1, 2019.

² Member since January 1, 2019.

³ Member until July 31, 2019. The pension entitlement was not vested at the time of the termination of the Management Board membership and was paid in form of a cash compensation in the amount of €2,473,951.

⁴ Member until July 31, 2019. The pension entitlement was not vested at the time of the termination of the Management Board membership and was paid in form of a cash compensation in the amount of €4,803,789.

⁵ Member until July 31, 2019.

Other Benefits upon Early Termination

In 2019, the Management Board members Sylvie Matherat, Garth Ritchie and Frank Strauß left the Management Board. Termination payments to which they were entitled based on their employment contract were agreed with these members as follows:

Sylvie Matherat left the Management Board with effect from the end of July 31, 2019. On the basis of the termination agreement, compensation payments for a post-contractual restraint on competition already agreed in the employment contract in the amount of € 1,560,000 and a severance payment in the amount of € 7,516,006 were agreed. Of the severance, the first instalment in the amount of € 1,503,201 was disbursed in cash in August 2019. The second instalment in the amount of € 1,503,201 was granted in the form of shares and becomes due for disbursement on September 1, 2020. A further instalment in the amount of € 2,254,802 was granted in the form of deferred cash compensation with a settlement period ending September 1, 2024. A final instalment in the amount of € 2,254,802 was granted in the form of deferred share-based compensation with a settlement period ending September 1, 2025. All contractually agreed provisions with respect to variable compensation elements apply accordingly to the severance payment, including the option to reclaim any variable compensation (clawback), and the severance payment is subject to a regulation for the offsetting of income received from other sources. The contractually, but not legally vested present value of the pension account in the company pension plan at the time of Mrs. Matherat's termination of the Management Board membership has been disbursed to her.

Garth Ritchie left the Management Board with effect from the end of July 31, 2019. On the basis of the termination agreement, compensation payments for a post-contractual restraint on competition, agreed in and extended by the termination contract to a period of two years, in the amount of € 5,618,016 and a severance payment in the amount of € 5,618,004 were agreed. Of the severance, the first instalment in the amount of € 1,123,601 was disbursed in cash in August 2019. A second instalment in the amount of € 1,123,601 was granted in the form of shares and becomes due for disbursement on September 1, 2020. A further instalment in the amount of € 1,685,401 was granted in the form of deferred cash compensation with a settlement period ending September 1, 2024. A final instalment in the amount of € 1,685,401 was granted in the form of deferred share-based compensation with a settlement period ending September 1, 2025. All contractually agreed provisions with respect to variable compensation elements apply accordingly to the severance payment, including the option to reclaim any variable compensation (clawback), and the severance payment is subject to a regulation for the offsetting of income received from other sources. The contractually, but not legally vested present value of the pension account in the company pension plan at the time of Mr. Ritchie's termination of the Management Board membership has been disbursed to him.

Frank Strauß left the Management Board with effect from the end of July 31, 2019. On the basis of the termination agreement, compensation payments for a post-contractual restraint on competition, agreed in and reduced by the termination contract to a period of five months, in the amount of € 650,000 and a severance payment in the amount of € 6,085,736 were agreed. Of the severance, the first instalment in the amount of € 1,217,147 was disbursed in cash in August 2019. The second instalment in the amount of € 1,217,147 was granted in the form of shares and becomes due for disbursement on September 1, 2020. A further instalment in the amount of € 1,825,721 was granted in the form of deferred cash compensation with a settlement period ending September 1, 2024. A final instalment in the amount of € 1,825,721 was granted in the form of deferred share-based compensation with a settlement period ending September 1, 2025. All contractually agreed provisions with respect to variable compensation elements apply accordingly to the severance payment, including the option to reclaim any variable compensation (clawback), and the severance payment is subject to a regulation for the offsetting of income received from other sources. In addition, a termination of the employment relationship between DB Privat- und Firmenkundenbank AG, for which Mr. Strauß served as Chairman of the Management Board, and Mr. Strauß was agreed. On the basis of this termination agreement, a severance payment in the amount of € 2,381,410 was agreed. Of the severance, the first instalment in the amount of € 476,282 was disbursed in cash in August 2019. A further instalment in the same amount was granted in the form of shares and becomes due for disbursement on September 1, 2020. A further instalment in the amount of € 714,423 was granted in the form of deferred cash compensation with a settlement period ending September 1, 2024. A final instalment in the amount of € 714,423 was granted in the form of deferred share-based compensation with a settlement period ending September 1, 2025.

Expense for Long-Term Incentive Components

The following table presents the compensation expense recognized in the respective years for long-term incentive components of compensation granted for service on the Management Board.

Members of the Management Board	Amount expensed for			
	Share-based compensation components		Cash-based compensation components	
in €	2019	2018	2019	2018
Christian Sewing	226,040	0	380,022	0
Karl von Rohr	163,938	0	275,911	0
Stuart Lewis	472,969	(393,743) ³	255,458	57,414
James von Moltke	156,957	225,845	275,911	630,407
Werner Steinmüller	144,494	0	243,186	0
Sylvie Matherat ¹	975,892 ²	0	535,536 ²	0
Garth Ritchie ¹	1,188,000 ²	0	655,768 ²	0
Frank Strauß ¹	1,437,398 ²	0	793,435 ²	0

¹ Member until July 31, 2019.

² Including the acceleration of future amortization due to the discontinuation of the vesting period for awards.

³ Share-based compensation of Management Board members is generally valued based on the share price at each respective reporting date and leads to a negative result in this instance.

Compensation in accordance with the German Corporate Governance Code (GCGC)

The compensation for the members of the Management Board in accordance with the requirements of section 4.2.5 paragraph 3 of the GCGC is provided below. This comprises the benefits granted for the year under review including the fringe benefits and including the maximum and minimum achievable compensation for variable compensation components. In addition, the disbursements of fixed compensation and variable compensation (broken down by Restricted Incentive Awards and Restricted Equity Awards) in/for the year under review, broken down into the relevant reference years are reported.

The following table provides the compensation granted for the 2019 and 2018 financial years according to GCGC:

in €	Christian Sewing					
	2019				2018	
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	3,400,000	3,400,000	3,400,000	3,400,000	3,291,111	3,291,111
Fringe benefits (fixed compensation)	69,338	69,338	69,338	69,338	91,805	91,805
Total	3,469,338	3,469,338	3,469,338	3,469,338	3,382,916	3,382,916
Variable compensation	1,631,717	5,300,000	0	8,900,000	3,712,968	5,055,000
thereof:						
Restricted Incentive Awards	300,000	1,900,000	0	3,800,000	928,242	1,818,333
Restricted Equity Awards	1,331,717	3,400,000	0	5,100,000	2,784,726	3,236,667
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	1,631,717	5,300,000	0	8,900,000	3,712,968	5,055,000
Pension service costs	939,695	939,695	939,695	939,695	879,750	879,750
Total compensation (GCGC)	6,040,750	9,709,033	4,409,033	13,309,033	7,975,634	9,317,666
Total compensation¹	5,031,717	8,700,000	3,400,000	12,300,000	7,004,079	8,346,111

¹ Without fringe benefits and pension service costs.

in €	Karl von Rohr					
	2019				2018	
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	3,000,000	3,000,000	3,000,000	3,000,000	2,836,667	2,836,667
Fringe benefits (fixed compensation)	43,642	43,642	43,642	43,642	49,853	49,853
Total	3,043,642	3,043,642	3,043,642	3,043,642	2,886,520	2,886,520
Variable compensation	1,396,708	4,225,000	0	7,050,000	2,698,003	4,100,000
thereof:						
Restricted Incentive Awards	300,000	1,425,000	0	2,850,000	674,500	1,300,000
Restricted Equity Awards	1,096,708	2,800,000	0	4,200,000	2,023,503	2,800,000
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	1,396,708	4,225,000	0	7,050,000	2,698,003	4,100,000
Pension service costs	819,511	819,511	819,511	819,511	796,009	796,009
Total compensation (GCGC)	5,259,861	8,088,153	3,863,153	10,913,153	6,380,532	7,782,529
Total compensation¹	4,396,708	7,225,000	3,000,000	10,050,000	5,534,670	6,936,667

¹ Without fringe benefits and pension service costs.

in €	Fabrizio Campelli ¹					
	2019				2018	
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	400,000	400,000	400,000	400,000	–	–
Fringe benefits (fixed compensation)	8,182	8,182	8,182	8,182	–	–
Total	408,182	408,182	408,182	408,182	–	–
Variable compensation	232,785	683,333	0	1,133,333	–	–
thereof:						
Restricted Incentive Awards	50,000	216,667	0	433,333	–	–
Restricted Equity Awards	182,785	466,667	0	700,000	–	–
Fringe benefits (variable compensation)	0	0	0	0	–	–
Total	232,785	683,333	0	1,133,333	–	–
Pension service costs	174,626	174,626	174,626	174,626	–	–
Total compensation (GCGC)	815,593	1,266,141	582,808	1,716,141	–	–
Total compensation²	632,785	1,083,333	400,000	1,533,333	–	–

¹ Member since November 1, 2019.

² Without fringe benefits and pension service costs.

in €	Frank Kuhnke ¹					
	2019				2018	
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	2,400,000	2,400,000	2,400,000	2,400,000	–	–
Fringe benefits (fixed compensation)	29,580	29,580	29,580	29,580	–	–
Total	2,429,580	2,429,580	2,429,580	2,429,580	–	–
Variable compensation	1,396,708	4,100,000	0	6,800,000	–	–
thereof:						
Restricted Incentive Awards	300,000	1,300,000	0	2,600,000	–	–
Restricted Equity Awards	1,096,708	2,800,000	0	4,200,000	–	–
Fringe benefits (variable compensation)	0	0	0	0	–	–
Total	1,396,708	4,100,000	0	6,800,000	–	–
Pension service costs	849,657	849,657	849,657	849,657	–	–
Total compensation (GCGC)	4,675,945	7,379,237	3,279,237	10,079,237	–	–
Total compensation²	3,796,708	6,500,000	2,400,000	9,200,000	–	–

¹ Member since January 1, 2019.

² Without fringe benefits and pension service costs.

in €					Stuart Lewis	
					2019	2018
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000
Functional allowance	0	0	0	0	1,200,000	1,200,000
Fringe benefits (fixed compensation)	312,607	312,607	312,607	312,607	184,423	184,423
Total	2,712,607	2,712,607	2,712,607	2,712,607	3,784,423	3,784,423
Variable compensation	1,396,708	4,100,000	0	6,800,000	2,498,003	4,100,000
thereof:						
Restricted Incentive Awards	300,000	1,300,000	0	2,600,000	624,500	1,300,000
Restricted Equity Awards	1,096,708	2,800,000	0	4,200,000	1,873,503	2,800,000
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	1,396,708	4,100,000	0	6,800,000	2,498,003	4,100,000
Pension service costs	819,511	819,511	819,511	819,511	796,009	796,009
Total compensation (GCGC)	4,928,826	7,632,118	3,532,118	10,332,118	7,078,435	8,680,432
Total compensation¹	3,796,708	6,500,000	2,400,000	9,200,000	6,098,003	7,700,000

¹ Without fringe benefits and pension service costs.

in €					James von Moltke	
					2019	2018
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000
Fringe benefits (fixed compensation)	310,510	310,510	310,510	310,510	86,975	86,975
Total	2,710,510	2,710,510	2,710,510	2,710,510	2,486,975	2,486,975
Variable compensation	1,396,708	4,100,000	0	6,800,000	2,698,003	4,100,000
thereof:						
Cash	0	0	0	0	0	0
Restricted Incentive Awards	300,000	1,300,000	0	2,600,000	674,500	1,300,000
Restricted Equity Awards	1,096,708	2,800,000	0	4,200,000	2,023,503	2,800,000
Fringe benefits (variable compensation)	615,516	615,516	615,516	615,516	615,516	615,516
Total	2,012,224	4,715,516	615,516	7,415,516	3,313,519	4,715,516
Pension service costs	907,600	907,600	907,600	907,600	864,990	864,990
Total compensation (GCGC)	5,630,334	8,333,626	4,233,626	11,033,626	6,665,484	8,067,481
Total compensation¹	3,796,708	6,500,000	2,400,000	9,200,000	5,098,003	6,500,000

¹ Without fringe benefits and pension service costs.

in €					Werner Steinmüller	
					2019	2018
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000
Fringe benefits (fixed compensation)	68,463	68,463	68,463	68,463	76,993	76,993
Total	2,468,463	2,468,463	2,468,463	2,468,463	2,476,993	2,476,993
Variable compensation	1,396,708	4,100,000	0	6,800,000	2,378,003	4,100,000
thereof:						
Restricted Incentive Awards	300,000	1,300,000	0	2,600,000	594,500	1,300,000
Restricted Equity Awards	1,096,708	2,800,000	0	4,200,000	1,783,503	2,800,000
Fringe benefits (variable compensation)	510,033	510,033	510,033	510,033	387,196	387,196
Total	1,906,741	4,610,033	510,033	7,310,033	2,765,199	4,487,196
Pension service costs	667,193	667,193	667,193	667,193	688,942	688,942
Total compensation (GCGC)	5,042,397	7,745,689	3,645,689	10,445,689	5,931,134	7,653,131
Total compensation¹	3,796,708	6,500,000	2,400,000	9,200,000	4,778,003	6,500,000

¹ Without fringe benefits and pension service costs.

					Sylvie Matherat ¹	
					2019	
in €	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	1,400,000	1,400,000	1,400,000	1,400,000	2,400,000	2,400,000
Fringe benefits (fixed compensation)	4,636	4,636	4,636	4,636	6,392	6,392
Total	1,404,636	1,404,636	1,404,636	1,404,636	2,406,392	2,406,392
Variable compensation	1,188,079	2,391,667	0	3,966,667	2,138,003	4,100,000
thereof:						
Restricted Incentive Awards	548,333	758,333	0	1,516,667	534,500	1,300,000
Restricted Equity Awards	639,746	1,633,333	0	2,450,000	1,603,503	2,800,000
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	1,188,079	2,391,667	0	3,966,667	2,138,003	4,100,000
Pension service costs	0	0	0	0	755,261	755,261
Total compensation (GCGC)	2,592,715	3,796,303	1,404,636	5,371,303	5,299,656	7,261,653
Total compensation²	2,588,079	3,791,667	1,400,000	5,366,667	4,538,003	6,500,000

¹ Member until July 31, 2019.

² Without fringe benefits and pension service costs.

					Garth Ritchie ¹	
					2019	
in €	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	1,750,000	1,750,000	1,750,000	1,750,000	3,000,000	3,000,000
Functional allowance	1,750,000	1,750,000	1,750,000	1,750,000	3,000,000	3,000,000
Fringe benefits (fixed compensation)	267,834	267,834	267,834	267,834	189,609	189,609
Total	3,767,834	3,767,834	3,767,834	3,767,834	6,189,609	6,189,609
Variable compensation	1,468,079	2,741,667	0	4,666,667	2,618,003	4,700,000
thereof:						
Restricted Incentive Awards	734,039	1,108,333	0	2,216,667	654,500	1,900,000
Restricted Equity Awards ²	734,040	1,633,333	0	2,450,000	1,963,503	2,800,000
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	1,468,079	2,741,667	0	4,666,667	2,618,003	4,700,000
Pension service costs	0	0	0	0	1,274,429	1,274,429
Total compensation (GCGC)	5,235,913	6,509,501	3,767,834	8,434,501	10,082,041	12,164,038
Total compensation³	3,218,079	4,491,667	1,750,000	6,416,667	8,618,003	10,700,000

¹ Member until July 31, 2019.

² Thereof Restricted Equity Awards in the amount of €94,294 that are attributable to the STA and vest after 7 years.

³ Without fringe benefits and pension service costs.

					Frank Strauß ¹	
					2019	
in €	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	1,400,000	1,400,000	1,400,000	1,400,000	2,400,000	2,400,000
Fringe benefits (fixed compensation)	35,253	35,253	35,253	35,253	71,892	71,892
Total	1,435,253	1,435,253	1,435,253	1,435,253	2,471,892	2,471,892
Variable compensation	1,790,079	2,566,667	0	4,316,667	3,167,603	4,400,000
thereof:						
Restricted Incentive Awards	895,039	933,333	0	1,866,667	791,900	1,600,000
Restricted Equity Awards ²	895,040	1,633,333	0	2,450,000	2,375,703	2,800,000
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	1,790,079	2,566,667	0	4,316,667	3,167,603	4,400,000
Pension service costs	545,325	545,325	545,325	545,325	876,266	876,266
Total compensation (GCGC)	3,770,657	4,547,245	1,980,578	6,297,245	6,515,761	7,748,158
Total compensation³	3,190,079	3,966,667	1,400,000	5,716,667	5,567,603	6,800,000

¹ Member until July 31, 2019.

² Thereof Restricted Equity Awards in the amount of €255,294 that are attributable to the STA and vest after 7 years.

³ Without fringe benefits and pension service costs.

in €					John Cryan ¹	
					2019	2018
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	0	0	0	0	1,133,333	1,133,333
Fringe benefits (fixed compensation)	0	0	0	0	10,125	10,125
Total	0	0	0	0	1,143,458	1,143,458
Variable compensation	0	0	0	0	756,335	1,766,666
thereof:						
Restricted Incentive Awards	0	0	0	0	189,083	633,333
Restricted Equity Awards	0	0	0	0	567,252	1,133,333
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	0	0	0	0	756,335	1,766,666
Pension service costs	0	0	0	0	733,807	733,807
Total compensation (GCGC)	0	0	0	0	2,633,600	3,643,931
Total compensation²	0	0	0	0	1,889,668	2,899,999

¹ Member until April 8, 2018.

² Without fringe benefits and pension service costs.

in €					Kimberly Hammonds ¹	
					2019	2018
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	0	0	0	0	1,000,000	1,000,000
Fringe benefits (fixed compensation)	0	0	0	0	209,799	209,799
Total	0	0	0	0	1,209,799	1,209,799
Variable compensation	0	0	0	0	824,168	1,708,334
thereof:						
Restricted Incentive Awards	0	0	0	0	206,042	541,667
Restricted Equity Awards	0	0	0	0	618,126	1,166,667
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	0	0	0	0	824,168	1,708,334
Pension service costs	0	0	0	0	825,100	825,100
Total compensation (GCGC)	0	0	0	0	2,859,067	3,743,233
Total compensation²	0	0	0	0	1,824,168	2,708,334

¹ Member until May 24, 2018.

² Without fringe benefits and pension service costs.

in €					Nicolas Moreau ¹	
					2019	2018
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	0	0	0	0	1,200,000	1,200,000
Fringe benefits (fixed compensation)	0	0	0	0	129,407	129,407
Total	0	0	0	0	1,329,407	1,329,407
Variable compensation	0	0	0	0	1,269,001	2,300,000
thereof:						
Restricted Incentive Awards	0	0	0	0	317,250	900,000
Restricted Equity Awards	0	0	0	0	951,751	1,400,000
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	0	0	0	0	1,269,001	2,300,000
Pension service costs	0	0	0	0	607,093	607,093
Total compensation (GCGC)	0	0	0	0	3,205,501	4,236,500
Total compensation²	0	0	0	0	2,469,001	3,500,000

¹ Member until December 31, 2018. In his position as managing director of DWS Management GmbH a total compensation (GCGC) of €3,523,792 was determined for 2018.

² Without fringe benefits and pension service costs.

in €					Dr. Marcus Schenck ¹	
					2019	2018
	Determined	Target	Min	Max	Determined	Target
Fixed compensation (base salary)	0	0	0	0	1,250,000	1,250,000
Fringe benefits (fixed compensation)	0	0	0	0	13,117	13,117
Total	0	0	0	0	1,263,117	1,263,117
Variable compensation	0	0	0	0	1,047,085	1,958,334
thereof:						
Restricted Incentive Awards	0	0	0	0	261,771	791,667
Restricted Equity Awards	0	0	0	0	785,314	1,166,667
Fringe benefits (variable compensation)	0	0	0	0	0	0
Total	0	0	0	0	1,047,085	1,958,334
Pension service costs	0	0	0	0	504,568	504,568
Total compensation (GCGC)	0	0	0	0	2,814,770	3,726,019
Total compensation²	0	0	0	0	2,297,085	3,208,334

¹ Member until May 24, 2018.

² Without fringe benefits and pension service costs.

The following table provides the compensation disbursements in/for the 2019 and 2018 financial years according to GCGC

in €	Christian Sewing		Karl von Rohr		Fabrizio Campelli ¹		Frank Kuhnke ²	
	2019	2018	2019	2018	2019	2018	2019	2018
Fixed compensation	3,400,000	3,291,111	3,000,000	2,836,667	400,000	–	2,400,000	–
Functional allowance	0	0	0	0	0	–	0	–
Fringe benefits (fixed compensation)	69,338	91,805	43,642	49,853	8,182	–	29,580	–
Total	3,469,338	3,382,916	3,043,642	2,886,520	408,182	–	2,429,580	–
Variable compensation	0	0	0	0	0	–	0	–
thereof Restricted Incentive Awards:								
2014 Restricted Incentive Award for 2013	0	0	0	0	0	–	0	–
2015 Restricted Incentive Award for 2014	0	0	0	0	0	–	0	–
2017 Restricted Incentive Award: Sign On	0	0	0	0	0	–	0	–
2017 Restricted Incentive Award: Buyout	0	0	0	0	0	–	0	–
thereof Equity Awards:								
2017 Equity Upfront Award: Sign On	0	0	0	0	0	–	0	–
2013 Restricted Equity Award for 2012	0	0	0	0	0	–	0	–
2014 Restricted Equity Award for 2013	0	0	0	0	0	–	0	–
2017 Restricted Equity Award: Buyout	0	0	0	0	0	–	0	–
Fringe benefits (variable compensation)	0	0	0	0	0	–	0	–
Total	0	0	0	0	0	–	0	–
Pension service costs	939,695	879,750	819,511	796,009	174,626	–	849,657	–
Total compensation (GCGC)	4,409,033	4,262,666	3,863,153	3,682,529	582,808	–	3,279,237	–

¹ Member since November 1, 2019.

² Member since January 1, 2019.

in €	Stuart Lewis		James von Moltke		Werner Steinmüller		Sylvie Matherat ¹	
	2019	2018	2019	2018	2019	2018	2019	2018
Fixed compensation	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	1,400,000	2,400,000
Functional allowance	0	1,200,000	0	0	0	0	0	0
Fringe benefits (fixed compensation)	312,607	184,423	310,510	86,975	68,463	76,993	4,636	6,392
Total	2,712,607	3,784,423	2,710,510	2,486,975	2,468,463	2,476,993	1,404,636	2,406,392
Variable compensation	704,736	431,973	951,953	1,166,703	0	0	0	0
thereof Restricted Incentive Awards:								
2014 Restricted Incentive Award for 2013	0	126,935	0	0	0	0	0	0
2015 Restricted Incentive Award for 2014	105,340	105,340	0	0	0	0	0	0
2017 Restricted Incentive Award: Sign On	0	0	66,638	0	0	0	0	0
2017 Restricted Incentive Award: Buyout	0	0	420,568	560,758	0	0	0	0
thereof Equity Awards:								
2017 Equity Upfront Award: Sign On	0	0	183,170	0	0	0	0	0
2013 Restricted Equity Award for 2012	0	199,698	0	0	0	0	0	0
2014 Restricted Equity Award for 2013	599,396	0	0	0	0	0	0	0
2017 Restricted Equity Award: Buyout	0	0	281,577	605,945	0	0	0	0
Fringe benefits (variable compensation)	0	0	615,516	615,516	510,033	387,196	0	0
Total	704,736	431,973	1,567,469	1,782,219	510,033	387,196	0	0
Pension service costs	819,511	796,009	907,600	864,990	667,193	688,942	0	755,261
Total compensation (GCGC)	4,236,854	5,012,405	5,185,579	5,134,184	3,645,689	3,553,131	1,404,636	3,161,653

¹ Member until July 31, 2019.

in €	Garth Ritchie ¹		Frank Strauß ¹		John Cryan ²		Kimberly Hammonds ³	
	2019	2018	2019	2018	2019	2018	2019	2018
Fixed compensation	1,750,000	3,000,000	1,400,000	2,400,000	0	1,133,333	0	1,000,000
Functional allowance	1,750,000	3,000,000	0	0	0	0	0	0
Fringe benefits (fixed compensation)	267,834	189,609	35,253	71,892	0	10,125	0	209,799
Total	3,767,834	6,189,609	1,435,253	2,471,892	0	1,143,458	0	1,209,799
Variable compensation	0	0	0	0	0	0	0	0
thereof Restricted Incentive Awards:								
2014 Restricted Incentive Award for 2013	0	0	0	0	0	0	0	0
2015 Restricted Incentive Award for 2014	0	0	0	0	0	0	0	0
2017 Restricted Incentive Award: Sign On	0	0	0	0	0	0	0	0
2017 Restricted Incentive Award: Buyout	0	0	0	0	0	0	0	0
thereof Equity Awards:								
2017 Equity Upfront Award: Sign On	0	0	0	0	0	0	0	0
2013 Restricted Equity Award for 2012	0	0	0	0	0	0	0	0
2014 Restricted Equity Award for 2013	0	0	0	0	0	0	0	0
2017 Restricted Equity Award: Buyout	0	0	0	0	0	0	0	0
Fringe benefits (variable compensation)	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Pension service costs	0	1,274,429	545,325	876,266	0	733,807	0	825,100
Total compensation (GCGC)	3,767,834	7,464,038	1,980,578	3,348,158	0	1,877,265	0	2,034,899

¹ Member until July 31, 2019.

² Member until April 8, 2018.

³ Member until May 24, 2018.

in €	Nicolas Moreau ¹		Dr. Marcus Schenck ²	
	2019	2018	2019	2018
Fixed compensation	0	1,200,000	0	1,250,000
Functional allowance	0	0	0	0
Fringe benefits (fixed compensation)	0	129,407	0	13,117
Total	0	1,329,407	0	1,263,117
Variable compensation	0	0	0	0
thereof Restricted Incentive Awards:				
2014 Restricted Incentive Award for 2013	0	0	0	0
2015 Restricted Incentive Award for 2014	0	0	0	0
2017 Restricted Incentive Award: Sign On	0	0	0	0
2017 Restricted Incentive Award: Buyout	0	0	0	0
thereof Equity Awards:				
2017 Equity Upfront Award: Sign On	0	0	0	0
2013 Restricted Equity Award for 2012	0	0	0	0
2014 Restricted Equity Award for 2013	0	0	0	0
2017 Restricted Equity Award: Buyout	0	0	0	0
Fringe benefits (variable compensation)	0	0	0	0
Total	0	0	0	0
Pension service costs	0	607,093	0	504,568
Total compensation (GCGC)	0	1,936,500	0	1,767,685

¹ Member until December 31, 2018. In his position as managing director of DWS Management GmbH a total compensation (GCGC) of €2,323,792 was paid in 2018.

² Member until May 24, 2018.

With respect to deferred awards scheduled to be delivered in the first quarter of 2020, the Supervisory Board has confirmed that the performance conditions relating to Group-wide IBIT for the financial year 2019 have been met.

Compensation in accordance with the German Accounting Standard No. 17 (GAS 17)

In accordance with the requirements of the GAS 17, the members of the Management Board collectively received in the 2019 financial year compensation totaling €34,835,009 (2018: €52,181,136). Of that, €20,950,000 (2018: €25,711,111) was for fixed compensation, €1,750,000 (2018: €4,200,000) for functional allowances, €2,275,594 (2018: €2,123,102) for fringe benefits and €9,859,415 (2018: €20,146,923) for performance-related components.

In accordance with German Accounting Standard No. 17, the Restricted Incentive Awards, as a deferred, non-equity-based compensation component subject to certain (forfeiture) conditions, must be recognized in the total compensation for the year of their payment (i.e. in the financial year in which the unconditional payment takes place) and not in the year they are originally granted. Based on this the Management Board members individually received the following compensation components for their service on the Management Board for or in the years 2019 and 2018, including the non-performance-related fringe benefits.

Compensation according to GAS 17

in €	Christian Sewing		Karl von Rohr		Fabrizio Campelli ¹		Frank Kuhne ²	
	2019	2018	2019	2018	2019	2018	2019	2018
Compensation								
Performance-related components								
With long-term incentives								
Cash-based								
Restricted Incentive Award(s) paid	0	0	0	0	0	0	0	0
Share-based								
Restricted Equity Award(s)	1,331,717	2,784,726	1,096,708	2,023,503	182,785	0	1,096,708	0
Non-performance-related components								
Base salary	3,400,000	3,291,111	3,000,000	2,836,667	400,000	0	2,400,000	0
Functional allowance	0	0	0	0	0	0	0	0
Fringe benefits (fixed and variable)	69,338	91,805	43,642	49,853	8,182	0	29,580	0
Total	4,801,055	6,167,642	4,140,350	4,910,023	590,967	0	3,526,288	0

¹ Member since November 1, 2019.

² Member since January 1, 2019.

in €	Stuart Lewis		James von Moltke		Werner Steinmüller		Sylvie Matherat ¹	
	2019	2018	2019	2018	2019	2018	2019	2018
Compensation								
Performance-related components								
With long-term incentives								
Cash-based								
Restricted Incentive Award(s) paid	105,340	232,275	487,207	560,758	0	0	0	0
Share-based								
Restricted Equity Award(s)	1,096,708	1,873,503	1,096,708	2,023,503	1,096,708	1,783,503	639,746	1,603,503
Non-performance-related components								
Base salary	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	1,400,000	2,400,000
Functional allowance	0	1,200,000	0	0	0	0	0	0
Fringe benefits (fixed and variable compensation)	312,607	184,423	926,026	702,491	578,496	464,189	4,636	6,392
Total	3,914,655	5,890,201	4,909,941	5,686,752	4,075,204	4,647,692	2,044,382	4,009,895

¹ Member until July 31, 2019.

in €	Garth Ritchie ¹		Frank Strauß ¹		John Cryan ²		Kimberly Hammonds ³	
	2019	2018	2019	2018	2019	2018	2019	2018
Compensation								
Performance-related components								
With long-term incentives								
Cash-based								
Restricted Incentive Award(s) paid	0	0	0	0	0	0	0	0
Share-based								
Restricted Equity Award(s)	734,040 ⁴	1,963,503	895,040 ⁵	2,375,703	0	567,252	0	618,126
Non-performance-related components								
Base salary	1,750,000	3,000,000	1,400,000	2,400,000	0	1,133,333	0	1,000,000
Functional allowance	1,750,000	3,000,000	0	0	0	0	0	0
Fringe benefits (fixed and variable compensation)	267,834	189,609	35,253	71,892	0	10,125	0	209,799
Total	4,501,874	8,153,112	2,330,293	4,847,595	0	1,710,710	0	1,827,925

¹ Member until July 31, 2019.

² Member until April 8, 2018.

³ Member until May 24, 2018.

⁴ Thereof Restricted Equity Awards in the amount of €94,294 that are attributable to the STA and vest after 7 years.

⁵ Thereof Restricted Equity Awards in the amount of €255,294 that are attributable to the STA and vest after 7 years.

in €	Nicolas Moreau ¹		Dr. Marcus Schenck ²		Total	
	2019	2018	2019	2018	2019	2018
Compensation						
Performance-related components						
With long-term incentives						
Cash-based						
Restricted Incentive Award(s) paid	0	0	0	0	592,547	793,033
Share-based						
Restricted Equity Award(s)	0	951,751	0	785,314	9,266,868	19,353,890
Non-performance-related components						
Base salary	0	1,200,000	0	1,250,000	20,950,000	25,711,111
Functional allowance	0	0	0	0	1,750,000	4,200,000
Fringe benefits (fixed and variable compensation)	0	129,407	0	13,117	2,275,594	2,123,102
Total	0	2,281,158	0	2,048,431	34,835,009	52,181,136

¹ Member until December 31, 2018. In his position as managing director of DWS Management GmbH he received a total of €2,466,699.

² Member until May 24, 2018.

With respect to deferred awards scheduled to be delivered in the first quarter of 2020, the Supervisory Board has confirmed that the performance conditions relating to Group-wide IBIT for the 2019 financial year have been met.

Employee Compensation Report

The content of the 2019 Employee Compensation Report is based on the qualitative and quantitative remuneration disclosure requirements outlined in Article 450 No. 1 (a) to (i) Capital Requirements Regulation (CRR) in conjunction with Section 16 of the Remuneration Ordinance for Institutions (*Institutsvergütungsverordnung* – InstVV).

This Compensation Report takes a group-wide view and covers all consolidated entities of the Deutsche Bank Group. In accordance with regulatory requirements, equivalent reports for 2019 are prepared for the following Significant Institutions within Deutsche Bank Group: Deutsche Bank Privat- und Firmenkundenbank AG, Germany; BHW Bausparkasse AG, Germany; Deutsche Bank Luxembourg S.A., Luxembourg; Deutsche Bank S.p.A., Italy; and Deutsche Bank Mutui S.p.A., Italy.

Regulatory Environment

Ensuring compliance with regulatory requirements is an overarching consideration in our Group Compensation Strategy. We strive to be at the forefront of implementing regulatory requirements with respect to compensation and will continue to work closely with our prudential supervisor, the European Central Bank (ECB), to be in compliance with all existing and new requirements.

As an EU-headquartered institution, Deutsche Bank is subject to the Capital Requirements Regulation / Directive (CRR / CRD) globally, as transposed into German national law in the German Banking Act and InstVV. We adopted the rules in its current version for all of Deutsche Bank's subsidiaries and branches world-wide to the extent required in accordance with Section 27 InstVV. As a Significant Institution within the meaning of InstVV, Deutsche Bank identifies all employees whose work is deemed to have a material impact on the overall risk profile (Material Risk Takers or MRTs) in accordance with criteria stipulated under the Commission Delegated Regulation (EU) No. 604/2014. MRTs are identified at a Group level and at the level of Significant Institutions.

Taking into account more specific sectorial legislation and in accordance with InstVV, some of Deutsche Bank's subsidiaries (in particular within the DWS Group) fall under the local transpositions of the Alternative Investments Fund Managers Directive (AIFMD) or the Undertakings for Collective Investments in Transferable Securities Directive (UCITS). We also identify Material Risk Takers in these subsidiaries. Identified employees are subject to the remuneration provisions outlined in the Guidelines on sound remuneration policies under AIFMD/UCITS published by the European Securities and Markets Authority (ESMA).

Deutsche Bank also takes into account the regulations targeted at employees who engage directly or indirectly with the bank's clients, for instance as per the local transpositions of the Markets in Financial Instruments Directive II – MiFID II. These provisions resulted in the implementation of a specific compensation policy, a review of compensation plans and the identification of employees deemed to be Relevant Persons to ensure that they act in the best interest of clients.

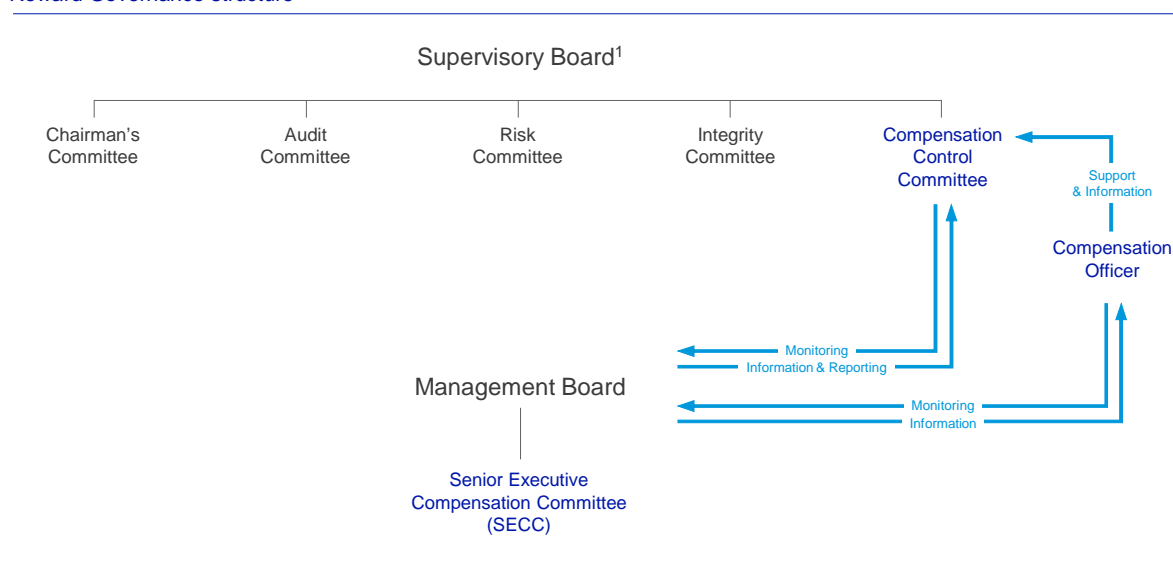
Where applicable, Deutsche Bank is also subject to specific rules and regulations implemented by local regulators. Many of these requirements are aligned with the InstVV. However, where variations are apparent, proactive and open discussions with regulators have enabled us to follow the local regulations whilst ensuring any impacted employees or locations remain within the bank's overall Group Compensation Framework. This includes, for example, the identification of Covered Employees in the United States under the requirements of the Federal Reserve Board. In any case, we apply the InstVV requirements as minimum standards globally.

Compensation Governance

Deutsche Bank has a robust governance structure enabling it to operate within the clear parameters of the Compensation Strategy and the Compensation Policies. In accordance with the German two-tier board structure, the Supervisory Board governs the compensation of the Management Board members while the Management Board oversees compensation matters for all other employees in the Group. Both the Supervisory Board and the Management Board are supported by specific committees and functions, in particular the Compensation Control Committee (CCC) and the Senior Executive Compensation Committee (SECC), respectively.

In line with their responsibilities, the bank's control functions are involved in the design and application of the bank's remuneration systems, in the identification of MRTs and in determining the total amount of VC. This includes assessing the impact of employees' behavior and the business-related risks, performance criteria, granting of remuneration and severances as well as ex-post risk adjustments.

Reward Governance structure



¹ Does not comprise a complete list of Supervisory Board Committees.

Compensation Control Committee (CCC)

The Supervisory Board has setup the CCC to support in establishing and monitoring the structure of the compensation system for the Management Board Members of Deutsche Bank AG, considering, in particular, the effects on the risks and risk management in accordance with the InstVV. Furthermore, the CCC monitors the appropriateness of the compensation system for the employees of Deutsche Bank Group, as established by the Management Board and the SECC. The CCC checks regularly whether the total amount of variable compensation is affordable and set in accordance with the InstVV. The CCC also assesses the impact of the compensation systems on the management of risk, capital and liquidity and seeks to ensure that the compensation systems are aligned to the business and risk strategies. Furthermore, the CCC supports the Supervisory Board in monitoring the MRT identification process and whether the internal control functions and the other relevant areas are properly involved in the structuring of the compensation systems.

The CCC consists of the Chairperson of the Supervisory Board and three further Supervisory Board Members, two of which are employee representatives. The Committee held 6 meetings in the calendar year 2019. In November, the members of the Risk Committee attended the Compensation Control Committee meeting as guests.

Compensation Officer

The Management Board, in cooperation with the CCC, has appointed a Group Compensation Officer to support the Supervisory Boards of Deutsche Bank AG and of the bank's Significant Institutions in Germany in performing their compensation related duties. The Compensation Officer is involved in the conceptual review, development, monitoring and application of the employees' compensation systems on an ongoing basis. The Compensation Officer performs his monitoring obligations independently and provides an assessment on the appropriateness of design and practices of the compensation systems for employees at least annually. He supports and advises the CCC regularly.

Senior Executive Compensation Committee (SECC)

The SECC is a delegated committee established by the Management Board which has the mandate to develop sustainable compensation principles, to prepare recommendations on Total Compensation levels and to ensure appropriate compensation governance and oversight. The SECC establishes the Group Compensation Strategy and Compensation Policy. The SECC also utilizes quantitative and qualitative factors to assess Group and divisional performance as a basis for compensation decisions and makes recommendations to the Management Board regarding the total amount of annual variable compensation and its allocation across business divisions and infrastructure functions.

In order to maintain its independence, only representatives from infrastructure and control functions who are not aligned to any of the business divisions are members of the SECC. In 2019, the SECC's membership comprised of the Chief Administration Officer (since November 2019 the Chief Transformation Officer) and the Chief Financial Officer as Co-Chairpersons, as well as the Chief Risk Officer (all of whom are Management Board Members), the Global Head of Human Resources as well as an additional representative from both Finance and Risk as voting members. The Compensation Officer, the Deputy Compensation Officer and one of the Global Co-Heads of HR Performance & Reward were nonvoting members. The SECC generally meets on a monthly basis and it had 16 meetings with regard to the compensation process for performance year 2019.

Compensation Strategy

Deutsche Bank recognizes that its compensation system plays a vital role in supporting its strategic objectives. It enables us to attract and retain the individuals required to achieve our bank's objectives. The Group Compensation Strategy is aligned to Deutsche Bank's business strategy, risk strategy, and to its corporate values and beliefs. In light of the bank's strategy announcement in July 2019, we have reconfirmed the key objectives and core principles of our remuneration system outlined below.

Five key objectives of our compensation practices

- To support the delivery of the bank's client-focused, global bank strategy by attracting and retaining talent across its full range of diverse business models and country locations
- To support the long-term, sustainable performance and development of the bank and a corresponding risk strategy
- To promote and support long-term performance based on cost discipline and efficiency
- To ensure that the bank's compensation practices are safe, by way of risk-adjusting performance outcomes, preventing inappropriate risk taking, ensuring sustained compatibility with capital and liquidity planning, and complying with regulation
- To apply and promote the bank's corporate values of integrity, sustainable performance, client centricity, innovation, discipline and partnership

Core remuneration principles

- Align compensation to shareholder interests and sustained bank-wide profitability, taking account of risk
- Maximize sustainable performance, both at the employee and the bank-wide level
- Attract and retain the best talent
- Calibrate compensation to reflect different divisions and levels of responsibility
- Apply a simple and transparent compensation design
- Ensure compliance with regulatory requirements

The Group Compensation Policy informs our employees about the implementation of the Compensation Strategy, governance processes as well as compensation structures and practices. All relevant documents are available to employees via our intranet site.

Group Compensation Framework

Our compensation framework emphasizes an appropriate balance between Fixed Pay (FP) and Variable Compensation (VC) – together Total Compensation (TC). It aligns incentives for sustainable performance at all levels of Deutsche Bank whilst ensuring the transparency of compensation decisions and their impact on shareholders and employees. The underlying principles of our compensation framework are applied to all employees equally, irrespective of differences in seniority, tenure or gender.

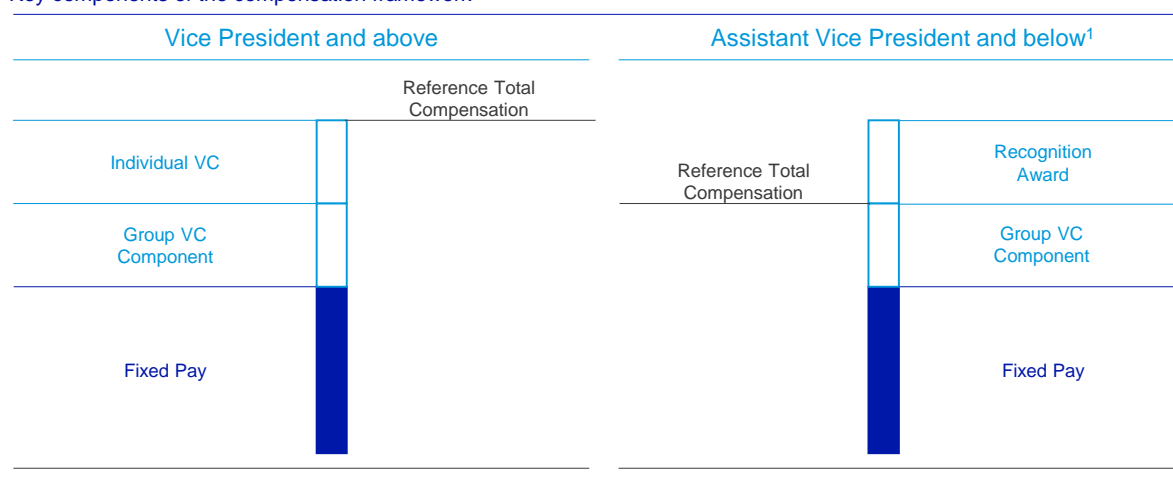
Pursuant to CRD 4 and the requirements subsequently adopted in the German Banking Act, Deutsche Bank is subject to a ratio of 1:1 with regard to fixed-to-variable remuneration components, which was increased to 1:2 with shareholder approval on May 22, 2014 with an approval rate of 95.27 %, based on valid votes by 27.68 % of the share capital represented at the Annual General Meeting. Nonetheless, the bank has determined that employees in specific infrastructure functions should continue to be subject to a ratio of at least 1:1 while Control Functions as defined by InstVV are subject to a ratio of 2:1.

The bank has assigned a Reference Total Compensation (RTC) to eligible employees that describes a reference value for their role. This value provides our employees orientation on their FP and VC. Actual individual TC can be at, above or below the Reference Total Compensation, depending on VC decisions which are based on Group affordability, and performance expectations having been satisfied at Group, divisional and individual levels.

Fixed Pay is used to compensate employees for their skills, experience and competencies, commensurate with the requirements, size and scope of their role. The appropriate level of FP is determined with reference to the prevailing market rates for each role, internal comparisons and applicable regulatory requirements. FP plays a key role in permitting us to meet our strategic objectives by attracting and retaining the right talent. For the majority of our employees, FP is the primary compensation component with a share of greater than 50 % of TC.

Variable Compensation reflects affordability and performance at Group, divisional, and individual level. It allows us to differentiate individual performance and to drive behavior through appropriate incentive systems that can positively influence culture. It also allows for flexibility in the cost base. VC generally consists of two elements – the Group VC Component and the Individual VC Component. The Individual VC Component is delivered either in the form of Individual VC (generally applicable for employees at the level of Vice President (VP) and above) or as Recognition Award (generally applicable for employees at the level of Assistant Vice President (AVP) and below). In cases of negative performance contributions or misconduct, an employee's VC can be reduced accordingly and can go down to zero. VC is granted and paid out subject to Group affordability. Under our compensation framework, there continues to be no guarantee of VC in an existing employment relationship. Such arrangements are utilized only on a very limited basis for new hires in the first year of employment and are subject to the bank's standard deferral requirements.

Key components of the compensation framework



¹ Some Assistant Vice Presidents and below in select entities and divisions are eligible for the Individual VC Component in lieu of the Recognition Award.

The **Group VC Component** is based on one of the overarching goals of the compensation framework – to ensure an explicit link between VC and the performance of the Group. To assess our annual achievements in reaching our strategic targets, the four Key Performance Indicators (KPIs) utilized as the basis for determining the 2019 Group VC Component were: Common Equity Tier 1 (CET 1) Capital Ratio, Leverage Ratio, Adjusted Costs, and Post-Tax Return on Tangible Equity (RoTE). These four KPIs represent important metrics for the capital, risk, cost and the revenue profile of our bank and provide an indication of the sustainable performance of Deutsche Bank.

Individual VC takes into consideration a number of financial and nonfinancial factors, including the applicable divisional performance, the employee's individual performance, conduct, and adherence to values and beliefs, as well as additional factors such as the comparison of pay levels with the employee's peer group and retention considerations.

Recognition Awards provide the opportunity to acknowledge and reward outstanding contributions made by the employees of lower seniority levels in a timely and transparent manner. Generally, the overall size of the Recognition Award budget is directly linked to a set percentage of FP for the eligible population and it is currently paid out twice a year, based on a review of nominations and contributions in a process managed at the divisional level.

Employee benefits complement Total Compensation and are considered FP from a regulatory perspective, as they have no direct link to performance or discretion. They are granted in accordance with applicable local market practices and requirements. Pension expenses represent the main element of the bank's benefits portfolio, globally.

In the context of InstVV, **severance payments** are considered VC. The bank's severance framework ensures full alignment with the respective InstVV requirements.

Limited to extraordinary circumstances, the bank reserves the right to grant **Retention Awards** to help incentivize select employees which are at risk of leaving and that are critical to the bank's future, to remain at the bank. Retention Awards are generally linked to certain critical events in which the bank has a legitimate interest in retaining the employee for a defined period of time. This serves to minimize operational, financial or reputational risk. These awards are considered VC in a regulatory sense and are subject to the same requirements as other VC elements.

Determination of performance-based Variable Compensation

Deutsche Bank applies a methodology when determining VC that reflects the risk-adjusted performance and is primarily driven by (i) Group affordability, i.e. what can Deutsche Bank award in alignment with regulatory requirements, and (ii) performance, i.e. what should we award in order to provide an appropriate compensation for performance, while protecting the long-term health of the franchise.

Above all, the assessment of Group affordability is a regulatory requirement as per Sect. 7 InstVV. This sustainability analysis is conducted to determine that relevant parameters are meeting the current and projected future regulatory and strategic goals. The affordability parameters used are fully aligned with our Risk Appetite Framework and ensure that the bank's capital as well as liquidity position and planning, its risk-bearing capacity, the combined capital buffer requirements, and results are adequately taken into account.

When assessing Group and divisional performance, we reference a range of considerations. The performance is assessed in context of divisional financial and – based on Balanced Scorecards – nonfinancial targets. The financial targets are subject to appropriate risk-adjustment, in particular by referencing the degree of future potential risks to which Deutsche Bank may be exposed, and the amount of capital required to absorb severe unexpected losses arising from these risks. For the infrastructure functions, the performance assessment is mainly based on the achievement of cost targets and the Balanced Scorecards. While the allocation of VC to infrastructure functions depends on the overall performance of Deutsche Bank, it is not dependent on the performance of the division(s) these functions, particularly independent control functions, oversee.

At the level of the individual employee, we have established Variable Compensation Guiding Principles, which detail the factors and metrics that have to be taken into account when making Individual VC decisions. Our managers must fully appreciate the risk-taking activities of individuals to ensure that VC allocations are balanced and risk-taking is not inappropriately incentivized. The factors and metrics to be considered include, but are not limited to, individual performance based on quantitative and qualitative aspects, culture and behavioral considerations, and disciplinary sanctions. Managers of Material Risk Takers must specifically document the factors and risk metrics considered when making Individual VC decisions, and demonstrate how these factors influenced their decision. Generally, performance is assessed based on a one year period. However, for Management Board members of Significant Institutions, the performance across three years is taken into account.

Variable Compensation Structure

Our compensation structures are designed to provide a mechanism that promotes and supports long-term performance of our employees and our bank. Whilst a portion of VC is paid upfront, these structures require that an appropriate portion is deferred to ensure alignment to the sustainable performance of the Group.

At the same time, we believe that the use of shares or share-based instruments for deferred VC is an effective way to align compensation with Deutsche Bank's sustainable performance and the interests of shareholders. By using Deutsche Bank shares, the value of the individual's VC is linked to Deutsche Bank's share price over the deferral and retention period.

We continue to go beyond regulatory requirements with the amount of VC that is deferred and Deutsche Bank's minimum deferral periods. Whilst ensuring lower compensated employees are not subject to deferrals, we ensure an appropriate amount of deferred VC for higher earners. We start to defer parts of variable compensation for Material Risk Takers where VC is set at or above €50,000. For non-MRTs, deferrals start at higher levels of VC. The VC threshold for MRTs requiring at least 60 % deferral is set at €500,000. Furthermore, Directors and Managing Directors in Corporate Bank (CB), Investment Bank (IB) or Capital Release Unit (CRU) with Fixed Pay in excess of €500,000 are subject to a VC deferral of 100 %. Material Risk Takers are on average subject to deferral rates in excess of the minimum 40 % (60 % for Senior Management) as required by InstVV.

As detailed in the table below, deferral periods range from three to five years, dependent on employee groups.

Overview on 2019 Award Types (excluding DWS Group)

Award Type	Description	Beneficiaries	Deferral Period	Retention Period	Proportion
Upfront: Cash VC	Upfront cash portion	All eligible employees	N/A	N/A	InstVV MRTs: 50 % of upfront VC Non-MRTs: 100 % of upfront VC
Upfront: Equity Upfront Award (EUA)	Upfront equity portion (linked to Deutsche Bank's share price over the retention period)	All InstVV MRTs with VC >= €50,000	N/A	Twelve months	50 % of upfront VC
Deferred: Restricted Incentive Award (RIA)	Deferred cash portion	All employees with deferred VC	Equal tranche vesting over CB/IB/CRU: four years Sen.Mgmt.: five years Other: three years ¹	N/A	50 % of deferred VC
Deferred: Restricted Equity Award (REA)	Deferred equity portion (linked to Deutsche Bank's share price over the vesting and retention period)	All employees with deferred VC	Equal tranche vesting over CB/IB/CRU: four years Sen.Mgmt.: five years Other: three years ¹	Twelve months for InstVV MRTs	50 % of deferred VC

N/A – Not applicable

¹ Senior Management, for the purposes of performance year 2019 annual awards, is defined as Deutsche Bank's Senior Leadership Cadre, plus Management Board members of Significant Institutions and their direct reports (excl. non-management/-strategic roles).

Our employees are not allowed to sell, pledge, transfer or assign a deferred award or any rights in respect to the award. They may not enter into any transaction having an economic effect of hedging any variable compensation, for example offsetting the risk of price movement with respect to the equity-based award. Our Human Resources and Compliance functions, supported by the Compensation Officer, work together to monitor employee trading activity and to ensure that all our employees comply with this requirement.

Ex-post Risk Adjustment of Variable Compensation

We believe that the future conduct and performance of our employees are key elements of deferred VC. As a result, all deferred awards are subject to performance conditions and forfeiture provisions as detailed below.

Overview on Deutsche Bank Group performance conditions and forfeiture provisions of Variable Compensation

Provision	Description	Forfeiture
DB Group's Common Equity Tier 1 Capital Ratio and Liquidity Coverage Ratio	If at the quarter end prior to vesting and release the Group CET 1 Capital Ratio, or the Liquidity Coverage Ratio are below a certain threshold	Next tranche of deferred award due for delivery (100 % of all undelivered Equity Upfront Awards) ¹
Group PBT	If the Management Board determines that prior to vesting Group PBT is negative ²	Next tranche of deferred award due for vesting
Divisional PBT	If the Management Board determines that prior to vesting Divisional PBT is negative	Next tranche of deferred award due for vesting (applies only to MRTs in Business Divisions, excluding Capital Release Unit)
Forfeiture Provisions ³	<ul style="list-style-type: none"> - In the event of an internal policy or procedure breach, breach of any applicable laws or regulations, or a Control Failure - If any award was based on performance measures or assumptions that are later deemed to be materially inaccurate - Where a Significant Adverse Event occurs, and the Participant is considered sufficiently proximate - If forfeiture is required to comply with prevailing regulatory requirements 	Up to 100 % of undelivered awards
Clawback	In the event an InstVV MRT participated in conduct that resulted in significant loss or regulatory sanction; or failed to comply with relevant external or internal rules regarding appropriate standards of conduct	100 % of award which has been delivered, before the second anniversary of the last vesting date for the award

¹ For award types subject to cliff-vesting, the whole award will be forfeited if at quarter end prior to vesting or release the Group CET 1 Capital Ratio, or the Liquidity Coverage Ratio are below the threshold. For Equity Upfront Awards, the Group CET 1 Capital Ratio, or the Liquidity Coverage Ratio are only assessed at the quarter end prior to release.

² Considering clearly defined and governed adjustments for significant Profit and Loss items (e.g., business restructurings; impairments of goodwill or intangibles).

³ Forfeiture provisions here are not a complete list, other provisions apply as outlined in the respective plan rules.

Employee Groups with specific Compensation Structures

For some areas of the bank, compensation structures apply that deviate, within regulatory boundaries, in some aspects from the Group Compensation Framework outlined previously.

Postbank units

With effect from May 25, 2018, Deutsche Postbank AG merged with Deutsche Bank Privat- und Geschäftskunden AG to form DB Privat- und Firmenkundenbank AG.

In line with Deutsche Bank Group practice, Postbank units utilize a Group and an Individual VC Component. Since Performance Year 2019, Group VC for executive staff is based on results of Deutsche Bank Group only, but still within the remuneration structure of former Postbank.

The compensation for non-executive staff in Postbank units is based on frameworks agreed with trade unions or with the respective workers' councils. Where no collective agreements exist, compensation is subject to individual contracts. In general, nonexecutive staff in Postbank units receive VC, but the structure and portion of VC differ between legal entities.

DWS

The vast majority of DWS asset management entities fall under AIFMD or UCITS while a limited number of entities remain in scope of the bank's Group Compensation Framework and InstVV. DWS has established its own compensation governance, policy, and structures, as well as Risk Taker identification process in line with AIFMD/UCITS requirements. These structures and processes are in line with InstVV where required, but tailored towards the Asset Management business.

DWS has implemented a self-imposed fixed-to-variable ratio of 1:2 for AIFMD/UCITS Control Function employees and 1:5 for other employees in order to align the compensation with industry standards. Generally, DWS applies remuneration rules that are equivalent to the Deutsche Bank Group approach, but use DWS Group-related parameters, where possible. Notable deviations from the Group Compensation Framework include the use of share-based instruments linked to DWS shares and fund-linked instruments. These serve to improve the alignment of employee compensation with DWS' shareholders' and investors' interests.

Control Functions

In line with InstVV, the bank has defined control functions that are subject to specific regulatory requirements. These control functions comprise Risk, Compliance, Anti-Financial Crime, Group Audit, parts of Human Resources, and the Compensation Officer and his Deputy. To prevent conflicts of interests, the parameters used to determine the Individual VC Component of these control functions do not follow the same parameters being used for the business they oversee. Based on their risk profile, these functions are subject to a fixed-to-variable pay ratio of 2:1.

In addition, for some additional corporate functions that perform control roles (including Legal, Group Finance, Group Tax, Regulation, and other parts of Human Resources), the bank has determined a voluntary application of a fixed-to-variable pay ratio of 1:1.

Tariff staff

Within Deutsche Bank Group there are more than 19,500 tariff employees in Germany (based on full-time equivalent). These tariff employees are primarily employed by Deutsche Bank AG, DB Privat- und Firmenkundenbank AG, and subsidiaries within the Postbank unit. They are subject to a collective agreement (*Tarifvertrag für das private Bankgewerbe und die öffentlichen Banken*), as negotiated between trade unions and employer associations. Also, former Postbank units are subject to agreements as negotiated with the respective trade unions directly. The remuneration of tariff staff is included in the quantitative disclosures in this report.

Compensation Decisions for 2019

Year-End considerations and decisions for 2019

All compensation decisions can only be made within the boundaries of regulatory requirements. These requirements form the overarching and limiting principle of determining compensation in Deutsche Bank. In particular, the bank must ensure that compensation decisions are not detrimental to maintaining a sound capital base and liquidity resources.

Within this regulatory framework, for the determination of the total amount of VC for 2019 the Management Board considered the bank's risk bearing capacity, the performance of both the Group and divisions, and its overall stability. These factors have been complemented by other important aspects including the ongoing focus on achieving the bank's transformation objectives, achievement of cost targets, the impact of competitive positioning on retaining and motivating employees, and a sustainable balance between shareholder and employee interests.

The SECC has monitored these factors throughout 2019 and confirmed that the bank has comfortably met regulatory requirements on capital and liquidity throughout the year. As such, the Management Board confirmed that the bank is in a position to award the total amount of VC for performance year 2019 and in doing so will not put at risk its ability to remain sustainable regarding the above factors.

In the context of the above considerations, the Management Board has determined a total amount of year-end performance-based VC for 2019 of € 1.5 billion. The determination of VC for the Management Board of Deutsche Bank AG was not part of this decision, as it was carried out by our Supervisory Board in a separate process (please refer to the Management Board Compensation Report). The VC for the Management Board is, however, included as part of performance-based VC for 2019 in the tables and charts below.

As part of the overall 2019 VC awards granted in March 2020, the Group VC Component was awarded to all eligible employees in line with the assessment of the four defined KPIs, as outlined in the chapter Group Compensation Framework. The Management Board determined a payout rate of 60 % for 2019.

Disclosure of Total Compensation for 2019

Compared to 2018, the Fixed Pay according to § 2 InstVV for 2019 decreased by approximately 4% from €8.4 billion to €8.0 billion, in line with the reduction in group headcount. As established by our compensation framework, Fixed Pay continues to remain the primary compensation component for the majority of our employees.

The total amount of year-end performance-based VC for 2019 – the amount of VC that Deutsche Bank Group pays to its employees for their performance in 2019 – decreased compared to 2018 by approximately 22 % from €1.9 billion to €1.5 billion.

Compensation awards for 2019 – all employees

in € m. (unless stated otherwise) ¹	2019									2018	
	Super- visory Board ²	Man- agement Board ³	IB ³	CB ³	PB ³	DWS ³	CRU ³	Control Func- tions ³	Corporate Func- tions ³	Group Total	Group Total
Number of employees (full-time equivalent)	20	7	10,095	7,428	37,266	3,924	1,205	5,680	21,992	87,597	91,737
Total compensation	6	42	2,327	906	3,069	731	393	706	1,787	9,961	10,662
Base salary and allowances	6	23	1,474	703	2,446	429	281	576	1,417	7,350	7,684
Pension expenses ⁴	0	6	96	66	288	41	21	53	120	691	686
Fixed Pay according to § 2 InstVV ⁵	6	28	1,570	769	2,734	471	302	630	1,537	8,041	8,370
Year-end performance-based VC ⁶	0	13	602	119	303	197	27	65	190	1,516	1,945
Other VC ⁷	0	0	117	9	5	51	53	1	6	242	143
Severance payments ⁸	0	0	38	9	27	13	10	11	53	162	203
Variable Pay according to § 2 InstVV ⁹	0	13	757	137	335	260	90	76	250	1,920	2,292

¹ The table may contain marginal rounding differences. FTE (full-time equivalent) as of December 31, 2019.

² Supervisory Board includes the Deutsche Bank AG Supervisory Board members. They are not considered for the Group Total number of employees. Employee representatives are considered with their compensation for the Supervisory Board role only (their employee compensation is included in the relevant divisional column). The remuneration for members of the Deutsche Bank AG Supervisory Board is not reflected in the Group Total.

³ Management Board includes the board members of Deutsche Bank AG. IB = Investment Bank; CB = Corporate Bank (includes Postbank commercial banking); PB = Private Bank (includes VC for all former postbank units). DWS = DWS Group; CRU = Capital Release Unit. Control Functions include Chief Risk Office, Group Audit, Compliance, Anti-Financial Crime. Corporate Functions include any infrastructure function which is neither captured as a Control Function nor part of any division.

⁴ Pension expenses have been refined to reflect additional pension related components with regards to state mandated benefits to be aligned with the Benefits Note. This has also been adjusted for prior year data.

⁵ Fixed Pay according to § 2 InstVV includes base salary, allowances, and pension expenses.

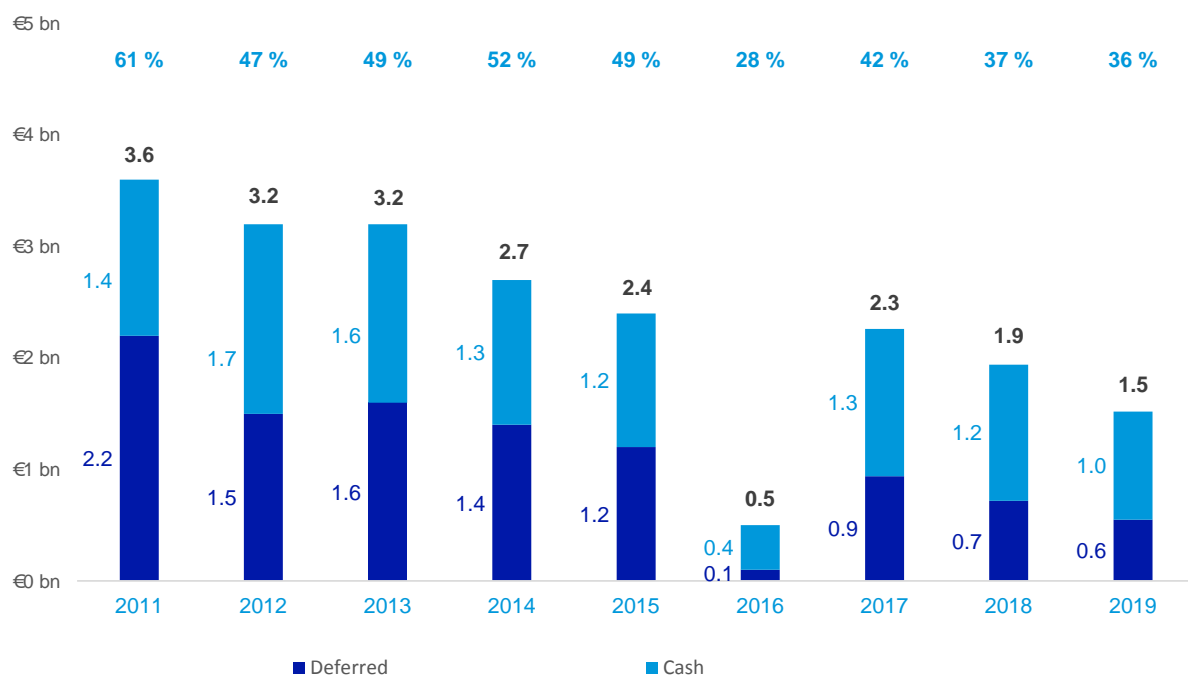
⁶ Year-end performance-based VC includes Individual/Group VC Components, Recognition Award, VC for Deutsche Bank AG Management Board.

⁷ Other VC includes other contractual VC commitments in the period such as sign-on awards and retention awards.

⁸ Including severance expenses as well as the acceleration of deferred compensation awards not yet amortized due to the discontinuation of employment. For information on restructuring expenses please refer to Note 10 "Restructuring". Details regarding respective payments for the members of the Group Management Board who left Deutsche Bank in 2019 are disclosed in the Management Board Compensation Report.

⁹ Variable Pay according to § 2 InstVV includes Deutsche Bank's year-end performance-based VC awards for 2019 and other VC commitments in the relevant period, as well as severance payments. €45 million buyouts for new hires (replacement awards for lost entitlements from previous employers) are not included.

Year-end performance-based Variable Compensation and deferral rates year over year



Due to rounding, numbers presented may not add up precisely to the totals provided.

Material Risk Taker Compensation Disclosure

On a global basis, 2,553 employees were identified as Material Risk Takers according to InstVV for financial year 2019, compared to 1,913 employees for 2018. This increase is mainly driven by the regulatory changes applicable to the remuneration components to be taken into account for the identification of Material Risk Takers. The remuneration elements for all MRTs are detailed in the table below in accordance with Section 16 InstVV and Article 450 CRR.

Aggregate remuneration for Material Risk Takers according to InstVV

										2019	2018
in € m. (unless stated otherwise) ¹	Super- visory Board ²	Mana- gement Board ³	IB ³	CB ³	PB ³	DWS ³	CRU ³	Control Func- tions ³	Corporate Func- tions ³	Group Total	Group Total
Number of MRTs (headcount)	42	39	1,163	195	399	46	225	174	270	2,553	1,913
Number of MRTs (FTE)	37	34	973	171	359	36	95	159	237	2,101	1,781
Thereof: Senior Management ⁴	0	34	23	34	95	8	4	17	38	253	252
Total Pay	7	103	1,103	119	215	49	162	106	208	2,070	1,807
Total Fixed Pay	7	45	664	77	139	24	112	86	144	1,297	1,049
Thereof:											
In cash (incl. pension expenses) ⁵	5	45	664	77	139	24	112	86	144	1,295	1,048
In shares or other instruments ⁶	1	0	0	0	0	0	0	0	0	1	1
Total Variable Pay for period⁷	0	58	439	42	76	25	50	20	63	773	758
Thereof:											
In cash	0	30	226	22	44	13	30	12	34	411	398
In shares or share- based instruments	0	27	213	20	32	11	21	7	29	361	360
In other types of instruments	0	0	0	0	0	1	0	0	0	1	0
Total Variable Pay for period, deferred	0	36	343	28	34	13	35	7	31	526	569
Thereof:											
In cash	0	15	172	14	17	6	18	3	15	260	278
In shares or share- based instruments	0	20	171	14	17	7	17	3	15	265	291
In other types of instruments	0	0	0	0	0	1	0	0	0	1	0
Total amount of variable pay still outstanding at the beginning of the year that was deferred in previous years	0	54	1,300	100	133	53	145	45	142	1,971	1,678
Thereof:											
Vested	0	15	43	8	15	5	6	7	16	115	95
Vested and paid/delivered	0	15	43	8	14	5	6	7	16	114	90
Unvested	0	39	1,258	92	118	48	139	38	126	1,856	1,583

	2019									2018	
in € m. (unless stated otherwise) ¹	Super- visory Board ²	Mana- gement Board ³	IB ³	CB ³	PB ³	DWS ³	CRU ³	Control Func- tions ³	Corporate Func- tions ³	Group Total	Group Total
Deferred Variable Pay awarded, paid out or reduced during period											
Awarded during period	0	55	526	43	59	19	64	12	52	831	842
Paid out during period	0	19	256	26	56	10	34	17	44	461	447
Reduced through explicit risk adjustments ⁸	0	0	1	0	0	0	0	0	0	2	7
Number of beneficiaries of guaranteed variable remuneration (incl. sign-on payments)	0	0	4	0	1	0	0	1	3	9	4
Total amount of guaranteed variable pay (incl. sign-on payments)	0	0	5	0	1	0	0	0	3	9	2
Total amount of severance payments granted during period ⁹	0	33	10	2	9	2	8	4	2	70	58
Number of beneficiaries of severance payments granted during period	0	4	86	10	14	8	79	2	10	213	108
Highest severance payment granted to an individual during period	0	11	1	1	2	1	2	4	1	11	11

¹ The table may contain marginal rounding differences. Employees are allocated to columns based on their primary role. FTE as of December 31, 2019.

² Supervisory Board includes the Supervisory Board members of all Significant Institutions within Deutsche Bank Group. Employee representatives solely identified due to their Supervisory Board role are considered with their compensation for the Supervisory Board role only.

³ Management Board includes the respective board members of all Significant Institutions within Deutsche Bank Group. IB = Investment Bank; CB = Corporate Bank (includes Postbank commercial banking); PB = Private Bank. The VC for some MRTs in Postbank units is based on preliminary data. Final values will be disclosed in the compensation reports of DB Privat- und Firmenkundenbank AG as well as BHW Bausparkasse AG. DWS = DWS Group. CRU = Capital Release Unit. Control Functions include Chief Risk Office, Group Audit, Compliance, Anti-Financial Crime. Corporate Functions include any infrastructure function which is neither captured as a Control Function nor part of any division.

⁴ Senior Management is defined as Deutsche Bank's Senior Leadership Cadre, plus Management Board members of Significant Institutions and their direct reports (excl. non-management/-strategic roles). All Senior Management employees are also considered InstVV MRTs. Management Board members of Significant Institutions are included in the Management Board column.

⁵ Fixed Pay in cash includes base salary, allowances and material benefits (pension expenses).

⁶ Fixed Pay in shares is only granted to members of the Deutsche Bank AG Supervisory Board as described in the chapter Compensation System for Supervisory Board Members.

⁷ Total Variable Pay for period includes Deutsche Bank's year-end performance-based VC awards for 2019 and other VC commitments in the relevant period, as well as severance payments. Buyouts are not included.

⁸ Includes malus and clawback.

⁹ Severance payments are generally not deferred.

Remuneration of high earners

in €	2019		2018	
	Number of individuals		Number of individuals	
Total Pay¹				
1,000,000 to 1,499,999	305		356	
1,500,000 to 1,999,999	122		125	
2,000,000 to 2,499,999	50		61	
2,500,000 to 2,999,999	37		31	
3,000,000 to 3,499,999	21		15	
3,500,000 to 3,999,999	20		22	
4,000,000 to 4,499,999	9		5	
4,500,000 to 4,999,999	8		3	
5,000,000 to 5,999,999	6		14	
6,000,000 to 6,999,999	4		8	
7,000,000 to 7,999,999	0		1	
8,000,000 to 8,999,999	0		0	
9,000,000 to 9,999,999	0		2	
10,000,000 to 10,999,999	0		0	
11,000,000 to 11,999,999	0		0	
12,000,000 to 12,999,999	0		0	
13,000,000 to 13,999,999	1		0	
Total	583		643	

¹ Buyouts are not included.

In total, 583 employees received a Total Pay of € 1 million or more for 2019, compared to 643 employees in 2018 (-9 %) and 705 employees in 2017 (-17 %).

The table above does not include the three members of the Group Management Board who left Deutsche Bank in 2019. All details regarding the relevant compensation elements are disclosed in the Management Board Compensation Report.

Compensation System for Supervisory Board Members

The compensation principles for Supervisory Board members are set forth in our Articles of Association, which our shareholders amend from time to time at the Annual General Meeting. Such compensation provisions, which were newly conceived in 2013, were last amended by resolution of the Annual General Meeting on May 18, 2017 and became effective on October 5, 2017. Accordingly, the following provisions apply:

The members of the Supervisory Board receive fixed annual compensation ("Supervisory Board Compensation"). The annual base compensation amounts to €100,000 for each Supervisory Board member. The Supervisory Board Chairman receives twice that amount and the Deputy Chairperson one and a half times that amount.

Members and chairs of the committees of the Supervisory Board are paid additional fixed annual compensation as follows:

Committee in €	Dec 31, 2019	
	Chairperson	Member
Audit Committee	200,000	100,000
Risk Committee	200,000	100,000
Nomination Committee	100,000	50,000
Mediation Committee	0	0
Integrity Committee	200,000	100,000
Chairman's Committee	100,000	50,000
Compensation Control Committee	100,000	50,000
Strategy Committee	100,000	50,000
Technology, Data and Innovation Committee	100,000	50,000

75 % of the compensation determined is disbursed to each Supervisory Board member after submitting invoices within the first three month of the following year. The other 25 % is converted by the company at the same time into company shares based on the average closing price on the Frankfurt Stock Exchange (Xetra or successor system) during the last ten trading days of the preceding January, calculated to three digits after the decimal point. The share value of this number of shares is paid to the respective Supervisory Board member in February of the year following his departure from the Supervisory Board or the expiration of his term of office, based on the average closing price on the Frankfurt Stock Exchange (Xetra or successor system) during the last ten trading days of the preceding January, provided that the member does not leave the Supervisory Board due to important cause which would have justified dismissal.

In case of a change in Supervisory Board membership during the year, compensation for the financial year will be paid on a pro rata basis, rounded up/down to full months. For the year of departure, the entire compensation is paid in cash; a forfeiture regulation applies to 25 % of the compensation for that financial year.

The company reimburses the Supervisory Board members for the cash expenses they incur in the performance of their office, including any value added tax (VAT) on their compensation and reimbursements of expenses. Furthermore, any employer contributions to social security schemes that may be applicable under foreign law to the performance of their Supervisory Board work shall be paid for each Supervisory Board member affected. Finally, the Chairman of the Supervisory Board will be appropriately reimbursed for travel expenses incurred in performing representative tasks that his function requires and for the costs of security measures required on account of his function.

In the interest of the company, the members of the Supervisory Board will be included in an appropriate amount, with a deductible, in any financial liability insurance policy held by the company. The premiums for this are paid by the company.

Supervisory Board Compensation for the 2019 Financial Year

Individual members of the Supervisory Board received the following compensation for the 2019 financial year (excluding value added tax).

Members of the Supervisory Board in €	Compensation for fiscal year 2019		Compensation for fiscal year 2018	
	Fixed	Thereof payable in 1st quarter 2020	Fixed	Thereof paid in 1st quarter 2019
Dr. Paul Achleitner	900,000	675,000	858,333	643,750
Detlef Polaschek ¹	450,000	337,500	262,500	196,875
Stefan Rudschäfski ²	0	0	125,000	125,000
Ludwig Blomeyer-Bartenstein ¹	300,000	225,000	175,000	131,250
Wolfgang Böhr ²	0	0	83,333	83,333
Frank Bsirske	300,000	225,000	279,167	235,417
Mayree Carroll Clark ¹	370,833	278,125	204,167	153,125
Dina Dublon ³	0	0	175,000	175,000
Jan Duscheck	250,000	187,500	187,500	151,042
Dr. Gerhard Eschelbeck	150,000	112,500	129,167	96,875
Katherine Garrett-Cox	300,000	225,000	241,667	181,250
Timo Heider	250,000	187,500	229,167	192,708
Sabine Irrgang ²	0	0	83,333	83,333
Prof. Dr. Henning Kagermann ²	0	0	104,167	104,167
Martina Klee	150,000	112,500	170,833	148,958
Henriette Mark	250,000	187,500	229,167	192,708
Richard Meddings ⁴	87,500	87,500	429,167	321,875
Louise Parent ²	0	0	125,000	125,000
Gabriele Platscher	300,000	225,000	258,333	214,583
Bernd Rose	250,000	187,500	229,167	192,708
Gerd Alexander Schütz	150,000	112,500	129,167	107,292
Prof. Dr. Stefan Simon ⁴	320,833	320,833	487,500	365,625
Stephan Szukalski ¹	200,000	150,000	116,667	87,500
Dr. Johannes Teyssen ²	0	0	104,167	104,167
John Alexander Thain ¹	200,000	150,000	116,667	87,500
Michele Trogni ¹	320,833	240,625	175,000	131,250
Dr. Dagmar Valcárcel ⁵	166,667	125,000	0	0
Prof. Dr. Norbert Winkeljohann ⁶	420,833	315,625	58,333	43,750
Jürg Zeltner ⁷	25,000	25,000	0	0
Total	6,112,499	4,692,708	5,766,669	4,676,041

¹ Member since May 24, 2018.

² Member until May 24, 2018.

³ Member until July 31, 2018.

⁴ Member until July 31, 2019.

⁵ Member since August 1, 2019.

⁶ Member since August 1, 2018.

⁷ Member from August 20 until December 15, 2019.

Following the submission of invoices 25 % of the compensation determined for each Supervisory Board member for the 2018 financial year was converted into notional shares of the company on the basis of a share price of € 7.8195 (average closing price on the Frankfurt Stock Exchange (Xetra) during the last ten trading days of January 2020). Members who left the Supervisory Board in 2019 were paid the entire amount of compensation in cash.

The following table shows the number of notional shares of the Supervisory Board members, to three digits after the decimal point, that were awarded in the first three months 2020 as part of their 2019 compensation as well as the number of notional shares accrued from previous years as part of the compensation accumulated during the respective membership in the Supervisory Board as well as the total amounts paid out in February 2020 for members that left the Supervisory Board.

Members of the Supervisory Board	Number of notional shares			In February 2020 payable in € ¹
	Converted in February 2020 as part of the compensation 2019	Total number accrued during the current term of office	Total (cumulative)	
Dr. Paul Achleitner ²	28,774.218	34,455.248	63,229.466	0
Detlef Polaschek ³	14,387.109	8,229.150	22,616.259	0
Ludwig Blomeyer-Bartenstein ³	9,591.406	5,486.100	15,077.506	0
Frank Bsirske ⁴	9,591.406	5,486.100	15,077.506	0
Mayree Carroll Clark ³	11,856.044	6,400.450	18,256.494	0
Jan Duscheck ⁴	7,992.838	4,571.750	12,564.588	0
Dr. Gerhard Eschelbeck	4,795.703	4,992.668	9,788.371	0
Katherine Garrett-Cox	9,591.406	11,939.444	21,530.850	0
Timo Heider ⁴	7,992.838	4,571.750	12,564.588	0
Martina Klee ⁴	4,795.703	2,743.050	7,538.753	0
Henriette Mark ⁴	7,992.838	4,571.750	12,564.588	0
Richard Meddings ⁵	0	26,784.652	26,784.652	209,443
Gabriele Platscher ⁴	9,591.406	5,486.100	15,077.506	0
Bernd Rose ⁴	7,992.838	4,571.750	12,564.588	0
Gerd Alexander Schütz ⁵	4,795.703	2,743.050	7,538.753	0
Prof. Dr. Stefan Simon ⁵	0	19,238.329	19,238.329	150,434
Stephan Szukalski ³	6,394.271	3,657.400	10,051.671	0
John Alexander Thain ³	6,394.271	3,657.400	10,051.671	0
Michele Trogni ³	10,257.476	5,486.100	15,743.576	0
Dr. Dagmar Valcárcel ⁷	5,328.559	0	5,328.559	0
Prof. Dr. Norbert Winkeljohann ⁸	13,454.611	1,828.700	15,283.311	0
Jürg Zeltner ⁹	0	0	0	0
Total	181,570.644	166,900.941	348,471.585	359,877

¹ At a value of € 7.8195 based on the average closing price on the Frankfurt Stock Exchange (Xetra or successor system) during the last ten trading days of January 2020.

² Member was re-elected on May 18, 2017.

³ Member since May 24, 2018.

⁴ As Employee representatives on April 26, 2018 re-elected.

⁵ Member until July 31, 2019.

⁶ Member on May 24, 2018 re-elected.

⁷ Member since August 1, 2019.

⁸ Member since August 1, 2018.

⁹ Member from August 20 until December 15, 2019.

All employee representatives on the Supervisory Board, with the exception of Frank Bsirske, Jan Duscheck and Stephan Szukalski, are employed by us. In the 2019 financial year, we paid such members a total amount of € 1.00 million in the form of salary, retirement and pension compensation in addition to their Supervisory Board compensation.

We do not provide members of the Supervisory Board with any benefits after they have left the Supervisory Board, though members who are or were employed by us are entitled to the benefits associated with the termination of such employment. During 2019, we set aside € 0.13 million for pension, retirement or similar benefits for the members of the Supervisory Board who are or were employed by us.

With the agreement of the Bank's Management Board, Dr. Paul Achleitner performs representative functions in various ways on an unpaid basis for the Bank and participates in opportunities for referrals of business for the Bank. These tasks are related to the functional responsibilities of the Chairman of the Supervisory Board of Deutsche Bank AG. In this respect, the reimbursement of costs is provided for in the Articles of Association. On the basis of a separate contractual agreement, the Bank provides Dr. Paul Achleitner with infrastructure and support services free of charge for his services in the interest of the Bank. He is therefore entitled to avail himself of internal resources for preparing and carrying out these activities. The Bank's security and car services are available for Dr. Paul Achleitner for use free of charge for these tasks. The Bank also reimburses travel expenses and attendance fees and covers the taxes for any non-cash benefits provided. On September 24, 2012, the Chairman's Committee approved the conclusion of this agreement. The provisions apply for the duration of Dr. Paul Achleitner's tenure as Chairman of the Supervisory Board and are reviewed on an annual basis for appropriateness. Under this agreement between Deutsche Bank and Dr. Achleitner, support services equivalent to € 208,000 (2018: € 225,000) were provided and reimbursements for expenses amounting to € 277,010 (2018: € 218,672) were paid during the 2019 financial year.

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Employees

Group Headcount

As of December 31, 2019, we employed a total of 87,597 staff members compared to 91,737 as of December 31, 2018. We calculate our employee figures on a full-time equivalent basis, meaning we include proportionate numbers of part-time employees.

The following table shows our numbers of full-time equivalent employees as of December 31, 2019, 2018 and 2017.

Employees ¹	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017
Germany	40,491	41,669	42,526
Europe (outside Germany), Middle East and Africa	19,672	20,871	23,543
Asia/Pacific	18,874	19,732	20,861
North America ²	8,399	9,275	10,358
Latin America	162	189	247
Total employees	87,597	91,737	97,535

¹ Full-time equivalent employees; in 2019 the health insurance company of Deutsche Bank aligned its FTE definition which decreased the Group number as of December 31, 2019 by 81 (prior periods not restated); in 2018 BHW KSG aligned its FTE definition to Deutsche Bank which increased the Group number as of December 31, 2018 by 95 (prior periods not restated).

² Primarily the United States.

The number of our employees decreased in 2019 by 4,140 or 4.5 % driven by implementation of our targets announced in July 2019:

- Germany (-1,178; -2.8 %) driven by the implementation of restructuring measures, primarily in Private Bank related to global functions of the Private Bank and Infrastructure functions;
- North America (-876; -9.4 %) driven mostly by reductions in Capital Release Unit and in COO;
- Latin America (-27; -14.3 %) due to reductions primarily in Brazil and Mexico as a result of the implementation of our footprint strategy;
- EMEA ex Germany (-1,200; -5.7 %) mainly driven by reductions in the UK related to the Capital Release Unit and to Infrastructure functions; furthermore demerger of the private and commercial banking business in Portugal;
- Asia/Pacific (-859; -4.4 %) primarily driven by reductions in COO and in Capital Release Unit.

The following table shows the distribution of full-time equivalent employees by division as of December 31, 2019, 2018 and 2017.

Employees	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017
Corporate Bank (CB)	8.5 %	8.0 %	7.8 %
Investment Bank (IB)	11.5 %	10.8 %	10.9 %
Private Bank (PB)	42.5 %	41.9 %	40.3 %
Asset Management (AM)	4.5 %	4.4 %	4.1 %
Capital Release Unit (CRU)	1.4 %	2.8 %	4.5 %
Infrastructure	31.6 %	32.1 %	32.4 %

- Corporate Bank (CB, +75; +1.0 %) mainly driven by increases in CB Central Functions;
- Investment Bank (IB, +135; +1.4 %) mainly driven by increases in CIB Technology;
- Private Bank (PB, -1,149; -3.0 %) mainly driven by the reductions in global functions comprising back office and support functions;
- Asset Management (AM, -88; -2.2 %) primarily driven by reductions in the US and UK;
- Capital Release Unit (CRU, -1,329; -52.4 %) mainly driven by restructuring of the Equities Business including Equities Research primarily in the US, APAC and UK and the demerger of the private and commercial banking business in Portugal;
- Infrastructure functions (-1,784; -6.1 %) primarily driven by reductions in COO (-889) and in Finance (-494), which were partly offset by insourcing of business critical external roles and further strengthening of Anti-Financial Crime division.

Post-Employment Benefit Plans

We sponsor a number of post-employment benefit plans on behalf of our employees, both defined contribution plans and defined benefit plans.

In our globally coordinated accounting process covering defined benefit plans with a defined benefit obligation exceeding €2 million our global actuary reviews the valuations provided by locally appointed actuaries in each country.

By applying our global principles for determining the financial and demographic assumptions we ensure that the assumptions are best-estimate, unbiased and mutually compatible, and that they are globally consistent.

For a further discussion on our employee benefit plans see Note 33 “Employee Benefits” to our consolidated financial statements.

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Consolidated Financial Statements

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Consolidated Statement of Income

in € m.	Notes	2019	2018	2017
Interest and similar income ¹	5	25,149	24,793	23,542
Interest expense	5	11,400	11,601	11,164
Net interest income	5	13,749	13,192	12,378
Provision for credit losses	19	723	525	525
Net interest income after provision for credit losses		13,026	12,667	11,853
Commissions and fee income	6	9,520	10,039	11,002
Net gains (losses) on financial assets/liabilities at fair value through profit or loss	5	193	1,332	2,926
Net gains (losses) on financial assets at amortized cost		0	2	N/A
Net gains (losses) on financial assets at fair value through other comprehensive income		260	317	N/A
Net gains (losses) on financial assets available for sale	7	N/A	N/A	479
Net income (loss) from equity method investments	16	110	219	137
Other income (loss)	8	(669)	215	(475)
Total noninterest income		9,416	12,124	14,070
Compensation and benefits	33	11,142	11,814	12,253
General and administrative expenses	9	12,253	11,286	11,973
Impairment of goodwill and other intangible assets	23	1,037	0	21
Restructuring activities	10	644	360	447
Total noninterest expenses		25,076	23,461	24,695
Profit (loss) before income taxes		(2,634)	1,330	1,228
Income tax expense (benefit)	34	2,630	989	1,963
Profit (loss)		(5,265)	341	(735)
Profit (loss) attributable to noncontrolling interests		125	75	15
Profit (loss) attributable to Deutsche Bank shareholders and additional equity components		(5,390)	267	(751)

¹ Interest and similar income included € 18.0 billion and € 16.8 billion for the year ended December 31, 2019 and 2018, respectively, calculated based on effective interest method.

Earnings per Share

in € m.	Notes	2019	2018	2017
Earnings per share:^{1,2}	11			
Basic		(€ 2.71)	(€ 0.01)	(€ 0.53)
Diluted		(€ 2.71)	(€ 0.01)	(€ 0.53)
Number of shares in million:¹				
Denominator for basic earnings per share – weighted-average shares outstanding		2,110.0	2,102.2	1,967.7
Denominator for diluted earnings per share – adjusted weighted-average shares after assumed conversions ³		2,110.0	2,102.2	1,967.7

¹ The number of average basic and diluted shares outstanding has been adjusted for all periods before April 2017 in order to reflect the effect of the bonus component of subscription rights issued in April 2017 in connection with the capital increase.

² Earnings were adjusted by € 330 million before tax and € 292 million and € 298 million net of tax for the coupons paid on Additional Tier 1 Notes in April 2019, April 2018 and April 2017. Since 2019 the tax impact is recognized in net income (loss) directly. In accordance with IAS 33 the coupons paid on Additional Tier 1 Notes are not attributable to Deutsche Bank shareholders and therefore need to be deducted in the calculation. This adjustment created a net loss situation for Earnings per Common Share for 2018.

³ Due to the net loss situation for 2019, 2018 and 2017 potentially dilutive shares are generally not considered for the earnings per share calculation, because to do so would decrease the net loss per share. Under a net income situation however, the number of adjusted weighted average shares after assumed conversion would have been increased by 60 million shares for 2019, 53 million shares for 2018 and 62 million shares for 2017.

The accompanying notes are an integral part of the Consolidated Financial Statements.

Consolidated Statement of Comprehensive Income

in € m.	2019	2018	2017
Profit (loss) recognized in the income statement	(5,265)	341	(735)
Other comprehensive income			
Items that will not be reclassified to profit or loss			
Remeasurement gains (losses) related to defined benefit plans, before tax	(1,396)	(216)	(69)
Net fair value gains (losses) attributable to credit risk related to financial liabilities designated as at fair value through profit or loss, before tax	(3)	52	N/A
Total of income tax related to items that will not be reclassified to profit or loss	403	10	(23)
Items that are or may be reclassified to profit or loss			
Financial assets available for sale			
Unrealized net gains (losses) arising during the period, before tax	N/A	N/A	197
Realized net (gains) losses arising during the period (reclassified to profit or loss), before tax	N/A	N/A	(523)
Financial assets at fair value through other comprehensive income			
Unrealized net gains (losses) arising during the period, before tax	309	(245)	N/A
Realized net (gains) losses arising during the period (reclassified to profit or loss), before tax	(260)	(317)	N/A
Derivatives hedging variability of cash flows			
Unrealized net gains (losses) arising during the period, before tax	(2)	(3)	(34)
Realized net (gains) losses arising during the period (reclassified to profit or loss), before tax	(2)	0	(137)
Assets classified as held for sale			
Unrealized net gains (losses) arising during the period, before tax	0	2	(162)
Realized net (gains) losses arising during the period (reclassified to profit or loss), before tax	0	(2)	162
Foreign currency translation			
Unrealized net gains (losses) arising during the period, before tax	(20)	457	(2,699)
Realized net (gains) losses arising during the period (reclassified to profit or loss), before tax	(9)	0	20
Equity Method Investments			
Net gains (losses) arising during the period	(22)	(10)	(36)
Total of income tax related to items that are or may be reclassified to profit or loss	193	228	146
Other comprehensive income (loss), net of tax	(809)	(43)	(3,157)
Total comprehensive income (loss), net of tax	(6,073)	298	(3,892)
Attributable to:			
Noncontrolling interests	136	116	(20)
Deutsche Bank shareholders and additional equity components	(6,209)	182	(3,872)

The accompanying notes are an integral part of the Consolidated Financial Statements.

Consolidated Balance Sheet

in € m.	Notes	Dec 31, 2019	Dec 31, 2018
Assets:			
Cash and central bank balances		137,592	188,731
Interbank balances (w/o central banks)		9,636	8,881
Central bank funds sold and securities purchased under resale agreements	20	13,801	8,222
Securities borrowed	20	428	3,396
Financial assets at fair value through profit or loss			
Trading assets		110,875	152,738
Positive market values from derivative financial instruments		332,931	320,058
Non-trading financial assets mandatory at fair value through profit and loss		86,901	100,444
Financial assets designated at fair value through profit or loss		7	104
Total financial assets at fair value through profit or loss	12, 13, 20, 35	530,713	573,344
Financial assets at fair value through other comprehensive income	15	45,503	51,182
Equity method investments	16	929	879
Loans at amortized cost	18, 19, 20	429,841	400,297
Property and equipment	21	4,930	2,421
Goodwill and other intangible assets	23	7,029	9,141
Other assets ¹	24, 25	110,359	93,444
Assets for current tax	34	926	970
Deferred tax assets	34	5,986	7,230
Total assets		1,297,674	1,348,137
Liabilities and equity:			
Deposits	26	572,208	564,405
Central bank funds purchased and securities sold under repurchase agreements	20	3,115	4,867
Securities loaned	20	259	3,359
Financial liabilities at fair value through profit or loss			
Trading liabilities		37,065	59,924
Negative market values from derivative financial instruments		316,506	301,487
Financial liabilities designated at fair value through profit or loss		50,332	53,757
Investment contract liabilities		544	512
Total financial liabilities at fair value through profit or loss	12, 13, 35	404,448	415,680
Other short-term borrowings	29	5,218	14,158
Other liabilities ¹	24, 25	107,964	117,513
Provisions	19, 27	2,622	2,711
Liabilities for current tax	34	651	944
Deferred tax liabilities	34	545	512
Long-term debt	30	136,473	152,083
Trust preferred securities	30	2,013	3,168
Total liabilities		1,235,515	1,279,400
Common shares, no par value, nominal value of €2.56	32	5,291	5,291
Additional paid-in capital		40,505	40,252
Retained earnings		9,644	16,714
Common shares in treasury, at cost	32	(4)	(15)
Accumulated other comprehensive income (loss), net of tax		421	253
Total shareholders' equity		55,857	62,495
Additional equity components		4,665	4,675
Noncontrolling interests		1,638	1,568
Total equity		62,160	68,737
Total liabilities and equity		1,297,674	1,348,137

¹ Within the balance sheet, non-current assets and disposal groups held for sale are included in other assets and other liabilities.

The accompanying notes are an integral part of the Consolidated Financial Statements.

Consolidated Statement of Changes in Equity

in € m.	Common shares (no par value)	Additional paid-in capital	Retained earnings	Common shares in treasury, at cost
Balance as of December 31, 2018	5,291	40,252	16,714	(15)
IFRS 16 transition impact	0	0	(136)	0
Balance as of January 1, 2019 (IFRS 16)	5,291	40,252	16,578	(15)
Total comprehensive income (loss), net of tax ¹	0	0	(5,390)	0
Gains (losses) attributable to equity instruments designated as at fair value through other comprehensive income, net of tax	0	0	0	0
Gains (losses) upon early extinguishment attributable to change in own credit risk of financial liabilities designated as at fair value through profit and loss, net of tax	0	0	0	0
Common shares issued	0	0	0	0
Cash dividends paid	0	0	(227)	0
Coupon on additional equity components, net of tax	0	0	(330) ²	0
Remeasurement gains (losses) related to defined benefit plans, net of tax	0	0	(987)	0
Net change in share awards in the reporting period	0	118	0	0
Treasury shares distributed under share-based compensation plans	0	0	0	185
Tax benefits related to share-based compensation plans	0	0	0	0
Option premiums and other effects from options on common shares	0	0	0	0
Purchases of treasury shares	0	0	0	(1,359)
Sale of treasury shares	0	0	0	1,185
Net gains (losses) on treasury shares sold	0	3	0	0
Other	0	133	0	0
Balance as of December 31, 2019	5,291	40,505	9,644	(4)

¹ Excluding remeasurement gains (losses) related to defined benefit plans, net of tax.

² In 2019 tax impact is recognized in net income (loss) directly.

in € m.	Unrealized net gains (losses)							Accumulated other comprehensive income, net of tax ¹
	On financial assets available for sale, net of tax ²	On financial assets at fair value through other comprehensive income, net of tax ²	Attributable to change in own credit risk of financial liabilities designated as at fair value through profit and loss, net of tax ²	On derivatives hedging variability of cash flows, net of tax ²	On assets classified as held for sale, net of tax ²	Foreign currency translation, net of tax ²	Unrealized net gains (losses) from equity method investments	
Balance as of December 31, 2018	0	(34)	28	17	0	228	15	253
IFRS 16 transition impact	0	0	0	0	0	0	0	0
Balance as of January 1, 2019 (IFRS 16)	0	(34)	28	17	0	228	15	253
Total comprehensive income (loss), net of tax ¹	0	79	(2)	(3)	0	108	(15)	168
Gains (losses) attributable to equity instruments designated as at fair value through other comprehensive income, net of tax	0	0	0	0	0	0	0	0
Gains (losses) upon early extinguishment attributable to change in own credit risk of financial liabilities designated as at fair value through profit and loss, net of tax	0	0	0	0	0	0	0	0
Common shares issued	0	0	0	0	0	0	0	0
Cash dividends paid	0	0	0	0	0	0	0	0
Coupon on additional equity components, net of tax	0	0	0	0	0	0	0	0
Remeasurement gains (losses) related to defined benefit plans, net of tax	0	0	0	0	0	0	0	0
Net change in share awards in the reporting period	0	0	0	0	0	0	0	0
Treasury shares distributed under share-based compensation plans	0	0	0	0	0	0	0	0
Tax benefits related to share-based compensation plans	0	0	0	0	0	0	0	0
Option premiums and other effects from options on common shares	0	0	0	0	0	0	0	0
Purchases of treasury shares	0	0	0	0	0	0	0	0
Sale of treasury shares	0	0	0	0	0	0	0	0
Net gains (losses) on treasury shares sold	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Balance as of December 31, 2019	0	45	25	14	0	336	0	421

¹ Excluding remeasurement gains (losses) related to defined benefit plans, net of tax.

² Excluding unrealized net gains (losses) from equity method investments.

in € m.	Total shareholders' equity	Additional equity components ²	Noncontrolling interests	Total equity
Balance as of December 31, 2018	62,495	4,675	1,568	68,737
IFRS 16 transition impact	(136)	0	(0)	(137)
Balance as of January 1, 2019 (IFRS 16)	62,358	4,675	1,568	68,601
Total comprehensive income (loss), net of tax ¹	(5,222)	0	142	(5,079)
Gains (losses) attributable to equity instruments designated as at fair value through other comprehensive income, net of tax	0	0	0	0
Gains (losses) upon early extinguishment attributable to change in own credit risk of financial liabilities designated as at fair value through profit and loss, net of tax	0	0	0	0
Common shares issued	0	0	0	0
Cash dividends paid	(227)	0	(59)	(286)
Coupon on additional equity components, net of tax	(330) ⁴	0	0	(330)
Remeasurement gains (losses) related to defined benefit plans, net of tax	(987)	0	(7)	(994)
Net change in share awards in the reporting period	118	0	2	119
Treasury shares distributed under share-based compensation plans	185	0	0	185
Tax benefits related to share-based compensation plans	0	0	0	0
Option premiums and other effects from options on common shares	0	0	0	0
Purchases of treasury shares	(1,359)	0	0	(1,359)
Sale of treasury shares	1,185	0	0	1,185
Net gains (losses) on treasury shares sold	3	0	0	3
Other	133	(10) ³	(9)	114
Balance as of December 31, 2019	55,857	4,665	1,638	62,160

¹ Excluding remeasurement gains (losses) related to defined benefit plans, net of tax.

² Includes Additional Tier 1 Notes, which constitute unsecured and subordinated notes of Deutsche Bank and are classified as equity in accordance with IFRS.

³ Includes net proceeds from purchase and sale of Additional Equity Components.

⁴ In 2019 tax impact is recognized in net income (loss) directly.

in € m.	Common shares (no par value)	Additional paid-in capital	Retained earnings	Common shares in treasury, at cost
Balance as of December 31, 2016	3,531	33,765	18,987	0
Total comprehensive income (loss), net of tax ¹	0	0	(751)	0
Common shares issued	1,760	6,277	0	0
Cash dividends paid	0	0	(392)	0
Coupon on additional equity components, net of tax	0	0	(298)	0
Remeasurement gains (losses) related to defined benefit plans, net of tax	0	0	(91)	0
Net change in share awards in the reporting period	0	(51)	0	0
Treasury shares distributed under share- based compensation plans	0	0	0	424
Tax benefits related to share-based compensation plans	0	3	0	0
Option premiums and other effects from options on common shares	0	(104)	0	0
Purchases of treasury shares	0	0	0	(7,912)
Sale of treasury shares	0	0	0	7,479
Net gains (losses) on treasury shares sold	0	6	0	0
Other	0	22	0	0
Balance as of December 31, 2017 (IAS 39)	5,291	39,918	17,454	(9)
IFRS 9 Introduction Impact	0	(2)	(301)	0
Balance as of January 1, 2018 (IFRS 9)	5,291	39,916	17,153	(9)
Total comprehensive income (loss), net of tax ¹	0	0	267	0
Gains (losses) attributable to equity instruments designated as at fair value through other comprehensive income, net of tax	0	0	0	0
Gains (losses) upon early extinguishment attributable to change in own credit risk of financial liabilities designated as at fair value through profit and loss, net of tax	0	0	0	0
Common shares issued	0	0	0	0
Cash dividends paid	0	0	(227)	0
Coupon on additional equity components, net of tax	0	0	(292)	0
Remeasurement gains (losses) related to defined benefit plans, net of tax	0	0	(186)	0
Net change in share awards in the reporting period	0	90	0	0
Treasury shares distributed under share- based compensation plans	0	0	0	199
Tax benefits related to share-based compensation plans	0	(5)	0	0
Option premiums and other effects from options on common shares	0	0	0	0
Purchases of treasury shares	0	0	0	(4,119)
Sale of treasury shares	0	0	0	3,914
Net gains (losses) on treasury shares sold	0	(2)	0	0
Other	0	253 ²	0	0
Balance as of December 31, 2018	5,291	40,252	16,714	(15)

¹ Excluding remeasurement gains (losses) related to defined benefit plans, net of tax.

² Includes the impact from the initial public offering of DWS Group GmbH & Co. KGaA.

in € m.	Unrealized net gains (losses)							Accumulated other comprehensive income, net of tax ¹
	On financial assets available for sale, net of tax ²	On financial assets at fair value through other comprehensive income, net of tax ²	Attributable to change in own credit risk of financial liabilities designated as at fair value through profit and loss, net of tax ²	On derivatives hedging variability of cash flows, net of tax ²	On assets classified as held for sale, net of tax ²	Foreign currency translation, net of tax ²	Unrealized net gains (losses) from equity method investments	
Balance as of December 31, 2016	912	0	0	143	0	2,418	77	3,550
Total comprehensive income (loss), net of tax ¹	(223)	0	0	(125)	0	(2,646)	(36)	(3,030)
Common shares issued	0	0	0	0	0	0	0	0
Cash dividends paid	0	0	0	0	0	0	0	0
Coupon on additional equity components, net of tax	0	0	0	0	0	0	0	0
Remeasurement gains (losses) related to defined benefit plans, net of tax	0	0	0	0	0	0	0	0
Net change in share awards in the reporting period	0	0	0	0	0	0	0	0
Treasury shares distributed under share-based compensation plans	0	0	0	0	0	0	0	0
Tax benefits related to share-based compensation plans	0	0	0	0	0	0	0	0
Option premiums and other effects from options on common shares	0	0	0	0	0	0	0	0
Purchases of treasury shares	0	0	0	0	0	0	0	0
Sale of treasury shares	0	0	0	0	0	0	0	0
Net gains (losses) on treasury shares sold	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Balance as of December 31, 2017 (IAS 39)	689	0	0	18	0	(227)	40	520
IFRS 9 Introduction Impact	(689)	394	(16)	0	0	(45)	(12)	(368)
Balance as of January 1, 2018 (IFRS 9)	0	394	(16)	18	0	(272)	28	152
Total comprehensive income (loss), net of tax ¹	0	(428)	44	(1)	0	500	(14)	101
Gains (losses) attributable to equity instruments designated as at fair value through other comprehensive income, net of tax	0	0	0	0	0	0	0	0
Gains (losses) upon early extinguishment attributable to change in own credit risk of financial liabilities designated as at fair value through profit and loss, net of tax	0	0	0	0	0	0	0	0
Common shares issued	0	0	0	0	0	0	0	0
Cash dividends paid	0	0	0	0	0	0	0	0
Coupon on additional equity components, net of tax	0	0	0	0	0	0	0	0
Remeasurement gains (losses) related to defined benefit plans, net of tax	0	0	0	0	0	0	0	0
Net change in share awards in the reporting period	0	0	0	0	0	0	0	0
Treasury shares distributed under share-based compensation plans	0	0	0	0	0	0	0	0
Tax benefits related to share-based compensation plans	0	0	0	0	0	0	0	0
Option premiums and other effects from options on common shares	0	0	0	0	0	0	0	0
Purchases of treasury shares	0	0	0	0	0	0	0	0
Sale of treasury shares	0	0	0	0	0	0	0	0
Net gains (losses) on treasury shares sold	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Balance as of December 31, 2018	0	(34)	28	17	0	228	15	253

¹ Excluding remeasurement gains (losses) related to defined benefit plans, net of tax.

² Excluding unrealized net gains (losses) from equity method investments.

in € m.	Total shareholders' equity	Additional equity components ²	Noncontrolling interests	Total equity
Balance as of December 31, 2016	59,833	4,669	316	64,819
Total comprehensive income (loss), net of tax ¹	(3,781)	0	(20)	(3,800)
Common shares issued	8,037	0	0	8,037
Cash dividends paid	(392)	0	(11)	(403)
Coupon on additional equity components, net of tax	(298)	0	0	(298)
Remeasurement gains (losses) related to defined benefit plans, net of tax	(91)	0	0	(91)
Net change in share awards in the reporting period	(51)	0	0	(51)
Treasury shares distributed under share-based compensation plans	424	0	0	424
Tax benefits related to share-based compensation plans	3	0	0	3
Option premiums and other effects from options on common shares	(104)	0	0	(104)
Purchases of treasury shares	(7,912)	0	0	(7,912)
Sale of treasury shares	7,479	0	0	7,479
Net gains (losses) on treasury shares sold	6	0	0	6
Other	22	6 ³	(36)	(9)
Balance as of December 31, 2017 (IAS 39)	63,174	4,675	250	68,099
IFRS 9 Introduction Impact	(671)	0	(1)	(672)
Balance as of January 1, 2018 (IFRS 9)	62,503	4,675	249	67,427
Total comprehensive income (loss), net of tax ¹	368	0	122	490
Gains (losses) attributable to equity instruments designated as at fair value through other comprehensive income, net of tax	0	0	0	0
Gains (losses) upon early extinguishment attributable to change in own credit risk of financial liabilities designated as at fair value through profit and loss, net of tax	0	0	0	0
Common shares issued	0	0	0	0
Cash dividends paid	(227)	0	(8)	(235)
Coupon on additional equity components, net of tax	(292)	0	0	(292)
Remeasurement gains (losses) related to defined benefit plans, net of tax	(186)	0	(12)	(198)
Net change in share awards in the reporting period	90	0	23	112
Treasury shares distributed under share-based compensation plans	199	0	0	199
Tax benefits related to share-based compensation plans	(5)	0	1	(4)
Option premiums and other effects from options on common shares	0	0	0	0
Purchases of treasury shares	(4,119)	0	0	(4,119)
Sale of treasury shares	3,914	0	0	3,914
Net gains (losses) on treasury shares sold	(2)	0	0	(2)
Other	253 ⁴	0	1,193 ⁴	1,446
Balance as of December 31, 2018	62,495	4,675	1,568	68,737

¹ Excluding remeasurement gains (losses) related to defined benefit plans, net of tax.

² Includes Additional Tier 1 Notes, which constitute unsecured and subordinated notes of Deutsche Bank and are classified as equity in accordance with IFRS.

³ Includes net proceeds from purchase and sale of Additional Equity Components.

⁴ Includes the impact from the initial public offering of DWS Group GmbH & Co. KGaA.

Consolidated Statement of Cash Flows

in € m.	2019	2018	2017
Net Income (loss)	(5,265)	341	(735)
Cash flows from operating activities:			
Adjustments to reconcile net income to net cash provided by (used in) operating activities:			
Provision for credit losses	723	525	525
Restructuring activities	644	360	447
Gain on sale of financial assets available for sale and securities held to maturity	N/A	N/A	(516)
Gain on sale of financial assets at fair value through other comprehensive income, equity method investments and other	(277)	(619)	(59)
Deferred income taxes, net	1,868	276	1,234
Impairment, depreciation and other amortization, and accretion	3,993	2,391	2,159
Share of net income from equity method investments	(104)	(129)	(141)
Income (loss) adjusted for noncash charges, credits and other items	1,582	3,145	2,914
Adjustments for net change in operating assets and liabilities:			
Interest-earning time deposits with central banks and banks	(1,203)	(10,954)	966
Central bank funds sold, securities purchased under resale agreements, securities borrowed	(2,529)	15,004	8,560
Non-Trading financial assets mandatory at fair value through profit and loss	11,403	(98,560)	N/A
Financial assets designated at fair value through profit or loss	101	91,176	(6,721)
Loans at amortized cost	(27,335)	302	2,759
Other assets	7,464	6,284	21,970
Deposits	6,432	(16,763)	34,601
Financial liabilities designated at fair value through profit or loss and investment contract liabilities ¹	(3,766)	(10,549)	5,461
Central bank funds purchased, securities sold under repurchase agreements, securities loaned	(4,871)	(16,716)	(3,355)
Other short-term borrowings	(8,954)	(4,266)	1,148
Other liabilities	(16,563)	(19,119)	(23,107)
Senior long-term debt ²	(16,112)	(6,840)	(12,728)
Trading assets and liabilities, positive and negative market values from derivative financial instruments, net	22,559	20,542	1,596
Other, net	(8,657)	(6,858)	5,512
Net cash provided by (used in) operating activities	(40,449)	(54,172)	39,576
Cash flows from investing activities:			
Proceeds from:			
Sale of financial assets at fair value through other comprehensive income	23,721	22,126	N/A
Maturities of financial assets at fair value through other comprehensive income	40,806	26,001	N/A
Sale of debt securities held to collect at amortized cost	390	94	N/A
Maturities of debt securities held to collect at amortized cost	964	1,904	N/A
Sale of financial assets available for sale	N/A	N/A	10,657
Maturities of financial assets available for sale	N/A	N/A	6,798
Maturities of securities held to maturity	N/A	N/A	0
Sale of equity method investments	9	30	80
Sale of property and equipment	92	356	113
Purchase of:			
Financial assets at fair value through other comprehensive income	(56,568)	(41,031)	N/A
Debt Securities held to collect at amortized cost	(20,134)	(309)	N/A
Financial assets available for sale	N/A	N/A	(13,472)
Securities held to maturity	N/A	N/A	0
Equity method investments	(17)	(1)	(12)
Property and equipment	(327)	(465)	(485)
Net cash received in (paid for) business combinations/divestitures	1,762	220	82
Other, net	(978)	(1,291)	(1,328)
Net cash provided by (used in) investing activities	(10,280)	7,634	2,433

in € m.	2019	2018	2017
Cash flows from financing activities:			
Issuances of subordinated long-term debt	47 ³	68	881
Repayments and extinguishments of subordinated long-term debt	(152) ³	(1,171)	(176)
Issuances of trust preferred securities	0 ⁴	4	266
Repayments and extinguishments of trust preferred securities	(1,235) ⁴	(2,733)	(666)
Principal portion of lease payments	(659)	N/A	N/A
Common shares issued	0	0	8,037
Purchases of treasury shares	(1,359)	(4,119)	(7,912)
Sale of treasury shares	1,191	3,912	7,471
Additional Equity Components (AT1) issued	0	0	0
Purchases of Additional Equity Components (AT1)	(131)	(236)	(205)
Sale of Additional Equity Components (AT1)	121	234	217
Coupon on additional equity components, pre tax	(330)	(315)	(335)
Dividends paid to noncontrolling interests	(59)	(8)	(11)
Net change in noncontrolling interests	(9)	1,205	(37)
Cash dividends paid to Deutsche Bank shareholders	(227)	(227)	(392)
Other, net	0	52	0
Net cash provided by (used in) financing activities	(2,802)	(3,334)	7,138
Net effect of exchange rate changes on cash and cash equivalents	1,578	1,668	(5,772)
Net increase (decrease) in cash and cash equivalents	(51,953)	(48,203)	43,376
Cash and cash equivalents at beginning of period	180,822	229,025	185,649
Cash and cash equivalents at end of period	128,869	180,822	229,025
Net cash provided by (used in) operating activities include			
Income taxes paid (received), net	945	468	689
Interest paid	11,493	11,743	11,784
Interest received	23,748	22,408	21,095
Dividends received	1,309	2,186	3,006
Cash and cash equivalents comprise			
Cash and central bank balances (not included: Interest-earning time deposits with central banks)	121,412	174,059	222,451
Interbank balances (w/o central banks) (not included: time deposits with banks of € 18.4 billion as of December 31, 2019, € 16.8 billion as of December 31, 2018 and € 5.9 billion as of December 31, 2017)	7,457	6,763	6,574
Total	128,869	180,822	229,025

¹ Included are senior long-term debt issuances of € 3.1 billion and € 5.3 billion and repayments and extinguishments of € 4.4 billion and € 5.2 billion through December 31, 2019 and December 31, 2018, respectively.

² Included are issuances of € 23.4 billion and € 27.4 billion and repayments and extinguishments of € 42.7 billion and € 32.8 billion through December 31, 2019 and December 31, 2018, respectively.

³ Non-cash changes for Subordinated Long Term Debt are € 228 million in total and mainly driven by Fair Value changes of € 185 million and Foreign Exchange movements of € 67 million.

⁴ Non-cash changes for Trust Preferred Securities are € 79 million in total and driven by Foreign Exchange movements of € 35 million and Fair Value changes of € 28 million.

The accompanying notes are an integral part of the Consolidated Financial Statements.

Notes to the consolidated financial statements

01 – Significant accounting policies and critical accounting estimates

Basis of accounting

Deutsche Bank Aktiengesellschaft (“Deutsche Bank” or the “Parent”) is a stock corporation organized under the laws of the Federal Republic of Germany. Deutsche Bank together with all entities in which Deutsche Bank has a controlling financial interest (the “Group”) is a global provider of a full range of corporate and investment banking, private clients and asset management products and services.

The accompanying consolidated financial statements are stated in euros, the presentation currency of the Group. All financial information presented in million euros has been rounded to the nearest million. The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board (“IASB”) and endorsed by the European Union (“EU”). The Group’s application of IFRS results in no differences between IFRS as issued by the IASB and IFRS as endorsed by the EU.

Disclosures about the nature and the extent of risks arising from financial instruments as required by IFRS 7, “Financial Instruments: Disclosures” are set forth in the Risk Report section of the Management Report and are an integral part of the Consolidated Financial Statements. These audited disclosures are identified by bracketing in the margins of the Risk Report.

Adjustment of mortality assumptions

In 2019 the Group decided to apply DB specific mortality assumptions used to determine the defined benefit obligation for its defined benefit pension plans in Germany. In this context - based on actuarial calculations for the DB specific population - the bank adjusted the mortality expectations from the so far used “Richttafeln Heubeck 2018G” to the DB specific mortality experience of employees and pensioners. This change in actuarial assumptions led to an actuarial loss of €125 million before taxes as of 31 December 2019 and is reported in the Consolidated Statement of Comprehensive Income in the line item re-measurement gains (losses).

Adjustment of impairment methodology

In the third quarter of 2019, the Group introduced refinements to its expected credit loss (ECL) model under IFRS 9. In particular the Group adjusted its approach regarding how forward looking information is included in its ECL model based on experience gained during the first year of application. As a result of the annual validation process, the Group amended the forward looking information and reviewed the effectiveness of variables and adjusted these accordingly. Further, the Group refined the approach to incorporate quarterly forecasts in its macroeconomic variables used in the projection period of forward looking information. The aforementioned refinements resulted in a €167 million reduction of the Group’s Credit Loss Allowances, which more than offset the negative impact of €63 million from the update of macroeconomic variables. In the fourth quarter of 2019 the Group replaced internal macroeconomic forecasts used as an input into forward looking information with a consensus view of analysts and market participants. The change to consensus forecasts resulted in a €16 million reduction of the Group’s Credit Loss Allowances. For further details on the ECL model please refer to “IFRS 9 impairment approach” in the Risk Report section of the Management Report.

Model changes to deferred compensation plans

In 2019, the Group has implemented system changes and enhancements to its processes and tools being used for the financial reporting of its deferred compensation plans. As part of this project, input data, assumptions and valuation models were revisited resulting in corrections as well as changes to some input parameters impacting the recognition and measurement of the Group’s deferred compensation plans. These changes impacted the model and parameters used for calculating expected forfeitures leading to lower expected forfeiture adjustments and increased compensation expense. In addition, for share awards that carry a retention period, the Group updated the calculation of the fair value measured at grant date to include a discount to take into account the restriction on transferring shares after the vesting period. Overall, the aforementioned changes resulted in an immaterial effect and were applied on a prospective basis in 2019.

Critical accounting estimates

The preparation of financial statements under IFRS requires management to make estimates and assumptions for certain categories of assets and liabilities. These estimates and assumptions affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the balance sheet date, and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from management's estimates. The Group's significant accounting policies are described in "Significant Accounting Policies".

Certain of the Group's accounting policies require critical accounting estimates that involve complex and subjective judgments and the use of assumptions, some of which may be for matters that are inherently uncertain and susceptible to change. Such critical accounting estimates could change from period to period and may have a material impact on the Group's financial condition, changes in financial condition or results of operations. Critical accounting estimates could also involve estimates where management could have reasonably used another estimate in the current accounting period. The Group has identified the following significant accounting policies that involve critical accounting estimates:

- the impairment of associates (see "Associates" below)
- the impairment of financial assets at fair value through other comprehensive income (see "Financial Assets (IFRS 9) – Financial Assets at Fair Value through Other Comprehensive Income" below)
- the impairment of financial assets available for sale (see "Financial Assets (IAS 39 - 2017 only) – Financial Assets Classified as Available for Sale" below)
- the determination of fair value (see "Determination of Fair Value" below)
- the recognition of trade date profit (see "Recognition of Trade Date Profit" below)
- the impairment of loans and provisions for off-balance sheet positions (see "Impairment of Loans and Provision for Off-balance Sheet Positions" below)
- the impairment of goodwill and other intangibles (see "Goodwill and Other Intangible Assets" below)
- the recognition and measurement of deferred tax assets (see "Income Taxes" below)
- the accounting for legal and regulatory contingencies and uncertain tax positions (see "Provisions" below)

Significant accounting policies

The following is a description of the significant accounting policies of the Group. Except for the changes in accounting policies and changes in accounting estimates described previously and noted below these policies have been consistently applied for 2017, 2018 and 2019.

Principles of consolidation

The financial information in the Consolidated Financial Statements includes the parent company, Deutsche Bank AG, together with its consolidated subsidiaries, including certain structured entities presented as a single economic unit.

Subsidiaries

The Group's subsidiaries are those entities which it directly or indirectly controls. Control over an entity is evidenced by the Group's ability to exercise its power in order to affect any variable returns that the Group is exposed to through its involvement with the entity.

The Group sponsors the formation of structured entities and interacts with structured entities sponsored by third parties for a variety of reasons, including allowing clients to hold investments in separate legal entities, allowing clients to invest jointly in alternative assets, for asset securitization transactions, and for buying or selling credit protection.

When assessing whether to consolidate an entity, the Group evaluates a range of control factors, namely:

- the purpose and design of the entity
- the relevant activities and how these are determined
- whether the Group's rights result in the ability to direct the relevant activities
- whether the Group has exposure or rights to variable returns
- whether the Group has the ability to use its power to affect the amount of its returns

Where voting rights are relevant, the Group is deemed to have control where it holds, directly or indirectly, more than half of the voting rights over an entity unless there is evidence that another investor has the practical ability to unilaterally direct the relevant activities.

Potential voting rights that are deemed to be substantive are also considered when assessing control.

Likewise, the Group also assesses existence of control where it does not control the majority of the voting power but has the practical ability to unilaterally direct the relevant activities. This may arise in circumstances where the size and dispersion of holdings of the shareholders give the Group the power to direct the activities of the investee.

The Group reassesses the consolidation status at least at every quarterly reporting date. Therefore, any changes in the structure leading to a change in one or more of the control factors, require reassessment when they occur. This includes changes in decision making rights, changes in contractual arrangements, changes in the financing, ownership or capital structure as well as changes following a trigger event which was anticipated in the original documentation.

All intercompany transactions, balances and unrealized gains on transactions between Group companies are eliminated on consolidation.

Consistent accounting policies are applied throughout the Group for the purposes of consolidation. Issuances of a subsidiary's stock to third parties are treated as noncontrolling interests. Profit or loss attributable to noncontrolling interests are reported separately in the Consolidated Statement of Income and Consolidated Statement of Comprehensive Income.

At the date that control of a subsidiary is lost, the Group a) derecognizes the assets (including attributable goodwill) and liabilities of the subsidiary at their carrying amounts, b) derecognizes the carrying amount of any noncontrolling interests in the former subsidiary, c) recognizes the fair value of the consideration received and any distribution of the shares of the subsidiary, d) recognizes any investment retained in the former subsidiary at its fair value and e) recognizes any resulting difference of the above items as a gain or loss in the income statement. Any amounts recognized in prior periods in other comprehensive income in relation to that subsidiary would be reclassified to the Consolidated Statement of Income or transferred directly to retained earnings if required by other IFRSs.

Associates

An associate is an entity in which the Group has significant influence, but not a controlling interest, over the operating and financial management policy decisions of the entity. Significant influence is generally presumed when the Group holds between 20 % and 50 % of the voting rights. The existence and effect of potential voting rights that are currently exercisable or convertible are considered in assessing whether the Group has significant influence. Among the other factors that are considered in determining whether the Group has significant influence are representation on the board of directors (supervisory board in the case of German stock corporations) and material intercompany transactions. The existence of these factors could require the application of the equity method of accounting for a particular investment even though the Group's investment is less than 20 % of the voting stock.

Investments in associates are accounted for under the equity method of accounting. The Group's share of the results of associates is adjusted to conform to the accounting policies of the Group and is reported in the Consolidated Statement of Income as Net income (loss) from equity method investments. The Group's share in the associate's profits and losses resulting from intercompany sales is eliminated on consolidation.

Under the equity method of accounting, the Group's investments in associates and jointly controlled entities are initially recorded at cost including any directly related transaction costs incurred in acquiring the associate, and subsequently increased (or decreased) to reflect both the Group's pro-rata share of the post-acquisition net income (or loss) of the associate or jointly controlled entity and other movements included directly in the equity of the associate or jointly controlled entity. Goodwill arising on the acquisition of an associate or a jointly controlled entity is included in the carrying value of the investment. As goodwill is not reported separately it is not specifically tested for impairment. Rather, the entire equity method investment is tested for impairment at each balance sheet date.

If there is objective evidence of impairment, an impairment test is performed by comparing the investment's recoverable amount, which is the higher of its value in use and fair value less costs to sell, with its carrying amount. An impairment loss recognized in prior periods is only reversed if there has been a positive change in the estimates used to determine the investment's recoverable amount since the last impairment loss was recognized. If this is the case the carrying amount of the investment is increased to its higher recoverable amount. The increased carrying amount of the investment in associate attributable to a reversal of an impairment loss shall not exceed the carrying amount that would have been determined had no impairment loss been recognized for the investment in prior years.

At the date that the Group ceases to have significant influence over the associate or jointly controlled entity the Group recognizes a gain or loss on the disposal of the equity method investment equal to the difference between the sum of the fair value of any retained investment and the proceeds from disposing of the associate and the carrying amount of the investment. Amounts recognized in prior periods in other comprehensive income in relation to the associate are accounted for on the same basis as would have been required if the investee had directly disposed of the related assets or liabilities.

Critical accounting estimates: As the assessment of whether there is objective evidence of impairment may require significant management judgment and the estimates for impairment could change from period to period based on future events that may or may not occur. The Group considers this to be a critical accounting estimate.

Foreign currency translation

The Consolidated Financial Statements are prepared in euro, which is the presentation currency of the Group. Various entities in the Group use a different functional currency, being the currency of the primary economic environment in which the entity operates.

An entity records foreign currency revenues, expenses, gains and losses in its functional currency using the exchange rates prevailing at the dates of recognition.

Monetary assets and liabilities denominated in currencies other than the entity's functional currency are translated at the period end closing rate. Foreign exchange gains and losses resulting from the translation and settlement of these items are recognized in the Consolidated Statement of Income as net gains (losses) on financial assets/liabilities at fair value through profit or loss in order to align the translation amounts with those recognized from foreign currency related transactions (derivatives) which hedge these monetary assets and liabilities.

Nonmonetary items that are measured at historical cost are translated using the historical exchange rate at the date of the transaction. Translation differences on nonmonetary items which are held at fair value through profit or loss are recognized in profit or loss. Translation differences on available for sale nonmonetary items (equity securities) are included in other comprehensive income and recognized in the Consolidated Statement of Income when the non-monetary item is sold as part of the overall gain or loss on sale of the item.

For purposes of translation into the presentation currency, assets and liabilities of foreign operations are translated at the period end closing rate and items of income and expense are translated into euros at the rates prevailing on the dates of the transactions, or average rates of exchange where these approximate actual rates. The exchange differences arising on the translation of a foreign operation are included in other comprehensive income. For foreign operations that are subsidiaries, the amount of exchange differences attributable to any noncontrolling interests is recognized in noncontrolling interests.

Upon disposal of a foreign subsidiary and associate (which results in loss of control or significant influence over that operation) the total cumulative exchange differences recognized in other comprehensive income are reclassified to profit or loss.

Upon partial disposal of a foreign operation that is a subsidiary and which does not result in loss of control, the proportionate share of cumulative exchange differences is reclassified from other comprehensive income to noncontrolling interests as this is deemed a transaction with equity holders. For a partial disposal of an associate which does not result in a loss of significant influence, the proportionate share of cumulative exchange differences is reclassified from other comprehensive income to profit or loss.

Interest, commissions and fees (IFRS 9 and IFRS 15)

Net interest income – Interest income and expense from all interest-bearing assets and liabilities is recognized as net interest income using the effective interest method. The effective interest rate (EIR) is a method of calculating the amortized cost of a financial asset or a financial liability and of allocating the interest income or expense over the relevant period using the estimated future cash flows.

The estimated future cash flows used in the EIR calculation include those determined by all of the contractual terms of the asset or liability, all fees (including commissions) that are considered to be integral to the effective interest rate, direct and incremental transaction costs and all other premiums or discounts. However, if the financial instrument is carried at fair value through profit or loss, any associated fees are recognized in trading income when the instrument is initially recognized, provided there are no significant unobservable inputs used in determining its fair value.

If a financial asset is credit impaired interest, revenue is calculated by applying the effective interest rate to the gross carrying amount. The gross carrying amount of a financial asset is the amortized cost of a financial asset gross of any impairment allowance. For assets which are initially recognized as purchased or credit impaired, interest revenue is calculated through the use of a credit-adjusted effective interest rate which takes into consideration expected credit losses.

The Group recognizes income from government grants which are associated to interest-bearing assets and liabilities in net interest income when there is reasonable assurance that it will receive the grants and will comply with the conditions attached to the grants.

The Group presents interest income and expense calculated using the EIR method separately in the income statement.

Commissions and fee income –The Group applies the IFRS 15, “Revenue from Contracts with Customers” five-step revenue recognition model to the recognition of Commissions and Fee Income, under which income must be recognized when control of goods and services is transferred, hence the contractual performance obligations to the customer has been satisfied.

Accordingly, after a contract with a customer has been identified in the first step, the second step is to identify the performance obligation – or a series of distinct performance obligations – provided to the customer. The Group must examine whether the service is capable of being distinct and is actually distinct within the context of the contract. A promised service is distinct if the customer can benefit from the service either on its own or together with other resources that are readily available to the customer, and the promise to transfer the service to the customer is separately identifiable from other promises in the contract. The amount of income is measured on the basis of the contractually agreed transaction price for the performance obligation defined in the contract. If a contract includes variable consideration, the Group estimates the amount of consideration to which it will be entitled in exchange for transferring the promised goods or services to a customer. Income is recognized in profit and loss when the identified performance obligation has been satisfied.

The Group provides asset management services that give rise to asset management and performance fees and constitute a single performance obligation. The asset management and performance fee components are variable considerations such that at each reporting date the Group estimates the fee amount to which it will be entitled in exchange for transferring the promised services to the customer. The benefits arising from the asset management services are simultaneously received and consumed by the customer over time. The Group recognizes revenue over time by measuring the progress towards complete satisfaction of that performance obligation, subject to the removal of any uncertainty as to whether it is highly probable that a significant reversal in the cumulative amount of revenue recognized would occur or not. For the management fee component this is the end of the monthly or quarterly service period. For performance fees this date is when any uncertainty related to the performance component has been fully removed.

Loan commitment fees related to commitments that are accounted for off balance sheet are recognized in commissions and fee income over the life of the commitment if it is unlikely that the Group will enter into a specific lending arrangement. If it is probable that the Group will enter into a specific lending arrangement, the loan commitment fee is deferred until the origination of a loan and recognized as an adjustment to the loan's effective interest rate.

The following Commissions and Fee Income is predominantly earned from services that are received and consumed by the customer over time: Administration, assets under management, foreign commercial business, loan processing and guarantees sundry other customer services. Commissions and Fee Income predominantly earned from providing services at a point in time or transaction-type services include: other securities, underwriting and advisory fees, brokerage fees, local payments, foreign currency/ exchange business and intermediary fees.

Expenses that are directly related and incremental to the generation of Commissions and Fee Income are presented net in Commissions and Fee Income. This includes income and associated expense where the Group contractually owns the performance obligation (i.e. as Principal) in relation to the service that gives rise to the revenue and associated expense. In contrast, it does not include situations where the Group does not contractually own the performance obligation and is acting as agent. The determination of whether the Group is acting as principal or agent is based on the contractual terms of the underlying service arrangement. The gross Commissions and Fee Income and Expense amounts are disclosed in “Note 6 – Commissions and Fee Income”.

Interest, commissions and fees (IAS 18 - 2017 only)

The Group applied the revenue recognition requirements of IAS 18, "Revenue" (IAS 18) in 2017. Revenue was recognized when the amount of revenue and associated costs could be reliably measured, it is probable that economic benefits associated with the transaction will be realized and the stage of completion of the transaction could be reliably measured. This concept was applied to the key revenue generating activities of the Group as follows.

Net interest income – Interest from all interest-bearing assets and liabilities was recognized as net interest income using the effective interest method. The effective interest rate is a method of calculating the amortized cost of a financial asset or a financial liability and of allocating the interest income or expense over the relevant period using the estimated future cash flows. The estimated future cash flows used in this calculation include those determined by the contractual terms of the asset or liability, all fees that are considered to be integral to the effective interest rate, direct and incremental transaction costs and all other premiums or discounts.

Once an impairment loss was recognized on a loan, held-to-maturity investment or available for sale debt instruments, although the accrual of interest in accordance with the contractual terms of the instrument was discontinued, interest income was recognized based on the rate of interest that was used to discount future cash flows for the purpose of measuring the impairment loss. For a loan and held to maturity investment this would be the original effective interest rate, but a new effective interest rate was established each time an available for sale debt instrument was impaired as impairment was measured to fair value and based on a current market rate.

The Group recognized income from government grants which are associated to interest-bearing assets and liabilities in net interest income when there was reasonable assurance that it will receive the grants and will comply with the conditions attached to the grants.

Commissions and fee income – The recognition of fee revenue (including commissions) was determined by the purpose of the fees and the basis of accounting for any associated financial instruments. If there was an associated financial instrument, fees that are an integral part of the effective interest rate of that financial instrument are included within the effective yield calculation. However, if the financial instrument was carried at fair value through profit or loss, any associated fees are recognized in profit or loss when the instrument was initially recognized, provided there was no significant unobservable inputs used in determining its fair value. Fees earned from services that are provided over a specified service period were recognized over that service period. Fees earned for the completion of a specific service or significant event were recognized when the service was completed or the event occurred.

Loan commitment fees related to commitments that are accounted for off balance sheet were recognized in commissions and fee income over the life of the commitment if it is unlikely that the Group will enter into a specific lending arrangement. If it was probable that the Group will enter into a specific lending arrangement, the loan commitment fee was deferred until the origination of a loan and recognized as an adjustment to the loan's effective interest rate.

Performance-linked fees or fee components were recognized when the performance criteria are fulfilled.

The following fee income was predominantly earned from services that were provided over a period of time: investment fund management fees, fiduciary fees, custodian fees, portfolio and other management and advisory fees, credit-related fees and commission income. Fees predominantly earned from providing transaction-type services include underwriting fees, corporate finance fees and brokerage fees.

Expenses that were directly related and incremental to the generation of fee income were presented net in Commissions and Fee Income.

Financial assets (IFRS 9)

The Group classifies financial assets in line with the classification and measurement requirements of IFRS 9, where financial assets are classified based on both the business model used for managing the financial assets and the contractual cash flow characteristics of the financial asset (known as Solely Payments of Principal and Interest or “SPPI”). There are three business models available:

- Hold to Collect - Financial assets held with the objective to collect contractual cash flows. They are subsequently measured at amortized cost and are recorded in multiple lines on the Group’s consolidated balance sheet.
- Hold to Collect and Sell - Financial assets held with the objective of both collecting contractual cash flows and selling financial assets. They are recorded as Financial assets at Fair Value through Other Comprehensive Income on the Group’s consolidated balance sheet.
- Other - Financial assets that do not meet the criteria of either “Hold to Collect” or “Hold to Collect and Sell”. They are recorded as Financial Assets at Fair Value through Profit or Loss on the Group’s consolidated balance sheet.

The assessment of business model requires judgment based on facts and circumstances at the date of the adoption on January 1, 2018 and upon initial recognition. As part of this assessment, the Group considers quantitative factors (e.g., the expected frequency and volume of sales) and qualitative factors such as how the performance of the business model and the financial assets held within that business model are evaluated and reported to the Group’s key management personnel. In addition to taking into consideration the risks that affect the performance of the business model and the financial assets held within that business model, in particular, the way in which those market and credit risks are managed; and how managers of the business are compensated (e.g., whether the compensation is based on the fair value of the assets managed or on the contractual cash flows collected). This assessment results in an asset being classified in either a Hold to Collect, Hold to Collect and Sell or Other business model. Reclassification of financial assets subsequent to initial recognition are expected to be extremely infrequent and only made as a result of a change in the business model for managing those financial assets. Such changes in business model are determined by senior management as a result of external or internal changes which are significant to the Group’s operations and demonstrable to external parties through public announcements.

Please refer to Note 42 “Impact of Deutsche Bank’s transformation” for Information on financial instrument business model reclassification due to the Group’s transformation strategy announced on 7 July 2019.

If the Group holds a financial asset either in a Hold to Collect or a Hold to Collect and Sell business model, then an assessment at initial recognition to determine whether the contractual cash flows of the financial asset are Solely Payments of Principal and Interest on the principal amount outstanding at initial recognition is required to determine the classification. Contractual cash flows, that are SPPI on the principal amount outstanding, are consistent with a basic lending arrangement. Interest in a basic lending arrangement is consideration for the time value of money and the credit risk associated with the principal amount outstanding during a particular period of time. It can also include consideration for other basic lending risks (e.g., liquidity risk) and costs (e.g., administrative costs) associated with holding the financial asset for a particular period of time; and a profit margin that is consistent with a basic lending arrangement.

Financial assets at fair value through profit or loss

Financial assets are classified at fair value through profit or loss if they are held in the other business model because they are either held for trading or because they do not meet the criteria for Hold to Collect or Hold to Collect and Sell. In addition, it includes financial assets that meet the criteria for Hold to Collect or Hold to Collect and Sell business model, but the financial asset fails SPPI or where the Group designated the financial assets under the fair value option.

Financial assets classified as Financial Assets at fair value through profit or loss are measured at fair value with realized and unrealized gains and losses included in Net gains (losses) on financial assets/liabilities at fair value through profit or loss. Interest on interest earning assets such as trading loans and debt securities and dividends on equity instruments are presented in Interest and Similar Income.

Financial assets classified at fair value through profit or loss are recognized or derecognized on trade date. Trade date is the date on which the Group commits to purchase or sell the asset.

Trading assets – Financial assets are classified as held for trading if they have been originated, acquired or incurred principally for the purpose of selling or repurchasing them in the near term, or they form part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking. Trading assets include debt and equity securities, derivatives held for trading purposes, and trading loans. This also includes loan commitments that are allocated to the Other business model and that are classified as derivatives held for trading.

Non-trading financial assets mandatory at fair value through profit and loss – The Group assigns any non-trading financial asset that does not fall into the Hold to Collect nor Hold to Collect and Sell business models into the Other business model and classifies them as Non-Trading Financial Assets mandatory at Fair Value through Profit and Loss. This includes predominately reverse repurchase agreements which are managed on a fair value basis. Additionally, any financial asset that falls into the Hold to Collect or Hold to Collect and Sell business models for which the contractual cash flow characteristics are not SPPI is classified by the Group as Non-Trading Financial Assets Mandatory at Fair Value through Profit and Loss.

Financial assets designated at fair value through profit or loss – Certain financial assets that would otherwise be measured subsequently at amortized cost or at fair value through other comprehensive income, may be designated at Fair Value through Profit or Loss if the designation eliminates or significantly reduces a measurement or recognition inconsistency. The use of the fair value option under IFRS 9 is limited. The Group allows the fair value option to be designated only for those financial instruments for which a reliable estimate of fair value can be obtained.

Financial assets at fair value through other comprehensive income

A financial asset shall be classified and measured at Fair Value through Other Comprehensive Income (“FVOCI”), if the financial asset is held in a Hold to Collect and Sell business model and the contractual cash flows are SPPI, unless designated under the fair value option.

Under FVOCI, a financial asset is measured at its fair value with any changes being recognized in Other Comprehensive Income (“OCI”) and is assessed for impairment under the IFRS 9 expected credit loss model where provisions are recorded through profit or loss are recognized based on expectations of potential credit losses. The Group’s impairment policy is described further in the section “Impairment of Loans and Provision for Off-Balance Sheet Positions (IFRS 9)”. The foreign currency translation effect for FVOCI assets is recognized in profit or loss, as is the interest component by using the effective interest method. The amortization of premiums and accretion of discounts are recorded in net interest income. Realized gains and losses are reported in net gains (losses) on financial assets at FVOCI. Generally, the weighted-average cost method is used to determine the cost of FVOCI financial assets.

Financial assets classified as FVOCI are recognized or derecognized on trade date. Trade date is the date on which the Group commits to purchase or sell the asset.

It is possible to designate non trading equity instruments as FVOCI. However, this category is expected to have limited usage by the Group and has not been used to date.

Financial assets at amortized cost

A financial asset is classified and subsequently measured at amortized cost if the financial asset is held in a Hold to Collect business model and the contractual cash flows are SPPI.

Under this measurement category, the financial asset is measured at fair value at initial recognition. Subsequently the carrying amount is reduced for principal payments, plus or minus the cumulative amortization using the effective interest method. The financial asset is assessed for impairment under the IFRS 9 expected credit loss model where provisions are recognized based on expectations of potential credit losses. The Group’s impairment of financial instruments policy is described further in the section “Impairment of Loans and Provision for Off-Balance Sheet Positions (IFRS 9)”. Financial assets measured at amortized cost are recognized on a settlement date basis.

Financial Assets at Amortized Cost include predominately Loans at amortized costs, Central bank funds sold and securities purchased under resale agreements, Securities borrowed and certain receivables presented in Other Assets.

Modification of financial assets

When the terms of a financial asset are renegotiated or modified and the modification does not result in derecognition, a gain or loss is recognized in the income statement as the difference between the original contractual cash flows and the modified cash flows discounted at the original effective interest rate. The modified financial asset will continue to accrued interest at its original EIR.

Noncredit related or commercial renegotiations where an obligor has not experienced a significant increase in credit risk since origination, and has a readily exercisable right to early terminate the financial asset results in derecognition of the original agreement and recognition of a new financial asset based on the newly negotiated commercial terms.

For credit related modifications (i.e. those modifications due to significant increase in credit risk since inception) or those where the obligor does not have the readily exercisable right to early terminate, the Group assesses whether the modified terms result in the financial asset being significantly modified and therefore derecognized. This assessment includes a quantitative assessment of the impact of the change in cash flows from the modification of contractual terms and additionally, where necessary, a qualitative assessment of the impact of the change in the contractual terms. Where these modifications are not concluded to be significant, the financial asset is not derecognized and is accounted for as a modification as described above.

If the changes are concluded to be significant, the old instrument is derecognized and a new instrument recognized. The Group then recognizes a credit loss allowance based on 12-month expected credit losses at each reporting date. However, if following a modification that results in a derecognition of the original financial asset, there is evidence that the new financial asset is credit-impaired on initial recognition; then the new financial asset should be recognized as an originated credit-impaired financial asset and initially classified in Stage 3 (refer to section "Impairment of Loans and Provision for Off-Balance Sheet Positions (IFRS 9)" below).

Financial assets (IAS 39 - 2017 only)

The Group applied the classification and measurement requirements of IAS 39, "Financial Instruments: Recognition and Measurement" in 2017.

The Group classified its financial assets into the following categories: financial assets at fair value through profit or loss, loans, held-to-maturity and financial assets available for sale ("AFS"). Appropriate classification of financial assets was determined at the time of initial recognition or when reclassified in the Consolidated balance sheet.

Financial assets classified at fair value through profit or loss and financial assets classified as AFS were recognized or derecognized on trade date if a regular way period for the instrument exists. Trade date is the date on which the Group commits to purchase or sell the asset or issue or repurchase the financial liability. Financial instruments measured at amortized cost were recognized on a settlement date basis.

Financial assets at fair value through profit or loss

The Group classified certain financial assets either as held for trading or designated at fair value through profit or loss. They were carried at fair value and presented as financial assets at fair value through profit or loss. Related realized and unrealized gains and losses are included in net gains (losses) on financial assets/liabilities at fair value through profit or loss. Interest on interest earning assets such as trading loans and debt securities and dividends on equity instruments were presented in interest and similar income for financial instruments at fair value through profit or loss.

Trading assets – Financial assets were classified as held for trading if they have been originated or acquired principally for the purpose of selling or repurchasing them in the near term, or they formed part of a portfolio of identified financial assets that were managed together and for which there was evidence of a recent actual pattern of short-term profit-taking. Trading assets included debt and equity securities, derivatives held for trading purposes, commodities and trading loans.

Financial assets designated at fair value through profit or loss – Certain financial assets that did not meet the definition of trading assets were designated at fair value through profit or loss using the fair value option. To be designated at fair value through profit or loss, financial assets had to meet one of the following criteria: (1) the designation eliminates or significantly reduced a measurement or recognition inconsistency; (2) a group of financial assets or liabilities or both was managed and its performance is evaluated on a fair value basis in accordance with a documented risk management or investment strategy; or (3) the instrument contains one or more embedded derivatives unless: (a) the embedded derivative does not significantly modify the cash flows that otherwise would be required by the contract; or (b) it is clear with little or no analysis that separation is prohibited. In addition, the Group allowed the fair value option to be designated only for those financial instruments for which a reliable estimate of fair value can be obtained. Financial assets which were designated at fair value through profit or loss, under the fair value option, include repurchase and reverse repurchase agreements, certain loans and loan commitments and debt and equity securities.

Loans

Loans included originated and purchased non-derivative financial assets with fixed or determinable payments that were not quoted in an active market and which were not classified as financial assets at fair value through profit or loss, held-to-maturity or financial assets AFS. An active market exists when quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service or regulatory agency and those prices represent actual and regularly occurring market transactions on an arm's length basis.

Loans not acquired in a business combination or in an asset purchase were initially recognized at their transaction price representing the fair value, which is the cash amount advanced to the borrower. In addition, the net of direct and incremental transaction costs and fees were included in the initial carrying amount of loans. These loans were subsequently measured at amortized cost using the effective interest method less impairment.

Loans which have been acquired as either part of a business combination or as an asset purchase were initially recognized at fair value at the acquisition date. This included loans for which an impairment loss had been established by the acquiree before their initial recognition by the Group. The fair value at the acquisition date incorporated expected cash flows which considered the credit quality of these loans including any incurred losses, which became the new amortized cost base. Interest income was recognized using the effective interest method. Subsequent to the acquisition date the Group assessed whether there was objective evidence of impairment in line with the policies described in the section entitled "Impairment of Loans and Provision for Off-Balance Sheet Positions (IAS 39 – 2017 only)". If the loans were determined to be impaired then a loan loss allowance was recognized with a corresponding charge to the provision for credit losses line in the Consolidated Statement of Income. Releases of such loan loss allowances established after their initial recognition were included in the provision for credit losses line. Subsequent improvements in the credit quality of such loans for which no loss allowance had been recorded were recognized immediately through an adjustment to the current carrying value and a corresponding gain was recognized in interest income.

Held-to-maturity investments

Held-to-maturity investments were non-derivative financial assets with fixed or determinable payments and a fixed maturity that the Group had the positive intention and ability to hold to maturity and which were not classified as financial assets at fair value through profit or loss, loans or financial assets AFS.

Held-to-maturity investments were initially recorded at fair value plus any directly attributable transaction costs and were subsequently measured at amortized cost using the effective interest method. Subsequent to the acquisition date, the Group assessed whether there was objective evidence of impairment in line with the policies described in the section entitled "Impairment of Loans and Provision for Off-Balance Sheet provisions (IAS 39 – 2017 only)". If a held-to-maturity investment was considered impaired, then an impairment loss was recognized in the Consolidated Statement of Income.

Financial assets classified as available for sale

Financial assets that were classified as AFS are initially recognized at its fair value plus transaction costs that were directly attributable to the acquisition of the financial asset. The amortization of premiums and accretion of discount were recorded in net interest income. Financial assets classified as AFS were carried at fair value with the changes in fair value reported in other comprehensive income, unless the asset was subject to a fair value hedge, in which case changes in fair value resulting from the risk being hedged were recorded in other income. For monetary financial assets classified as AFS (debt instruments), changes in carrying amounts relating to changes in foreign exchange rate were recognized in the Consolidated Statement of Income and other changes in carrying amount were recognized in other comprehensive income as indicated above. For financial assets classified as AFS that were nonmonetary items (equity instruments), the fair value gain or loss was recognized in other comprehensive income, which also includes any related foreign exchange component.

Equity investments classified as AFS were assessed for impairment if, objective evidence demonstrates a significant or prolonged decline in the fair value of the investment below cost. In the case of debt securities classified as AFS, impairment was assessed based on the same criteria as for loans.

If there was evidence of impairment, any amounts previously recognized in other comprehensive income was recognized in the Consolidated Statement of Income for the period, reported in net gains (losses) on financial assets available for sale. This impairment loss for the period was determined as the difference between the acquisition cost (net of any principal repayments and amortization) and current fair value of the asset less any impairment loss on that investment previously recognized in the Consolidated Statement of Income.

When an AFS debt security was impaired, any subsequent decreases in fair value were recognized in the Consolidated Statement of Income as it was considered further impairment. Any subsequent increases were also recognized in the Consolidated Statement of Income until the asset is no longer considered impaired. When the fair value of the AFS debt security recovered to at least amortized cost it was no longer considered impaired and subsequent changes in fair value were reported in other comprehensive income.

Reversals of impairment losses on equity investments classified as AFS were not reversed through the Consolidated Statement of Income; increases in their fair value after impairment were recognized in other comprehensive income.

Realized gains and losses were reported in net gains (losses) on financial assets available for sale. Generally, the weighted-average cost method was used to determine the cost of financial assets. Unrealized gains and losses recorded in other comprehensive income were transferred to the Consolidated Statement of Income on disposal of an available for sale asset and reported in net gains (losses) on financial assets available for sale.

Critical accounting estimates – Because the assessment of objective evidence of impairment required significant management judgment and the estimate of impairment could change from period to period based upon future events that may or may not occur, the Group considered the impairment of Financial Assets classified as Available for Sale to be a critical accounting estimate. For additional information see Note 7 “Net Gains (Losses) on Financial Assets Available for Sale”.

Loan commitments (IFRS 9 and IAS 39 – 2017 only)

Loan commitments remain off-balance sheet, unless classified as derivatives held for trading or designated at fair value through profit or loss under the fair value option (IAS 39 only). The Group does not recognize and measure changes in fair value of these off-balance sheet loan commitments that result from changes in market interest rates or credit spreads. However, as specified in the sections “Impairment of Loans and Provision for Off-Balance Sheet Positions (IFRS 9)” and “Impairment of Loans and Provision for Off-Balance Sheet Positions (IAS 39 – 2017 only)” below, these off-balance sheet loan commitments are assessed for impairment individually and where appropriate, collectively.

Financial liabilities (IFRS 9 and IAS 39 – 2017 only)

Under both IFRS 9 and IAS 39, financial liabilities are measured at amortized cost using the effective interest method, except for financial liabilities at fair value through profit or loss.

Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include Trading Liabilities, Financial Liabilities Designated at Fair Value through Profit or Loss and Non-Participating Investment Contracts (“Investment Contracts”). Under IFRS 9 and IAS 39 they are carried at fair value with realized and unrealized gains and losses included in net gains (losses) on financial assets and liabilities at fair value through profit or loss. However under IFRS 9, for financial liabilities designated at fair value through profit and loss the fair value movements attributable to the Group’s own credit component for fair value movements is recognized in Other Comprehensive Income rather than in the Statement of Income as under IAS 39.

Financial liabilities classified at fair value through profit or loss are recognized or derecognized on trade date. Trade date is the date on which the Group commits to issue or repurchase the financial liability.

Interest on interest paying liabilities are presented in interest expense for financial instruments at fair value through profit or loss.

Trading liabilities - Financial liabilities are classified as held for trading if they have been originated or incurred principally for the purpose of repurchasing them in the near term. Trading liabilities consist primarily of derivative liabilities (including certain loan commitments) and short positions. This also includes loan commitments where the resulting loan upon funding is allocated to the other business model such that the undrawn loan commitment is classified as derivatives held for trading.

Financial liabilities designated at fair value through profit or loss - Certain financial liabilities that do not meet the definition of trading liabilities are designated at fair value through profit or loss using the fair value option. To be designated at fair value through profit or loss, financial liabilities must meet one of the following criteria: (1) the designation eliminates or significantly reduces a measurement or recognition inconsistency; (2) a group of financial liabilities is managed and its performance is evaluated on a fair value basis in accordance with a documented risk management or investment strategy; or (3) the instrument contains one or more embedded derivatives unless: (a) the embedded derivative does not significantly modify the cash flows that otherwise would be required by the contract; or (b) it is clear with little or no analysis that separation is prohibited. In addition, the Group allows the fair value option to be designated only for those financial instruments for which a reliable estimate of fair value can be obtained. Financial liabilities which are designated at fair value through profit or loss, under the fair value option, include repurchase agreements, loan commitments and structured note liabilities.

Investment contracts - All of the Group's investment contracts are unit-linked and do not contain significant insurance risk or discretionary participation features. The contract liabilities are determined using current unit prices multiplied by the number of units attributed to the contract holders as of the balance sheet date. As this amount represents fair value, the liabilities have been classified as financial liabilities at fair value through profit or loss. Deposits collected under investment contracts are accounted for as an adjustment to the investment contract liabilities. Investment income attributable to investment contracts is included in the consolidated statement of Income. Investment contract claims reflect the excess of amounts paid over the account balance released. Investment contract policyholders are charged fees for policy administration, investment management, surrenders or other contract services.

Embedded derivatives

Some hybrid financial liability contracts contain both a derivative and a non-derivative component. In such cases, the derivative component is termed an embedded derivative, with the non-derivative component representing the host financial liability contract. If the economic characteristics and risks of embedded derivatives are not closely related to those of the host financial liability contract and the hybrid financial liability contract itself is not carried at fair value through profit or loss, the embedded derivative is bifurcated and reported at fair value, with gains and losses recognized in net gains (losses) on financial assets/liabilities at fair value through profit or loss. The host financial liability contract will continue to be accounted for in accordance with the appropriate accounting standard. The carrying amount of an embedded derivative is reported in the same Consolidated balance sheet line item as the host financial liability contract. Certain hybrid financial liability instruments have been designated at fair value through profit or loss using the fair value option.

Financial liabilities at amortized cost

Financial liabilities measured at amortized cost include long-term and short-term debt issued which are initially measured at fair value, which is the consideration received, net of transaction costs incurred. Repurchases of issued debt in the market are treated as extinguishments and any related gain or loss is recorded in the Consolidated Statement of Income. A subsequent sale of own bonds in the market is treated as a reissuance of debt. Financial liabilities measured at amortized cost are recognized on a settlement date basis.

Under IFRS 9, if the exchange or modification of a financial liability is not accounted for as an extinguishment, then the amortized cost of the liability is recalculated and the resulting gains and losses are recognized in the income statements as the difference between the original contractual cash flows and the modified cash flows discounted at the original effective interest rate. In contrast, under IAS 39 any difference was recognized as an adjustment to the effective interest rate and amortized over the remaining new life of the financial liability.

Offsetting of financial instruments

Financial assets and liabilities are offset, with the net amount presented in the Consolidated balance sheet, only if the Group holds a currently enforceable legal right to set off the recognized amounts and there is an intention to settle on a net basis or to realize an asset and settle the liability simultaneously. The legal right to set off the recognized amounts must be enforceable in both the normal course of business and in the event of default, insolvency or bankruptcy of both the Group and its counterparty. In all other situations they are presented gross. When financial assets and financial liabilities are offset in the Consolidated balance sheet, the associated income and expense items will also be offset in the Consolidated Statement of Income, unless specifically prohibited by an applicable accounting standard.

The majority of the offsetting applied by the Group relates to derivatives and repurchase and reverse repurchase agreements. A significant portion of offsetting is applied to interest rate derivatives and related cash margin balances, which are cleared through central clearing parties. For further information please refer to Note 17 “Offsetting Financial Assets and Financial Liabilities”.

Determination of fair value

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an arm's length transaction between market participants at the measurement date. The fair value of instruments that are quoted in active markets is determined using the quoted prices where they represent those at which regularly and recently occurring transactions take place. The Group measures certain portfolios of financial assets and financial liabilities on the basis of their net risk exposures when the following criteria are met:

- The group of financial assets and liabilities is managed on the basis of its net exposure to a particular market risk (or risks) or to the credit risk of a particular counterparty, in accordance with a documented risk management strategy,
- The fair values are provided to key management personnel, and
- The financial assets and liabilities are measured at fair value through profit or loss.

This portfolio valuation approach is consistent with how the Group manages its net exposures to market and counterparty credit risks.

Critical accounting estimates – The Group uses valuation techniques to establish the fair value of instruments where prices quoted in active markets are not available. Therefore, where possible, parameter inputs to the valuation techniques are based on observable data derived from prices of relevant instruments traded in an active market. These valuation techniques involve some level of management estimation and judgment, the degree of which will depend on the price transparency for the instrument or market and the instrument's complexity.

In reaching estimates of fair value management judgment needs to be exercised. The areas requiring significant management judgment are identified, documented and reported to senior management as part of the valuation control process and the standard monthly reporting cycle. The specialist model validation and valuation control groups focus attention on the areas of subjectivity and judgment.

The level of management judgment required in establishing fair value of financial instruments for which there is a quoted price in an active market is usually minimal. Similarly there is little subjectivity or judgment required for instruments valued using valuation models which are standard across the industry and where all parameter inputs are quoted in active markets.

The level of subjectivity and degree of management judgment required is more significant for those instruments valued using specialized and sophisticated models and where some or all of the parameter inputs are less liquid or less observable. Management judgment is required in the selection and application of appropriate parameters, assumptions and modelling techniques. In particular, where data are obtained from infrequent market transactions then extrapolation and interpolation techniques must be applied. Where no market data are available for a particular instrument then pricing inputs are determined by assessing other relevant sources of information such as historical data, fundamental analysis of the economics of the transaction and proxy information from similar transactions, and making appropriate adjustment to reflect the actual instrument being valued and current market conditions. Where different valuation techniques indicate a range of possible fair values for an instrument then management has to decide what point within the range of estimates appropriately represents the fair value. Further, some valuation adjustments may require the exercise of management judgment to achieve fair value.

Financial assets and liabilities carried at fair value are required to be disclosed according to the inputs to the valuation method that are used to determine their fair value. Specifically, segmentation is required between those valued using quoted market prices in an active market (level 1), valuation techniques based on observable parameters (level 2) and valuation techniques using significant unobservable parameters (level 3). Management judgment is required in determining the category to which certain instruments should be allocated. This specifically arises when the valuation is determined by a number of parameters, some of which are observable and others are not. Further, the classification of an instrument can change over time to reflect changes in market liquidity and therefore price transparency.

The Group provides a sensitivity analysis of the impact upon the level 3 financial instruments of using a reasonably possible alternative for the unobservable parameter. The determination of reasonably possible alternatives requires significant management judgment.

For financial instruments measured at amortized cost (which includes loans, deposits and short and long term debt issued) the Group discloses the fair value. Generally there is limited or no trading activity in these instruments and therefore the fair value determination requires significant management judgment.

For further discussion of the valuation methods and controls and quantitative disclosures with respect to the determination of fair value, please refer to Note 13 “Financial Instruments carried at Fair Value” and Note 14 “Fair Value of Financial Instruments not carried at Fair Value”.

Recognition of trade date profit

If there are significant unobservable inputs used in the valuation technique, the financial instrument is recognized at the transaction price and any profit implied from the valuation technique at trade date is deferred.

Using systematic methods, the deferred amount is recognized over the period between trade date and the date when the market is expected to become observable, or over the life of the trade (whichever is shorter). Such methodology is used because it reflects the changing economic and risk profile of the instrument as the market develops or as the instrument itself progresses to maturity. Any remaining trade date deferred profit is recognized in the Consolidated Statement of Income when the transaction becomes observable or the Group enters into offsetting transactions that substantially eliminate the instrument's risk. In the rare circumstances that a trade date loss arises, it would be recognized at inception of the transaction to the extent that it is probable that a loss has been incurred and a reliable estimate of the loss amount can be made.

Critical Accounting Estimates – Management judgment is required in determining whether there exist significant unobservable inputs in the valuation technique. Once deferred, the decision to subsequently recognize the trade date profit requires a careful assessment of the then current facts and circumstances supporting observability of parameters and/or risk mitigation.

Derivatives and hedge accounting

Derivatives are used to manage exposures to interest rate, foreign currency, credit and other market price risks, including exposures arising from forecast transactions. All freestanding contracts that are considered derivatives for accounting purposes are carried at fair value on the Consolidated balance sheet regardless of whether they are held for trading or non-trading purposes.

The changes in fair value on derivatives held for trading are included in net gains (losses) on financial assets/liabilities at fair value through profit or loss.

Hedge accounting

IFRS 9 includes an accounting policy choice to defer the adoption of IFRS 9 hedge accounting and to continue with IAS 39 hedge accounting. The Group decided to exercise this accounting policy choice and did not adopt IFRS 9 hedge accounting as of January 1, 2018. The Group did not apply fair value hedge accounting for portfolio hedges of interest rate risk (macro hedging) for core deposits under the EU 'carve-out' rules of IAS 39.

The Group early adopted "Interest Rate Benchmark Reform: Amendments to IFRS 9, IAS 39 and IFRS 7", which provides relief for specific hedge accounting requirements to address uncertainties in the period arising from the phase out of interest rate benchmarks. For further information see Note 2 "Recently Adopted and New Accounting Pronouncements" and Note 35 "Derivatives".

For accounting purposes there are three possible types of hedges: (1) hedges of changes in the fair value of assets, liabilities or unrecognized firm commitments (fair value hedges); (2) hedges of the variability of future cash flows from highly probable forecast transactions and floating rate assets and liabilities (cash flow hedges); and (3) hedges of the translation adjustments resulting from translating the functional currency financial statements of foreign operations into the presentation currency of the parent (hedges of net investments in foreign operations).

When hedge accounting is applied, the Group designates and documents the relationship between the hedging instrument and the hedged item as well as its risk management objective and strategy for undertaking the hedging transactions and the nature of the risk being hedged. This documentation includes a description of how the Group will assess the hedging instrument's effectiveness in offsetting the exposure to changes in the hedged item's fair value or cash flows attributable to the hedged risk. Hedge effectiveness is assessed at inception and throughout the term of each hedging relationship. Hedge effectiveness is always assessed, even when the terms of the derivative and hedged item are matched.

Hedging derivatives are reported as other assets and other liabilities. In the event that a derivative is subsequently de-designated from a hedging relationship, it is transferred to financial assets/liabilities at fair value through profit or loss.

For hedges of changes in fair value, the changes in the fair value of the hedged asset, liability or unrecognized firm commitment, or a portion thereof, attributable to the risk being hedged, are recognized in the Consolidated Statement of Income along with changes in the entire fair value of the derivative. When hedging interest rate risk, any interest accrued or paid on both the derivative and the hedged item is reported in interest income or expense and the unrealized gains and losses from the hedge accounting fair value adjustments are reported in other income. When the foreign exchange risk of an AFS equity security was hedged in 2017 under IAS 39, the fair value adjustments related to the security's foreign exchange exposures were also recorded in other income. Hedge ineffectiveness is reported in other income and is measured as the net effect of changes in the fair value of the hedging instrument and changes in the fair value of the hedged item arising from changes in the market rate or price related to the risk(s) being hedged.

If a fair value hedge of a debt instrument is discontinued prior to the instrument's maturity because the derivative is terminated or the relationship is de-designated, any remaining interest rate-related fair value adjustments made to the carrying amount of the debt instrument (basis adjustments) are amortized to interest income or expense over the remaining term of the original hedging relationship. For other types of fair value adjustments and whenever a fair value hedged asset or liability is sold or otherwise derecognized, any basis adjustments are included in the calculation of the gain or loss on derecognition.

For hedges of variability in future cash flows, there is no change to the accounting for the hedged item and the derivative is carried at fair value, with changes in value reported initially in other comprehensive income to the extent the hedge is effective. These amounts initially recorded in other comprehensive income are subsequently reclassified into the Consolidated Statement of Income in the same periods during which the forecast transaction affects the Consolidated Statement of Income. Thus, for hedges of interest rate risk, the amounts are amortized into interest income or expense at the same time as the interest is accrued on the hedged transaction.

Hedge ineffectiveness is recorded in other income and is measured as changes in the excess (if any) in the absolute cumulative change in fair value of the actual hedging derivative over the absolute cumulative change in the fair value of the hypothetically perfect hedge.

When hedges of variability in cash flows attributable to interest rate risk are discontinued, amounts remaining in accumulated other comprehensive income are amortized to interest income or expense over the remaining life of the original hedge relationship, unless the hedged transaction is no longer expected to occur in which case the amount will be reclassified into other income immediately. When hedges of variability in cash flows attributable to other risks are discontinued, the related amounts in accumulated other comprehensive income are reclassified into either the same Consolidated Statement of Income caption and period as profit or loss from the forecast transaction, or into other income when the forecast transaction is no longer expected to occur.

For hedges of the translation adjustments resulting from translating the functional currency financial statements of foreign operations (hedges of net investments in foreign operations) into the functional currency of the parent, the portion of the change in fair value of the derivative due to changes in the spot foreign exchange rates is recorded as a foreign currency translation adjustment in other comprehensive income to the extent the hedge is effective; the remainder is recorded as other income in the Consolidated Statement of Income.

Changes in fair value of the hedging instrument relating to the effective portion of the hedge are subsequently recognized in profit or loss on disposal of the foreign operations.

Impairment of loans and provision for off-balance sheet positions (IFRS 9)

The impairment requirements of IFRS 9 apply to all credit exposures that are measured at amortized cost or FVOCI, and to off balance sheet lending commitments such as loan commitments and financial guarantees. For purposes of the impairment policy below, these instruments are referred to as (“Financial Assets”)

The determination of impairment losses an expected credit loss (“ECL”) model under IFRS 9, where allowances are taken upon initial recognition of the Financial Asset, based on expectations of potential credit losses at the time of initial recognition.

Staged approach to the determination of expected credit losses

IFRS 9 introduces a three stage approach to impairment for Financial Assets that are not credit impaired at the date of origination or purchase. This approach is summarized as follows:

- Stage 1: The Group recognizes a credit loss allowance at an amount equal to 12-month expected credit losses. This represents the portion of lifetime expected credit losses from default events that are expected within 12 months of the reporting date, assuming that credit risk has not increased significantly after initial recognition.
- Stage 2: The Group recognizes a credit loss allowance at an amount equal to lifetime expected credit losses for those Financial Assets which are considered to have experienced a significant increase in credit risk since initial recognition. This requires the computation of ECL based on lifetime probability of default, lifetime loss given default and lifetime exposure at default that represents the probability of default occurring over the remaining lifetime of the Financial Asset. Allowance for credit losses are higher in this stage because of an increase in credit risk and the impact of a longer time horizon being considered compared to 12 months in Stage 1.
- Stage 3: The Group recognizes a loss allowance at an amount equal to lifetime expected credit losses, reflecting a Probability of Default of 100 %, via the expected recoverable cash flows for the asset, for those Financial Assets that are credit-impaired. The Group’s definition of default is aligned with the regulatory definition. Financial Assets that are credit-impaired upon initial recognition are categorized within Stage 3 with a carrying value already reflecting the lifetime expected credit losses. The accounting treatment for these purchased or originated credit-impaired (“POCI”) assets is discussed further below.

Significant increase in credit risk

Under IFRS 9, when determining whether the credit risk (i.e., risk of default) of a Financial Asset has increased significantly since initial recognition, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes quantitative and qualitative information based on the Group’s historical experience, credit risk assessment and forward-looking information (including macro-economic factors). The assessment of significant credit deterioration is key in determining when to move from measuring an allowance based on 12-month ECLs to one that is based on lifetime ECLs (i.e., transfer from Stage 1 to Stage 2).

The Group’s framework for determining if there has been a significant increase in credit risk aligns with the internal Credit Risk Management (“CRM”) process and covers rating related and process related indicators which are discussed further in section “IFRS 9 Impairment Approach” in the Risk Report.

Credit impaired financial assets in Stage 3

The Group has aligned its definition of credit impaired under IFRS 9 to when a Financial Asset has defaulted for regulatory purposes, according to the Capital Requirements Regulation under Art. 178.

The determination of whether a Financial Asset is credit impaired and therefore in Stage 3 focusses exclusively on default risk, without taking into consideration the effects of credit risk mitigants such as collateral or guarantees. Specifically, a Financial Asset is credit impaired and in Stage 3 when:

- The Group considers the obligor is unlikely to pay its credit obligations to the Group. Determination may include forbearance actions, where a concession has been granted to the borrower or economic or legal reasons that are qualitative indicators of credit impairment; or
- Contractual payments of either principal or interest by the obligor are past due by more than 90 days.

For Financial Assets considered to be credit impaired, the ECL allowance covers the amount of loss the Group is expected to suffer. The estimation of ECLs is done on a case-by-case basis for non-homogeneous portfolios, or by applying portfolio based parameters to individual Financial Assets in these portfolios via the Group's ECL model for homogeneous portfolios. This estimate includes the use of discounted cash flows that are adjusted for scenarios.

Forecasts of future economic conditions when calculating ECLs are considered. The lifetime expected losses are estimated based on the probability-weighted present value of the difference between the contractual cash flows that are due to the Group under the contract; and the cash flows that the Group expects to receive.

A Financial Asset can be classified as credit impaired in Stage 3 but without an allowance for credit losses (i.e., no impairment loss is expected). This may be due to the value of collateral. The Group's engine based ECL calculation is conducted on a monthly basis, whereas the case-by-case assessment of ECL in Stage 3 for non-homogeneous portfolio has to be performed at least on a quarterly basis.

Purchased or originated credit impaired financial assets in Stage 3

A Financial Asset is considered purchased or originated credit-impaired if there is objective evidence of impairment at the time of initial recognition. Such credit impaired Financial Assets are termed POCI Financial Assets. POCI Financial Assets are measured to reflect lifetime expected credit losses, and all subsequent changes in lifetime expected credit losses, whether positive or negative, are recognized in the income statement as a component of the provision for credit losses. POCI Financial Assets can only be classified in Stage 3 over the life of the Financial Asset.

Write-offs

The Group reduces the gross carrying amount of a Financial Asset when there is no reasonable expectation of recovery. Write-offs can relate to a Financial Asset in its entirety, or to a portion of it, and constitute a derecognition event. The Group considers all relevant information in making this determination, including but not limited to:

- Foreclosure actions taken by the Group which have not been successful or have a high probability of not being successful
- Collateral liquidation which has not, or will not lead to further considerable recoveries
- Situations where no further recoveries are reasonably expected

Write-offs can take place before legal actions against the borrower to recover the debt have been concluded, and a write-off does not involve the Group forfeiting its legal right to recover the debt.

Collateral for financial assets considered in the impairment analysis

IFRS 9 requires cash flows expected from collateral and other credit enhancement to be reflected in the ECL calculation. The following are key aspects with respect to collateral and guarantees:

- Eligibility of collateral, i.e. which collateral should be considered in the ECL calculation;
- Collateral evaluation, i.e. what collateral (liquidation) value should be used; and
- Projection of the available collateral amount over the life of a transaction.

These concepts are outlined in more detail in section "IFRS 9 Impairment Approach" in the Risk Report.

Critical accounting estimates – The accounting estimates and judgments related to the impairment of Financial Assets is a critical accounting estimate because the underlying assumptions used can change from period to period and may significantly affect the Group's results of operations.

In assessing assets for impairments, management judgment is required, particularly in projecting future economic information and scenarios in particular where circumstances of economic and financial uncertainty, when developments and changes to expected cash flows can occur both with greater rapidity and less predictability. The actual amount of the future cash flows and their timing may differ from the estimates used by management and consequently may cause actual losses to differ from reported allowances.

For those non-homogeneous loans in Stage 3 the determination of the impairment allowance often requires the use of considerable judgment concerning such matters as local economic conditions, the financial performance of the counterparty and the value of any collateral held, for which there may not be a readily accessible market.

The determination of the expected credit losses in Stages 1 and 2 and for homogeneous loans in Stage 3 is calculated using statistical expected loss models. The model incorporates numerous estimates and judgments. The Group performs a regular review of the model and underlying data and assumptions. The probability of defaults, loss recovery rates and judgments concerning ability of borrowers in foreign countries to transfer the foreign currency necessary to comply with debt repayments, amongst other things, are incorporated into this review.

The quantitative disclosures are provided in Note 18 "Loans" and Note 19 "Allowance for credit losses".

Impairment of loans and provision for off-balance sheet positions (IAS 39 - 2017 only)

The Group applied the impairment requirements of IAS 39 "Financial Instruments: Recognition and Measurement" and IAS 37, "Provisions, Contingent Liabilities and Contingent Assets" in 2017.

The Group first assessed whether objective evidence of impairment existed individually for loans that were individually significant. It then assessed collectively for loans that were not individually significant and loans which were significant but for which there was no objective evidence of impairment under the individual assessment.

To allow management to determine whether a loss event has occurred on an individual basis, all significant counterparty relationships were reviewed periodically. This evaluation considered information and events related to the counterparty, such as the counterparty experiencing significant financial difficulty or a breach of contract, for example, default or delinquency in interest or principal payments.

If there was evidence of impairment leading to an impairment loss for an individual counterparty relationship, then the amount of the loss was determined as the difference between the carrying amount of the loan(s), including accrued interest, and the present value of expected future cash flows discounted at the loan's original effective interest rate or the effective interest rate established upon reclassification to loans, including cash flows that may result from foreclosure less costs for obtaining and selling the collateral. The carrying amount of the loans was reduced by the use of an allowance account and the amount of the loss was recognized in the Consolidated Statement of Income as a component of the provision for credit losses.

The collective assessment of impairment was to establish an allowance amount relating to loans that were either individually significant but for which there was no objective evidence of impairment, or were not individually significant but for which there was, on a portfolio basis, a loss amount that was probable of having occurred and was reasonably estimable. The loss amount had three components. The first component was an amount for transfer and currency convertibility risks for loan exposures in countries where there were serious doubts about the ability of counterparties to comply with the repayment terms due to the economic or political situation prevailing in the respective country of domicile. This amount was calculated using ratings for country risk and transfer risk which were established and regularly reviewed for each country in which the Group does business. The second component was an allowance amount representing the incurred losses on the portfolio of smaller-balance homogeneous loans, which were loans to individuals and small business customers of the private and retail business. The loans were grouped according to similar credit risk characteristics and the allowance for each group was determined using statistical models based on historical experience. The third component represented an estimate of incurred losses inherent in the group of loans that had not yet been individually identified or measured as part of the smaller-balance homogeneous loans. Loans that were found not to be impaired when evaluated on an individual basis were included in the scope of this component of the allowance.

Once a loan was identified as impaired, although the accrual of interest in accordance with the contractual terms of the loan was discontinued, the accretion of the net present value of the written down amount of the loan due to the passage of time was recognized as interest income based on the original effective interest rate of the loan.

At each balance sheet date, all impaired loans were reviewed for changes to the present value of expected future cash flows discounted at the loan's original effective interest rate. Any change to the previously recognized impairment loss was recognized as a change to the allowance account and recorded in the Consolidated Statement of Income as a component of the provision for credit losses.

When it was considered that there was no realistic prospect of recovery and all collateral had been realized or transferred to the Group, the loan and any associated allowance was charged off (the loan and the related allowance were removed from the balance sheet). Individually significant loans where specific loan loss provisions were in place were evaluated at least quarterly on a case-by-case basis. For this category of loans, the number of days past due was an indicator for a charge-off but was not a determining factor. A charge-off would only take place after considering all relevant information, such as the occurrence of a significant change in the borrower's financial position such that the borrower could no longer pay the obligation, or the proceeds from the collateral were insufficient to completely satisfy the current carrying amount of the loan.

For collectively assessed loans, which were primarily mortgages and consumer finance loans, the timing of a charge-off depended on whether there was any underlying collateral and the Group's estimate of the amount collectible and the legal requirements in the jurisdiction in which the loan was originated.

Subsequent recoveries, if any, were credited to the allowance account and were recorded in the Consolidated Statement of Income as a component of the provision for credit losses.

The process to determine the provision for off-balance sheet positions is similar to the methodology used for loans. Any loss amounts were recognized as an allowance in the Consolidated balance sheet within provisions and charged to the Consolidated Statement of Income as a component of the provision for credit losses.

If in a subsequent period the amount of a previously recognized impairment loss decreased and the decrease was due to an event occurring after the impairment was recognized, the impairment loss was reversed by reducing the allowance account accordingly. Such reversal was recognized in profit or loss.

Critical accounting estimates –The accounting estimates and judgments related to the impairment of loans and provision for off-balance sheet positions was a critical accounting estimate because the underlying assumptions used for both the individually and collectively assessed impairment can change from period to period and may significantly affect the Group's results of operations.

The quantitative disclosures are provided in Note 18 "Loans" and Note 19 "Allowance for credit losses".

Derecognition of financial assets and liabilities

Financial asset derecognition

A financial asset is considered for derecognition when the contractual rights to the cash flows from the financial asset expire, or the Group has either transferred the contractual right to receive the cash flows from that asset, or has assumed an obligation to pay those cash flows to one or more recipients, subject to certain criteria.

The Group derecognizes a transferred financial asset if it transfers substantially all the risks and rewards of ownership.

The Group enters into transactions in which it transfers previously recognized financial assets but retains substantially all the associated risks and rewards of those assets; for example, a sale to a third party in which the Group enters into a concurrent total return swap with the same counterparty. These types of transactions are accounted for as secured financing transactions.

In transactions in which substantially all the risks and rewards of ownership of a financial asset are neither retained nor transferred, the Group derecognizes the transferred asset if control over that asset is not retained, i.e., if the transferee has the practical ability to sell the transferred asset. The rights and obligations retained in the transfer are recognized separately as assets and liabilities, as appropriate. If control over the asset is retained, the Group continues to recognize the asset to the extent of its continuing involvement, which is determined by the extent to which it remains exposed to changes in the value of the transferred asset.

The derecognition criteria are also applied to the transfer of part of an asset, rather than the asset as a whole, or to a group of similar financial assets in their entirety, when applicable. If transferring a part of an asset, such part must be a specifically identified cash flow, a fully proportionate share of the asset, or a fully proportionate share of a specifically-identified cash flow.

If an existing financial asset is replaced by another asset from the same counterparty on substantially different terms, or if the terms of the financial asset are substantially modified (due to forbearance measures or otherwise), the existing financial asset is derecognized and a new asset is recognized. Any difference between the respective carrying amounts is recognized in the Consolidated Statement of Income.

Securitization

The Group securitizes various consumer and commercial financial assets, which is achieved via the transfer of these assets to a structured entity, which issues securities to investors to finance the acquisition of the assets. Financial assets awaiting securitization are classified and measured as appropriate under the policies in the “Financial Assets and Liabilities” section. If the structured entity is not consolidated then the transferred assets may qualify for derecognition in full or in part, under the policy on derecognition of financial assets. Synthetic securitization structures typically involve derivative financial instruments for which the policies in the “Derivatives and Hedge Accounting” section would apply. Those transfers that do not qualify for derecognition may be reported as secured financing or result in the recognition of continuing involvement liabilities. The investors and the securitization vehicles generally have no recourse to the Group’s other assets in cases where the issuers of the financial assets fail to perform under the original terms of those assets.

Interests in the securitized financial assets may be retained in the form of senior or subordinated tranches, interest only strips or other residual interests (collectively referred to as “retained interests”). Provided the Group’s retained interests do not result in consolidation of a structured entity, nor in continued recognition of the transferred assets, these interests are typically recorded in financial assets at fair value through profit or loss and carried at fair value. Consistent with the valuation of similar financial instruments, the fair value of retained tranches or the financial assets is initially and subsequently determined using market price quotations where available or internal pricing models that utilize variables such as yield curves, prepayment speeds, default rates, loss severity, interest rate volatilities and spreads. The assumptions used for pricing are based on observable transactions in similar securities and are verified by external pricing sources, where available. Where observable transactions in similar securities and other external pricing sources are not available, management judgment must be used to determine fair value. The Group may also periodically hold interests in securitized financial assets and record them at amortized cost.

In situations where the Group has a present obligation (either legal or constructive) to provide financial support to an unconsolidated securitization entity a provision will be created if the obligation can be reliably measured and it is probable that there will be an outflow of economic resources required to settle it.

When an asset is derecognized a gain or loss equal to the difference between the consideration received and the carrying amount of the transferred asset is recorded. When a part of an asset is derecognized, gains or losses on securitization depend in part on the carrying amount of the transferred financial assets, allocated between the financial assets derecognized and the retained interests based on their relative fair values at the date of the transfer.

Derecognition of financial liabilities

A financial liability is derecognized when the obligation under the liability is discharged or cancelled or expires. If an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of the existing liability are substantially modified, such an exchange or modification is treated as a derecognition of the original liability and the recognition of a new liability, and the difference in the respective carrying amounts is recognized in the Consolidated Statement of Income.

Repurchase and reverse repurchase agreements

Securities purchased under resale agreements (“reverse repurchase agreements”) and securities sold under agreements to repurchase (“repurchase agreements”) are treated as collateralized financings and are recognized initially at fair value, being the amount of cash disbursed and received, respectively. The party disbursing the cash takes possession of the securities serving as collateral for the financing and having a market value equal to, or in excess of, the principal amount loaned. The securities received under reverse repurchase agreements and securities delivered under repurchase agreements are not recognized on, or derecognized from, the balance sheet, because the risks and rewards of ownership are not obtained nor relinquished. Securities delivered under repurchase agreements which are not derecognized from the balance sheet and where the counterparty has the right by contract or custom to sell or repledge the collateral are disclosed in Note 20 “Transfer of Financial Assets, Assets Pledged and Received as Collateral”.

Under IFRS 9 the Group allocates reverse repurchase portfolios that are managed on a fair value basis to the other business model and classifies them as “Non-trading financial assets mandatory at fair value through profit or loss”. Under IAS 39 the Group choose to apply the fair value option to certain repurchase and reverse repurchase portfolios that were managed on a fair value basis.

Interest earned on reverse repurchase agreements and interest incurred on repurchase agreements is reported as interest income and interest expense, respectively.

Securities borrowed and securities loaned

Securities borrowed transactions generally require the Group to deposit cash with the securities lender. In a securities loaned transaction, the Group generally receives either cash collateral, in an amount equal to or in excess of the market value of securities loaned, or securities. The Group monitors the fair value of securities borrowed and securities loaned and additional collateral is disbursed or obtained, if necessary.

The securities borrowed are not themselves recognized in the financial statements. If they are sold to third parties, the obligation to return the securities is recorded as a financial liability at fair value through profit or loss and any subsequent gain or loss is included in the Consolidated Statement of Income in net gains (losses) on financial assets/liabilities at fair value through profit or loss. Securities lent to counterparties are also retained on the Consolidated balance sheet.

Under IFRS 9 and IAS 39 the Group records the amount of cash advanced or received as securities borrowed and securities loaned, respectively, in the Consolidated balance sheet.

Fees received or paid are reported in interest income and interest expense, respectively. Securities lent to counterparties which are not derecognized from the Consolidated balance sheet and where the counterparty has the right by contract or custom to sell or repledge the collateral are disclosed in Note 20 “Transfer of Financial Assets, Assets Pledged and Received as Collateral”.

Goodwill and other intangible assets

Goodwill arises on the acquisition of subsidiaries and associates and represents the excess of the aggregate of the cost of an acquisition and any noncontrolling interests in the acquiree over the fair value of the identifiable net assets acquired at the date of the acquisition.

For the purpose of calculating goodwill, fair values of acquired assets, liabilities and contingent liabilities are determined by reference to market values or by discounting expected future cash flows to present value. This discounting is either performed using market rates or by using risk-free rates and risk-adjusted expected future cash flows. Any noncontrolling interests in the acquiree is measured either at fair value or at the noncontrolling interests' proportionate share of the acquiree's identifiable net assets (this is determined for each business combination).

Goodwill on the acquisition of subsidiaries is capitalized and reviewed for impairment annually or more frequently if there are indications that impairment may have occurred. For the purposes of impairment testing, goodwill acquired in a business combination is allocated to cash-generating units (“CGUs”), which are the smallest identifiable groups of assets that generate cash inflows largely independent of the cash inflows from other assets or groups of assets and that are expected to benefit from the synergies of the combination and considering the business level at which goodwill is monitored for internal management purposes. In identifying whether cash inflows from an asset (or a group of assets) are largely independent of the cash inflows from other assets (or groups of assets) various factors are considered, including how management monitors the entity's operations or makes decisions about continuing or disposing of the entity's assets and operations.

If goodwill has been allocated to a CGU and an operation within that unit is disposed of, the attributable goodwill is included in the carrying amount of the operation when determining the gain or loss on its disposal.

Corporate assets are allocated to a CGU when the allocation can be done on a reasonable and consistent basis. If this is not possible, the individual CGU is tested without the corporate assets. They are then tested on the level of the minimum collection of CGUs to which they can be allocated on a reasonable and consistent basis.

Intangible assets are recognized separately from goodwill when they are separable or arise from contractual or other legal rights and their fair value can be measured reliably. Intangible assets that have a finite useful life are stated at cost less any accumulated amortization and accumulated impairment losses. Customer-related intangible assets that have a finite useful life are amortized over periods of between 1 and 20 years on a straight-line basis based on their expected useful life. These assets are tested for impairment and their useful lives reaffirmed at least annually.

Certain intangible assets have an indefinite useful life and hence are not amortized, but are tested for impairment at least annually or more frequently if events or changes in circumstances indicate that impairment may have occurred.

Costs related to software developed or obtained for internal use are capitalized if it is probable that future economic benefits will flow to the Group and the cost can be measured reliably. Capitalized costs are amortized using the straight-line method over the asset's useful life which is deemed to be either three, five or ten years. Eligible costs include external direct costs for materials and services, as well as payroll and payroll-related costs for employees directly associated with an internal-use software project. Overhead costs, as well as costs incurred during the research phase or after software is ready for use, are expensed as incurred. Capitalized software costs are tested for impairment either annually if still under development or any time when there is an indication of impairment once the software is in use, which includes situations where the recoverable amount of the CGU to which the software relates is less than the carrying amount of the unit. If the CGU or CGU's to which the software supports shows an impairment loss, then the carrying amount of the individual software asset is compared to its recoverable amount to determine if an impairment exists. Recoverable amount is based on the fair value less cost to sell of the software (i.e. its replacement costs) as value in use generally cannot be determined. If the recoverable amount is less than the software carrying value, then an impairment loss is recognized.

Critical accounting estimates – The determination of the recoverable amount in the impairment assessment of non-financial assets requires estimates based on quoted market prices, prices of comparable businesses, present value or other valuation techniques (such as the cost approach), or a combination thereof, necessitating management to make subjective judgments and assumptions. Because these estimates and assumptions could result in significant differences to the amounts reported if underlying circumstances were to change, the Group considers these estimates to be critical.

The quantitative disclosures are provided in Note 23 "Goodwill and other intangible assets".

Provisions

Provisions are recognized if the Group has a present legal or constructive obligation as a result of past events, if it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation as of the balance sheet date, taking into account the risks and uncertainties surrounding the obligation.

If the effect of the time value of money is material, provisions are discounted and measured at the present value of the expenditure expected to be required to settle the obligation, using a pre-tax rate that reflects the current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognized as interest expense.

When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party (for example, because the obligation is covered by an insurance policy), an asset is recognized if it is virtually certain that reimbursement will be received.

If the Group has a contract that is onerous, the present obligation under the contract is recognised and measured as a provision. An onerous contract is a contract in which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received under it.

Critical accounting estimates – The use of estimates is important in determining provisions for potential losses that may arise from litigation and regulatory proceedings. The Group estimates and provides for potential losses that may arise out of litigation and regulatory proceedings to the extent that such losses are probable and can be estimated, in accordance with IAS 37, “Provisions, Contingent Liabilities and Contingent Assets”. Significant judgment is required in making these estimates and the Group’s final liabilities may ultimately be materially different.

Contingencies in respect of legal matters are subject to many uncertainties and the outcome of individual matters is not predictable with assurance. Significant judgment is required in assessing probability and making estimates in respect of contingencies, and the Group’s final liability may ultimately be materially different. The Group’s total liability in respect of litigation, arbitration and regulatory proceedings is determined on a case-by-case basis and represents an estimate of probable losses after considering, among other factors, the progress of each case, the Group’s experience and the experience of others in similar cases, and the opinions and views of legal counsel. Predicting the outcome of the Group’s litigation matters is inherently difficult, particularly in cases in which claimants seek substantial or indeterminate damages. See Note 27 “Provisions” for information on the Group’s judicial, regulatory and arbitration proceedings.

Income taxes

The Group recognizes the current and deferred tax consequences of transactions that have been included in the consolidated financial statements using the provisions of the respective jurisdictions’ tax laws. Current and deferred taxes are recognized in profit or loss except to the extent that the tax relates to items that are recognized directly in equity or other comprehensive income in which case the related tax is recognized either directly in equity or other comprehensive income accordingly.

Deferred tax assets and liabilities are recognized for future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases, unused tax losses and unused tax credits. Deferred tax assets are recognized only to the extent that it is probable that sufficient taxable profit will be available against which those unused tax losses, unused tax credits and deductible temporary differences can be utilized.

Deferred tax assets and liabilities are measured based on the tax rates that are expected to apply in the period that the asset is realized or the liability is settled, based on tax rates and tax laws that have been enacted or substantively enacted at the balance sheet date.

Current tax assets and liabilities are offset when (1) they arise from the same tax reporting entity or tax group of reporting entities, (2) the legally enforceable right to offset exists and (3) they are intended to be settled net or realized simultaneously.

Deferred tax assets and liabilities are offset when the legally enforceable right to offset current tax assets and liabilities exists and the deferred tax assets and liabilities relate to income taxes levied by the same taxing authority on either the same tax reporting entity or tax group of reporting entities.

Deferred tax liabilities are provided on taxable temporary differences arising from investments in subsidiaries, branches and associates and interests in joint ventures except when the timing of the reversal of the temporary difference is controlled by the Group and it is probable that the difference will not reverse in the foreseeable future. Deferred income tax assets are provided on deductible temporary differences arising from such investments only to the extent that it is probable that the differences will reverse in the foreseeable future and sufficient taxable income will be available against which those temporary differences can be utilized.

Deferred tax related to fair value remeasurement of financial assets classified as AFS under IAS 39 and as FVTOCI under IFRS 9, cash flow hedges and other items, which are charged or credited directly to other comprehensive income, is also credited or charged directly to other comprehensive income and subsequently recognized in the Consolidated Statement of Income once the underlying transaction or event to which the deferred tax relates is recognized in the Consolidated Statement of Income.

For share-based payment transactions, the Group may receive a tax deduction related to the compensation paid in shares. The amount deductible for tax purposes may differ from the cumulative compensation expense recorded. At any reporting date, the Group must estimate the expected future tax deduction based on the current share price. The associated current and deferred tax consequences are recognized as income or expense in the consolidated statement of Income for the period. If the amount deductible, or expected to be deductible, for tax purposes exceeds the cumulative compensation expense, the excess tax benefit is recognized directly in equity.

Critical accounting estimates – In determining the amount of deferred tax assets, the Group uses historical tax capacity and profitability information and, if relevant, forecasted operating results based upon approved business plans, including a review of the eligible carry-forward periods, available tax planning opportunities and other relevant considerations. The analysis of historical tax capacity includes the determination as to whether a history of recent losses exists at the reporting date and is generally based on the pre-tax results adjusted for permanent differences for the current and the two preceding financial years. Each quarter, the Group re-evaluates its estimate related to deferred tax assets, including its assumptions about future profitability.

The Group believes that the accounting estimate related to the deferred tax assets is a critical accounting estimate because the underlying assumptions can change from period to period and requires significant management judgment. For example, tax law changes or variances in future projected operating performance could result in a change of the deferred tax asset. If the Group was not able to realize all or part of its net deferred tax assets in the future, an adjustment to its deferred tax assets would be charged to income tax expense or directly to equity in the period such determination was made. If the Group was to recognize previously unrecognized deferred tax assets in the future, an adjustment to its deferred tax asset would be credited to income tax expense or directly to equity in the period such determination was made.

The use of estimates is also important in determining provisions for potential losses that may arise from uncertain income tax positions. The Group estimates and provides for potential losses that may arise out of uncertain income tax positions, in accordance with IAS 12, "Income Taxes" and IFRIC 23, "Uncertainty over Income Tax Treatment". Significant judgment is required in making these estimates and the Group's final liabilities may ultimately be materially different.

For further information on the Group's deferred taxes (including quantitative disclosures on recognized deferred tax assets) see Note 34 "Income Taxes".

Business combinations and noncontrolling Interests

The Group uses the acquisition method to account for business combinations. At the date the Group obtains control of the subsidiary, the cost of an acquisition is measured at the fair value of the consideration given, including any cash or non-cash consideration (equity instruments) transferred, any contingent consideration, any previously held equity interest in the acquiree and liabilities incurred or assumed. The excess of the aggregate of the cost of an acquisition and any noncontrolling interests in the acquiree over the Group's share of the fair value of the identifiable net assets acquired is recorded as goodwill. If the aggregate of the acquisition cost and any noncontrolling interests is below the fair value of the identifiable net assets (negative goodwill), a gain is reported in other income. Acquisition-related costs are recognized as expenses in the period in which they are incurred.

In business combinations achieved in stages ("step acquisitions"), a previously held equity interest in the acquiree is remeasured to its acquisition-date fair value and the resulting gain or loss, if any, is recognized in profit or loss. Amounts recognized in prior periods in other comprehensive income associated with the previously held investment would be recognized on the same basis as would be required if the Group had directly disposed of the previously held equity interest.

Noncontrolling interests are shown in the consolidated balance sheet as a separate component of equity, which is distinct from the Group's shareholders' equity. The net income attributable to noncontrolling interests is separately disclosed on the face of the Consolidated Statement of Income. Changes in the ownership interest in subsidiaries which do not result in a change of control are treated as transactions between equity holders and are reported in additional paid-in capital ("APIC").

Non-current assets held for sale

Individual non-current non-financial assets (and disposal groups) are classified as held for sale if they are available for immediate sale in their present condition subject only to the customary sales terms of such assets (and disposal groups) and their sale is considered highly probable. For a sale to be highly probable, management must be committed to a sales plan and be actively looking for a buyer and has no substantive regulatory approvals outstanding. Furthermore, the assets (and disposal groups) must be actively marketed at a reasonable sales price in relation to their current fair value and the sale should be expected to be completed within one year. Non-current non-financial assets (and disposal groups) which meet the criteria for held for sale classification are measured at the lower of their carrying amount and fair value less costs of disposal and are presented within "Other assets" and "Other liabilities" in the balance sheet. The comparatives are not represented when non-current assets (and disposal groups) are classified as held for sale. If the disposal group contains financial instruments, no adjustment to their carrying amounts is permitted.

Property and equipment

Property and equipment includes own-use properties, leasehold improvements, furniture and equipment and software (operating systems only). Right-of-use assets are presented together with property and equipment on the Group's consolidated balance sheet. Own-use properties are carried at cost less accumulated depreciation and accumulated impairment losses. Depreciation is generally recognized using the straight-line method over the estimated useful lives of the assets. The range of estimated useful lives is 25 to 50 years for property and 3 to 10 years for furniture and equipment (including initial improvements to purchased buildings). Leasehold improvements are capitalized and subsequently depreciated on a straight-line basis over the shorter of the term of the lease and the estimated useful life of the improvement, which generally ranges from 3 to 18 years. Depreciation of property and equipment is included in general and administrative expenses. Maintenance and repairs are also charged to general and administrative expenses. Gains and losses on disposals are included in other income.

Property and equipment are assessed for any indication of impairment at each quarterly reporting date. If such indication exists, the recoverable amount, which is the higher of fair value less costs of disposal and value in use, must be estimated and an impairment charge is recorded to the extent the recoverable amount is less than its carrying amount. Value in use is the present value of the future cash flows expected to be derived from the asset. After the recognition of impairment of an asset, the depreciation charge is adjusted in future periods to reflect the asset's revised carrying amount. If an impairment is later reversed, the depreciation charge is adjusted prospectively.

Financial guarantees

Financial guarantee contracts are contracts that require the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due in accordance with the terms of a debt instrument.

The Group has chosen to apply the fair value option to certain written financial guarantees that are managed on a fair value basis. Financial guarantees that the Group has not designated at fair value are recognized initially in the financial statements at fair value on the date the guarantee is given. Subsequent to initial recognition, the Group's liabilities under such guarantees are measured at the higher of the amount initially recognized, less cumulative amortization, and the best estimate of the expenditure required to settle any financial obligation as of the balance sheet date. These estimates are determined based on experience with similar transactions and history of past losses, and management's determination of the best estimate.

Any increase in the liability relating to guarantees is recorded in the Consolidated Statement of Income in provision for credit losses.

Leasing transactions (IFRS 16 - 2019 only)

The Group enters into lease contracts, predominantly for land and buildings, as a lessee. Other categories are company cars and technical/IT equipment.

The Group assesses at contract inception whether a contract is, or contains, a lease. That is, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

The Group applies a single recognition and measurement approach for all leases with a term of more than 12 months, unless the underlying asset is of low value. As a lessee, at the lease commencement date, the Group recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments.

The right-of-use asset is measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any re-measurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities, adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the site on which it is located, less any lease incentives received. Right-of-use assets are depreciated on a straight-line basis over the lease term.

The lease liability is measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in substance fixed payments) less any lease incentives receivable and variable lease payments that depend on an index or a rate. Variable lease payments that do not depend on an index or a rate are recognized as expenses in the period in which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Group uses its incremental borrowing rate at the lease commencement date because the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is re-measured if there is a modification, a change in the lease term or a change in the lease payments (e.g., changes to future payments resulting from a change in an index or rate used to determine such lease payments).

Right-of-use assets are assessed for any indication of impairment at each quarterly reporting date. If such indication exists, the recoverable amount, which is the higher of fair value less costs of disposal and value in use, must be estimated and an impairment charge is recorded to the extent the recoverable amount is less than its carrying amount. After the recognition of impairment of an asset, the depreciation charge is adjusted in future periods to reflect the asset's revised carrying amount. If an impairment is later reversed, the depreciation charge is adjusted prospectively.

The Group presents right-of-use assets in "Property and Equipment" and lease liabilities in "Other Liabilities".

The Group applies the short-term lease recognition exemption to its short-term leases, i.e., those leases that have a lease term of 12 months or less from the commencement date. It also applies the lease of low-value assets recognition exemption to leases of technical/IT equipment that are considered to be low value. Lease payments on short-term leases and leases of low value assets are recognized as expense on a straight-line basis over the lease term.

Leasing transactions (IAS 17 - prior periods only)

The Group enters into lease contracts, predominantly for land and buildings, as a lessee. Other categories are company cars and technical/IT equipment. The terms and conditions of these contracts were assessed and the leases were classified as operating leases or finance leases according to their economic substance at inception of the lease.

Assets held under finance leases were initially recognized on the consolidated balance sheet at an amount equal to the fair value of the leased property or, if lower, the present value of the minimum lease payments. The corresponding liability to the lessor was included in the Group's consolidated balance sheet as a finance lease obligation. The discount rate used in calculating the present value of the minimum lease payments was either the interest rate implicit in the lease, if it was practicable to determine, or the incremental borrowing rate. Contingent rentals were recognized as an expense in the periods in which they were incurred.

Operating lease rentals payable were recognized as an expense on a straight-line basis over the lease term, which commenced when the lessee controlled the physical use of the property. Lease incentives were treated as a reduction of rental expense and were also recognized over the lease term on a straight-line basis. Contingent rentals arising under operating leases were recognized as an expense in the period in which they are incurred.

Employee benefits

Pension benefits

The Group provides a number of pension plans. In addition to defined contribution plans, there are retirement benefit plans accounted for as defined benefit plans. The assets of all the Group's defined contribution plans are held in independently administered funds. Contributions are generally determined as a percentage of salary and are expensed based on employee services rendered, generally in the year of contribution.

All retirement benefit plans accounted for as defined benefit plans are valued using the projected unit-credit method to determine the present value of the defined benefit obligation and the related service costs. Under this method, the determination is based on actuarial calculations which include assumptions about demographics, salary increases and interest and inflation rates. Actuarial gains and losses are recognized in other comprehensive income and presented in equity in the period in which they occur. The majority of the Group's benefit plans is funded.

Other post-employment benefits

In addition, the Group maintains unfunded contributory post-employment medical plans for a number of current and retired employees who are mainly located in the United States. These plans pay stated percentages of eligible medical and dental expenses of retirees after a stated deductible has been met. The Group funds these plans on a cash basis as benefits are due. Analogous to retirement benefit plans these plans are valued using the projected unit-credit method. Actuarial gains and losses are recognized in full in the period in which they occur in other comprehensive income and presented in equity.

Refer to Note 33 “Employee benefits” for further information on the accounting for pension benefits and other post-employment benefits.

Termination benefits

Termination benefits arise when employment is terminated by the Group before the normal retirement date or whenever an employee accepts voluntary redundancy in exchange for these benefits. The Group recognizes termination benefits as a liability and an expense if the Group is demonstrably committed to a detailed formal plan without realistic possibility of withdrawal. In the case of an offer made to encourage voluntary redundancy, termination benefits are measured based on the number of employees expected to accept the offer. Benefits falling due more than twelve months after the end of the reporting period are discounted to their present value. The discount rate is determined by reference to market yields on high-quality corporate bonds.

Share-based compensation

Compensation expense for awards classified as equity instruments is measured at the grant date based on the fair value of the share-based award. For share awards, the fair value is the quoted market price of the share reduced by the present value of the expected dividends that will not be received by the employee and adjusted for the effect, if any, of restrictions beyond the vesting date. In case an award is modified such that its fair value immediately after modification exceeds its fair value immediately prior to modification, a remeasurement takes place and the resulting increase in fair value is recognized as additional compensation expense.

The Group records the offsetting amount to the recognized compensation expense in additional paid-in capital (“APIC”). Compensation expense is recorded on a straight-line basis over the period in which employees perform services to which the awards relate or over the period of the tranches for those awards delivered in tranches. Estimates of expected forfeitures are periodically adjusted in the event of actual forfeitures or for changes in expectations. The timing of expense recognition relating to grants which, due to early retirement provisions, include a nominal but non-substantive service period are accelerated by shortening the amortization period of the expense from the grant date to the date when the employee meets the eligibility criteria for the award, and not the vesting date. For awards that are delivered in tranches, each tranche is considered a separate award and amortized separately.

Compensation expense for share-based awards payable in cash is remeasured to fair value at each balance sheet date and recognized over the vesting period in which the related employee services are rendered. The related obligations are included in other liabilities until paid.

Obligations to purchase common shares

Forward purchases of Deutsche Bank shares, and written put options where Deutsche Bank shares are the underlying, are reported as obligations to purchase common shares if the number of shares is fixed and physical settlement for a fixed amount of cash is required. At inception, the obligation is recorded at the present value of the settlement amount of the forward or option. For forward purchases and written put options of Deutsche Bank shares, a corresponding charge is made to shareholders’ equity and reported as equity classified as an obligation to purchase common shares.

The liabilities are accounted for on an accrual basis, and interest costs, which consist of time value of money and dividends, on the liability are reported as interest expense. Upon settlement of such forward purchases and written put options, the liability is extinguished and the charge to equity is reclassified to common shares in treasury.

Deutsche Bank common shares subject to such forward contracts are not considered to be outstanding for purposes of basic earnings per share calculations, but are for dilutive earnings per share calculations to the extent that they are, in fact, dilutive.

Option and forward contracts on Deutsche Bank shares are classified as equity if the number of shares is fixed and physical settlement is required. All other contracts in which Deutsche Bank shares are the underlying are recorded as financial assets or liabilities at fair value through profit or loss.

Consolidated statement of cash flows

For purposes of the consolidated statement of cash flows, the Group's cash and cash equivalents include highly liquid investments that are readily convertible into cash and which are subject to an insignificant risk of change in value. Such investments include cash and balances at central banks and demand deposits with banks.

The Group's assignment of cash flows to the operating, investing or financing category depends on the business model ("management approach"). For the Group the primary operating activity is to manage financial assets and financial liabilities. Therefore, the issuance and management of long-term borrowings is a core operating activity which is different than for a non-financial company, where borrowing is not a principal revenue producing activity and thus is part of the financing category.

The Group views the issuance of senior long-term debt as an operating activity. Senior long-term debt comprises structured notes and asset-backed securities, which are designed and executed by Investment Bank business lines and which are revenue generating activities. The other component is debt issued by Treasury, which is considered interchangeable with other funding sources; all of the funding costs are allocated to business activities to establish their profitability.

Cash flows related to subordinated long-term debt and trust preferred securities are viewed differently than those related to senior-long term debt because they are managed as an integral part of the Group's capital, primarily to meet regulatory capital requirements. As a result they are not interchangeable with other operating liabilities, but can only be interchanged with equity and thus are considered part of the financing category.

The amounts shown in the consolidated statement of cash flows do not precisely match the movements in the consolidated balance sheet from one period to the next as they exclude non-cash items such as movements due to foreign exchange translation and movements due to changes in the group of consolidated companies.

Movements in balances carried at fair value through profit or loss represent all changes affecting the carrying value. This includes the effects of market movements and cash inflows and outflows. The movements in balances carried at fair value are usually presented in operating cash flows.

02 – Recently adopted and new accounting pronouncements

Recently adopted accounting pronouncements

The following are those accounting pronouncements which are relevant to the Group and which have been adopted during 2019 in the preparation of these consolidated financial statements.

Interest Rate Benchmark Reform (Amendments to IFRS 9, IAS 39 and IFRS 7)

In September 2019, the IASB issued "Interest Rate Benchmark Reform: Amendments to IFRS 9, IAS 39 and IFRS 7", which provides relief for specific hedge accounting requirements to address uncertainties in the period arising from the phase out of interest rate benchmarks (e.g. interbank offered rates – IBORs), and provides specific disclosure requirements for the affected hedge accounting relationships. The amendments are effective for annual periods beginning on or after January 1, 2020, with early application permitted. The EU endorsed the amendments in January 2020 and the endorsement means that early adoption of the standard is possible for the Group. The Group adopted the amendments from January 1, 2019 onwards.

The Group has established a Group wide program, aimed at ensuring a smooth transition from LIBOR and other IBORs to RFRs. The program was established in 2018 and is sponsored by the Group's Chief Financial Officer and has senior representation from each division, region and infrastructure function. The program has been focused on identifying and quantifying the Group's exposures to various interest rate benchmarks, providing the capability to trade products referencing alternative RFRs and evaluating the Group's existing contracts that reference IBORs. The Group's approach contemplates transition risks as part of a comprehensive program of change to ensure that systems, processes and strategy provides for a smooth transition from the use of legacy rates and supports trading in alternative reference rates.

IFRS 16 Leases

On January 1, 2019, the Group adopted IFRS 16, “Leases”, which introduces a single lessee accounting model and requires a lessee to recognize assets and liabilities for all leases with a term of more than 12 months, unless the underlying asset is of low value. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments. There will be only minor changes to the current accounting for lessors. The standard also requires entities to provide users of financial statements with more informative and relevant disclosures.

The Group implemented IFRS 16 through a Group-wide implementation program. The majority of leases are for land and buildings; other categories are company cars and technical/IT equipment.

The Group applied the practical expedient in IFRS 16 to contracts that were identified as leases applying IAS 17, “Leases”, and IFRIC 4, “Determining whether an Arrangement contains a Lease”, on transition.

The Group elected to apply the modified retrospective transition approach, without restatement of comparative figures. Under the modified retrospective approach, the Group was able to choose on a lease by lease basis to either (i) measure the right-of-use asset at the same amount as the lease liability, or (ii) to measure the right-of-use asset retrospectively using the transition discount rate. For approach (ii), the resulting difference between the right-of-use asset and the lease liability was recognized as an adjustment to the opening balance of retained earnings on transition.

On initial application the Group applied approach (i) to leases classified as operating leases under IAS 17 except for larger property leases where the Group elected to apply approach (ii) which resulted in an adjustment to total equity on transition of € 137 million, net of tax.

In addition, provisions previously recognized for onerous operating leases as well as accrued operating liabilities were derecognized upon transition, and the value of the right-of-use assets was reduced by that same amount.

The impact upon adoption resulted in an € 3.2 billion and € 3.6 billion increase in the consolidated balance sheet related to the recognition of right of use assets and corresponding liabilities, respectively. This led to an overall reduction in retained earnings of € 136 million, net of tax.

in € m.

Operating lease commitments as of December 31, 2018	6,264
Recognition exemptions adopted for short-term leases and leases of low-value assets	(35)
Adjustments as a result of a different treatment of extension and termination options	376
Operating lease commitments regarding contracts not yet commenced	(2,819)
Other ¹	97
Undiscounted lease liabilities as of January 1, 2019	3,884
Discounting (weighted average incremental borrowing rate of 2.18 %)	(310)
Lease liabilities due to initial application of IFRS 16, recognized as of January 1, 2019	3,575
Lease liabilities from finance leases as of January 1, 2019	27
Total lease liabilities recognized at January 1, 2019	3,601

¹ Mainly de-scoped or terminated leases, operating expenses, utility costs, VAT, sale-and-leaseback transactions.

Improvements to IFRS 2015-2017 cycles

On January 1, 2019, the Group adopted the IASB issued amendments to multiple IFRS standards, which resulted from the IASB’s annual improvement project for the 2015-2017 cycles. This comprises amendments that result in accounting changes for presentation, recognition or measurement purposes as well as terminology or editorial amendments related to IFRS 3 “Business Combinations”, IAS 12 “Income Taxes” and “IAS 23 Borrowing Costs”. IAS 12 was amended to clarify the accounting treatment of income tax on dividend payments related to financial instruments that are classified as equity under IAS 32 and where such dividends are considered to be a distribution of profit. The income tax related to such dividends is included in the income statement as income tax expense or benefit. The amendments did not have a material impact on the Group’s consolidated financial statements.

IFRIC 23 “Uncertainty over Income Tax Treatments”

On January 1, 2019, the Group adopted IFRIC 23, “Uncertainty over Income Tax Treatments”, which clarifies how to apply the recognition and measurement requirements in IAS 12 when there is uncertainty over income tax treatments and applies to current and deferred tax assets or liabilities. According to IFRIC 23 uncertain tax treatments shall be considered separately or together with one or more other uncertain tax treatments depending on which approach better predicts the resolution of the uncertainty. For the assessment it shall be assumed that a taxation authority will examine amounts it has a right to examine and have full knowledge of all related information when making those examinations. If acceptance of a tax treatment by the taxation authorities is not considered probable it is required to reflect that uncertainty by either using the most likely amount or an expected value depending on which method better predicts the resolution of the uncertain tax treatment. IFRIC 23 did not have an impact on the Group’s consolidated financial statements.

New accounting pronouncements

The following accounting pronouncements were not effective as of December 31, 2019 and therefore have not been applied in preparing these financial statements.

IFRS 3 Business Combinations

In October 2018, the IASB issued amendments to IFRS 3, “Business Combinations”. These amendments clarify the determination of whether an acquisition made is of a business or a group of assets. The amended definition of a business emphasizes that the output of a business is to provide goods and services to customers, whereas the previous definition focused on returns in the form of dividends, lower costs or other economic benefits to investors and others. Distinguishing between a business and a group of assets is important because an acquirer recognizes goodwill only when acquiring a business. The amendments will be effective for annual periods beginning on or after January 1, 2020 with early adoption permitted. The amendments will not have a material impact on the Group’s consolidated financial statements. These amendments have yet to be endorsed by the EU.

IFRS 17 Insurance Contracts

In May 2017, the IASB issued IFRS 17, “Insurance Contracts”, which establishes the principles for the recognition, measurement, presentation and disclosure of insurance contracts within the scope of the standard. IFRS 17 replaces IFRS 4 which has given companies dispensation to carry on accounting for insurance contracts using national accounting standards, resulting in a multitude of different approaches. IFRS 17 solves the comparison problems created by IFRS 4 by requiring all insurance contracts to be accounted for in a consistent manner, benefiting both investors and insurance companies. Insurance obligations will be accounted for using current values – instead of historical cost. The information will be updated regularly, providing more useful information to users of financial statements. IFRS 17 is effective for annual periods beginning on or after January 1, 2021. Based on the Group’s current business activities it is expected that IFRS 17 will not have a material impact on the Group’s consolidated financial statements. The standard has yet to be endorsed by the EU.

03 – Acquisitions and dispositions

Business combinations

During the years 2019, 2018 and 2017, the Group did not undertake any acquisitions accounted for as business combinations.

Dispositions

During 2019, 2018 and 2017, the Group finalized several dispositions of subsidiaries/businesses. These disposals are mainly comprised of businesses the Group had previously classified as held for sale. Accordingly, dispositions in 2019 mainly included the sale of the Private & Commercial Clients business in Portugal, while dispositions in 2018 included the partial sale of the Polish Private & Commercial Bank business. Disposals in 2017 included the Group's Argentine subsidiary Deutsche Bank S.A. and Sal. Oppenheim's Luxembourg-based fund administration and custody business. For more detail on these transactions, please refer to Note 24 "Non-Current Assets and Disposal Groups Held for Sale". The total consideration received for these dispositions (thereof in cash) in 2019, 2018 and 2017 was € 1.8 billion (cash € 1.8 billion), € 398 million (cash € 270 million) and € 129 million (cash), respectively. The table below shows the assets and liabilities that were included in these disposals.

in € m.	2019	2018	2017
Cash and cash equivalents	0	50	47
All remaining assets	2,713	4,619	848
Total assets disposed	2,714	4,669	895
Total liabilities disposed	1,003	6,035	814

04 – Business segments and related information

The Group's segmental information has been prepared in accordance with the "management approach", which requires presentation of the segments on the basis of the internal management reports of the entity which are regularly reviewed by the chief operating decision maker, which is the Deutsche Bank Management Board, in order to allocate resources to a segment and to assess its financial performance.

Business segments

The Group's segment reporting follows the organizational structure as reflected in its internal management reporting systems, which are the basis for assessing the financial performance of the business segments and for allocating resources to the business segments. Restatements due to changes in the organizational structure were implemented in the presentation of prior period comparisons.

In accordance with our strategy announcement on July 7, 2019, our business operations were reorganized in the third quarter of 2019 under the divisional structure comprising the following segments:

- Corporate Bank (CB)
- Investment Bank (IB)
- Private Bank (PB)
- Asset Management (AM)
- Capital Release Unit (CRU)
- Corporate & Other (C&O)

The key changes compared to Deutsche Bank's previously reported segmental information are outlined below.

The Corporate Bank includes the Global Transaction Bank which was previously part of the former Corporate & Investment Bank as well as the German Commercial Clients division, formerly part of the Private & Commercial Business (Germany). During the fourth quarter of 2019 further refinements in allocations between the Corporate Bank and Private Bank were incorporated and the business for smaller sized commercial clients in Germany previously reported in the Private Bank is now reported in the Corporate Bank.

The Investment Bank, previously part of the former Corporate & Investment Bank, includes Deutsche Bank's Origination & Advisory businesses. The Investment Bank also includes Fixed Income, Currency (FIC) Sales & Trading, which includes our Global Credit Trading, Foreign Exchange, Rates and Emerging Markets Debt businesses.

The Private Bank comprises three business units. The Private Bank Germany serves private customers in Germany. The Private and Commercial Business International serves private and small business clients, as well as commercial and corporate clients in Italy, Spain, Belgium and India. In addition, the Private Bank covers Wealth Management clients globally. The businesses included in the Private Bank were previously disclosed as part of the Private & Commercial Bank division. During the fourth quarter of 2019 further refinements in allocations between the Private Bank and Corporate Bank were incorporated and the business for smaller sized commercial clients in Germany previously reported in the Private Bank is now reported in the Corporate Bank.

Asset Management operates under the DWS brand. Asset Management is unchanged from Deutsche Bank's previous segmentation and provides investment solutions to individual investors and institutions with a diversified range of Active, Passive and Alternative Asset Management products and services.

By establishing our new Capital Release Unit (CRU), we plan to liberate capital currently consumed by low return assets, businesses with low profitability and businesses no longer deemed strategic. This includes substantially all of our Equities Sales & Trading business, lower yielding fixed income positions, particularly in Rates, our former CIB Non-Strategic portfolio as well as the exited businesses from our Private & Commercial Bank which include our retail operations in Portugal and Poland. BNP Paribas and Deutsche Bank have signed a master transaction agreement to provide continuity of service to Deutsche Bank's Prime Finance and Electronic Equities clients. Under the agreement Deutsche Bank will continue to operate the platform until clients can be migrated to BNP Paribas.

Corporate & Other includes revenues, costs and resources held centrally that are not allocated to the individual business segments.

The presentation of comparison periods has been adjusted accordingly.

Measurement of segment profit or loss

Segment reporting requires a presentation of the segment results based on management reporting methods, including a reconciliation between the results of the business segments and the consolidated financial statements, which is presented in the “Segmental Results of Operations” within this note. The information provided about each segment is based on internal management reporting about segment profit or loss, assets and other information which is regularly reviewed by the chief operating decision maker. Segment assets are presented in the Group’s internal management reporting based on a consolidated view, i.e., the amounts do not include intersegment balances.

Non-IFRS compliant accounting methods used in the Group’s management reporting represent either valuation or classification differences. The largest valuation differences relate to measurement at fair value in management reporting versus measurement at amortized cost under IFRS and to the recognition of trading results from own shares in revenues in management reporting (in IB) and in equity under IFRS. The major classification difference relates to noncontrolling interest, which represents the net share of minority shareholders in revenues, provision for credit losses, noninterest expenses and income tax expenses. Noncontrolling interest is reported as a component of the profit before tax of the businesses in management reporting (with a reversal in C&O) and a component of net income appropriation under IFRS.

Since the Group’s business activities are diverse in nature and its operations are integrated, certain estimates and judgments have been made to apportion revenue and expense items among the business segments.

The management reporting systems allocate the Group’s external net interest income according to the value of funding consumed or provided by each business segment’s activities, in accordance with our internal funds transfer pricing (“FTP”) framework. Furthermore, to retain comparability with those competitors that have legally independent units with their own equity funding, the Group allocates a net notional interest benefit on its consolidated capital, in line with each segment’s proportion of average shareholders’ equity.

In the third quarter of 2019, the FTP framework was changed in order to enhance its effectiveness as a management tool, as well as to better support funding cost optimization. The new FTP framework aims to more accurately allocate funding costs and benefits to the firm’s business divisions in a risk-adjusted and uniform manner across the Group. The methodology changes do not impact overall group funding costs for 2019, however, the framework results in a re-allocation of costs and benefits between segments. This re-allocation results in a benefit to IB and CRU, partially offset by a reduction in funding benefits to PB and CB versus the prior methodology. Costs related to the introduction of the new framework were held in C&O while the new framework is phased in. These costs will be amortized over time reflecting the long dated nature of our liabilities.

The impact of the new FTP framework for the first half of 2019 would have been a positive impact on the results of IB and CRU of approximately € 140 million and € 30 million, respectively, while the results of CB, PB and C&O would have been lower by approximately € 20 million, € 30 million and € 120 million, respectively.

The full year impact of the new FTP framework in 2018 would have been a positive impact on the results of IB and CRU of approximately € 200 million and € 40 million, respectively, while the results of CB, PB and C&O would have been lower by approximately € 60 million, € 60 million and € 120 million, respectively.

The full year impact of the new FTP framework in 2017 would have been a positive impact on the results of IB and CRU of approximately € 230 million and € 40 million, respectively, while the results of the CB, PB and C&O would have been lower by approximately € 60 million, € 60 million and € 150 million, respectively.

Management uses certain measures for equity and related ratios as part of its internal reporting system because it believes that these measures provide it with a useful indication of the financial performance of the business segments. The Group discloses such measures to provide investors and analysts with further insight into how management operates the Group’s businesses and to enable them to better understand the Group’s results. These measures include:

Allocation of Average Shareholders’ Equity - Shareholders’ equity is fully allocated to the Group’s segments based on the regulatory capital demand of each segment. Regulatory capital demand reflects the combined contribution of each segment to the Group’s Common Equity Tier 1 capital ratio, the Groups’ Leverage ratio and the Group’s Capital Loss under Stress. Contributions in each of the three dimensions are weighted to reflect their relative importance and level of constraint for the Group. Contributions to the Common Equity Tier 1 capital ratio and the Leverage ratio are measured through Risk Weighted Assets (RWA) and Leverage Ratio Exposure assuming full implementation of CRR/CRD 4 rules. The Group’s Capital Loss under Stress is a measure of the Group’s overall economic risk exposure under a defined stress scenario. Goodwill and other intangible assets are directly attributed to the Group’s segments in order to allow the determination of allocated tangible shareholders’ equity and the respective returns. Shareholders’ equity and tangible shareholders’ equity is allocated on a monthly basis and averaged across quarters and for the full year.

Net interest income as a component of net revenues, profit (loss) before tax and related ratios are presented on a fully taxable-equivalent basis for US tax-exempt securities for the Investment Bank. This enables management to measure performance of taxable and tax-exempt securities on a comparable basis. This presentation resulted in an increase in Investment Bank net interest income of € 35 million for full year 2019 (€ 42 million for full year 2018, € 114 million for full year 2017). This increase is offset in Group consolidated figures through a reversal in C&O. The tax rate used in determining the fully taxable-equivalent of net interest income in respect of the majority of the US tax-exempt securities is 21 % for 2019 and 2018 and 35 % for 2017.

Segmental results of operations

The following tables present the results of the Group's business segments, including the reconciliation to the consolidated results of operations under IFRS.

	2019						
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total Consolidated
Net revenues¹	5,264	6,961	8,245	2,332	208	155	23,165
Provision for credit losses	286	109	342	1	(14)	0	723
Noninterest expenses							
Compensation and benefits	1,044	2,468	3,519	832	443	2,836	11,142
General and administrative expenses	3,169	3,763	3,978	851	2,811	(2,320)	12,253
Impairment of goodwill and other intangible assets	492	0	545	0	0	0	1,037
Restructuring activities	137	169	126	29	143	40	644
Total noninterest expenses	4,842	6,401	8,168	1,711	3,397	556	25,076
Noncontrolling interests	0	20	(0)	152	1	(173)	0
Profit (loss) before tax	137	433	(265)	468	(3,177)	(229)	(2,634)
Cost/income ratio	92 %	92 %	99 %	73 %	N/M	N/M	108 %
Assets²	227,703	502,821	282,773	9,936	259,224	15,217	1,297,674
Additions to non-current assets	9	497	405	27	2	381	1,322
Risk-weighted assets	56,522	118,622	75,442	9,527	45,874	18,029	324,015
Leverage exposure (fully loaded)	262,505	439,354	292,028	4,643	126,905	42,605	1,168,040
Average allocated shareholders' equity	9,280	23,639	12,241	4,836	10,174	0	60,170
Post-tax return on average shareholders' equity ³	0 %	1 %	(2) %	7 %	(23) %	N/M	(10) %
Post-tax return on average tangible shareholders' equity ³	0 %	1 %	(2) %	18 %	(23) %	N/M	(11) %
¹ includes:							
Net interest income	2,579	2,685	5,133	(39)	76	3,315	13,749
Net income (loss) from equity method investments	3	32	14	49	12	1	110
² includes:							
Equity method investments	66	412	82	276	90	4	929

N/M – Not meaningful

³ The post-tax return on average tangible shareholders' equity and average shareholders' equity at the Group level reflects the reported effective tax rate for the Group, which was (100) % for the year ended December 31, 2019. For the post-tax return on average tangible shareholders' equity and average shareholders' equity of the segments, the Group effective tax rate was adjusted to exclude the impact of permanent differences not attributed to the segments, so that the segment tax rates were 28 % for the year ended December 31, 2019.

	2018						
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total Consolidated
Net revenues¹	5,263	7,467	8,641	2,187	1,878	(120)	25,316
Provision for credit losses	145	70	347	(1)	(36)	1	525
Noninterest expenses							
Compensation and benefits	1,035	2,666	3,613	787	635	3,079	11,814
General and administrative expenses	2,780	3,650	3,932	929	2,652	(2,656)	11,286
Impairment of goodwill and other intangible assets	0	0	0	0	0	0	0
Restructuring activities	31	200	49	19	62	(1)	360
Total noninterest expenses	3,846	6,517	7,593	1,735	3,349	421	23,461
Noncontrolling interests	0	24	(0)	85	1	(109)	0
Profit (loss) before tax	1,273	856	701	368	(1,435)	(433)	1,330
Cost/income ratio	73 %	87 %	88 %	79 %	N/M	N/M	93 %
Assets ²	215,177	458,191	288,513	10,030	370,363	5,864	1,348,137
Additions to non-current assets	13	500	584	43	1	506	1,647
Risk-weighted assets	58,162	124,410	69,308	10,365	72,144	16,045	350,432
Leverage exposure (fully loaded)	247,137	419,313	299,577	5,044	281,109	20,746	1,272,926
Average allocated shareholders' equity	9,987	23,155	12,231	4,659	12,577	0	62,610
Post-tax return on average shareholders' equity ³	9 %	2 %	4 %	6 %	(9) %	N/M	(0) %
Post-tax return on average tangible shareholders' equity ³	9 %	2 %	4 %	17 %	(9) %	N/M	(0) %
¹ includes:							
Net interest income	2,327	2,138	5,217	(51)	259	3,302	13,192
Net income (loss) from equity method investments	3	157	2	41	10	6	219
² includes:							
Equity method investments	63	406	78	240	87	5	879

N/M – Not meaningful

³ The post-tax return on average tangible shareholders' equity and average shareholders' equity at the Group level reflects the reported effective tax rate for the Group, which was 74 % for the year ended December 31, 2018. For the post-tax return on average tangible shareholders' equity and average shareholders' equity of the segments, the Group effective tax rate was adjusted to exclude the impact of permanent differences not attributed to the segments, so that the segment tax rates were 28 % for the year ended December 31, 2018.

	2017						
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total Consolidated
Net revenues¹	5,376	8,303	8,732	2,532	2,044	(539)	26,447
Provision for credit losses	41	51	325	(1)	110	(0)	525
Noninterest expenses							
Compensation and benefits	1,104	2,866	3,635	812	758	3,078	12,253
General and administrative expenses	2,746	3,821	4,138	978	2,788	(2,497)	11,973
Impairment of goodwill and other intangible assets	6	0	12	3	0	0	21
Restructuring activities	20	40	358	6	21	1	447
Total noninterest expenses	3,876	6,727	8,143	1,799	3,567	582	24,695
Noncontrolling interests	0	26	(12)	1	0	(16)	0
Profit (loss) before tax	1,459	1,498	275	732	(1,633)	(1,105)	1,228
Cost/income ratio	72 %	81 %	93 %	71 %	N/M	N/M	93 %
Assets ²	248,335	471,539	278,014	8,050	462,212	6,582	1,474,732
Additions to non-current assets	2	124	655	60	3	960	1,803
Risk-weighted assets ³	57,760	120,316	70,138	8,432	72,243	15,322	344,212
Leverage exposure (fully loaded)	275,580	426,311	289,314	2,870	384,435	16,378	1,394,886
Average allocated shareholders' equity	10,143	22,553	11,886	4,505	14,087	752	63,926
Post-tax return on average shareholders' equity ⁴	9 %	4 %	1 %	11 %	(8) %	N/M	(2) %
Post-tax return on average tangible shareholders' equity ⁴	10 %	4 %	1 %	59 %	(9) %	N/M	(2) %
¹ includes:							
Net interest income	2,433	2,122	5,120	(19)	667	2,055	12,378
Net income (loss) from equity method investments	6	70	3	44	5	9	137
² includes:							
Equity method investments	62	409	91	211	82	10	866

N/M – Not meaningful

³ Risk-weighted assets are based upon CRR/CRD 4 fully loaded.

⁴ The post-tax return on average tangible shareholders' equity and average shareholders' equity at the Group level reflects the reported effective tax rate for the Group, which was 160 % for the year ended December 31, 2017. For the post-tax return on average tangible shareholders' equity and average shareholders' equity of the segments, the Group effective tax rate was adjusted to exclude the impact of permanent differences not attributed to the segments, so that the segment tax rates were 33 % for the year ended December 31, 2017.

Corporate Bank

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues							
Global Transaction Banking	3,842	3,901	4,030	(59)	(2)	(129)	(3)
Commercial Banking	1,422	1,362	1,346	60	4	16	1
Total net revenues	5,264	5,263	5,376	1	0	(113)	(2)
Provision for credit losses	286	145	41	141	97	104	N/M
Noninterest expenses							
Compensation and benefits	1,044	1,035	1,104	9	1	(69)	(6)
General and administrative expenses	3,169	2,780	2,746	389	14	34	1
Impairment of goodwill and other intangible assets	492	0	6	492	N/M	(6)	N/M
Restructuring activities	137	31	20	106	N/M	11	53
Total noninterest expenses	4,842	3,846	3,876	996	26	(30)	(1)
Noncontrolling interests	0	0	0	0	N/M	0	N/M
Profit (loss) before tax	137	1,273	1,459	(1,136)	(89)	(186)	(13)
Total assets (in € bn) ¹	228	215	248	13	6	(33)	(13)
Loans (gross of allowance for loan losses, in € bn)	118	113	112	5	5	1	1
Employees (full-time equivalent)	7,428	7,353	7,649	75	1	(296)	(4)

N/M – Not meaningful

¹ Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances.

Investment Bank

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues							
Fixed Income, Currency (FIC) Sales & Trading	5,534	5,646	6,679	(111)	(2)	(1,033)	(15)
Equity Origination	123	184	178	(61)	(33)	6	3
Debt Origination	1,117	1,145	1,407	(27)	(2)	(262)	(19)
Advisory	366	456	477	(90)	(20)	(21)	(4)
Origination & Advisory	1,606	1,784	2,061	(178)	(10)	(277)	(13)
Other	(179)	37	(438)	(217)	N/M	475	N/M
Total net revenues	6,961	7,467	8,303	(506)	(7)	(836)	(10)
Provision for credit losses	109	70	51	38	54	19	37
Noninterest expenses							
Compensation and benefits	2,468	2,666	2,866	(199)	(7)	(200)	(7)
General and administrative expenses	3,763	3,650	3,821	113	3	(171)	(4)
Impairment of goodwill and other intangible assets	0	0	0	0	N/M	0	N/M
Restructuring activities	169	200	40	(31)	(15)	160	N/M
Total noninterest expenses	6,401	6,517	6,727	(116)	(2)	(210)	(3)
Noncontrolling interests	20	24	26	(4)	(18)	(2)	(8)
Profit (loss) before tax	433	856	1,498	(423)	(49)	(642)	(43)
Total assets (in € bn) ¹	503	458	472	45	10	(13)	(3)
Loans (gross of allowance for loan losses, in € bn)	75	65	53	10	16	12	23
Employees (full-time equivalent)	10,095	9,960	10,674	135	1	(714)	(7)

N/M – Not meaningful

¹ Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances.

Private Bank

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues:							
Private Bank Germany	5,116	5,453	5,253	(337)	(6)	200	4
Private & Commercial Business International ¹	1,442	1,441	1,457	1	0	(16)	(1)
Wealth Management	1,687	1,748	2,022	(61)	(3)	(274)	(14)
Total net revenues	8,245	8,641	8,732	(396)	(5)	(91)	(1)
Of which:							
Net interest income	5,133	5,217	5,120	(84)	(2)	97	2
Commissions and fee income	2,925	2,826	2,994	99	4	(169)	(6)
Remaining income	187	598	617	(411)	(69)	(19)	(3)
Provision for credit losses	342	347	325	(5)	(1)	22	7
Noninterest expenses:							
Compensation and benefits	3,519	3,613	3,635	(93)	(3)	(23)	(1)
General and administrative expenses	3,978	3,932	4,138	46	1	(206)	(5)
Impairment of goodwill and other intangible assets	545	0	12	545	N/M	(12)	N/M
Restructuring activities	126	49	358	77	155	(309)	(86)
Total noninterest expenses	8,168	7,593	8,143	575	8	(550)	(7)
Noncontrolling interests	(0)	(0)	(12)	(0)	N/M	12	(100)
Profit (loss) before tax	(265)	701	275	(966)	N/M	426	155
Total assets (in € bn) ²	283	289	278	(6)	(2)	10	4
Loans (gross of allowance for loan losses, in € bn)	230	221	215	9	4	6	3
Assets under Management (in € bn) ³	487	451	480	36	8	(29)	(6)
Net flows (in € bn)	4	(2)	3	7	N/M	(5)	N/M
Employees (full-time equivalent)	37,266	38,415	39,272	(1,149)	(3)	(857)	(2)

N/M – Not meaningful

¹ Covers operations in Italy, Spain, Belgium and India.

² Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances.

³ We define assets under management as (a) assets we hold on behalf of customers for investment purposes and/or (b) client assets that are managed by us. We manage assets under management on a discretionary or advisory basis, or these assets are deposited with us. Deposits are considered assets under management if they serve investment purposes. In our Private Bank Germany and Private & Commercial Business International, this includes all time deposits and savings deposits. In Wealth Management, we assume that all customer deposits are held with us primarily for investment purposes.

Asset Management

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues							
Management Fees	2,141	2,115	2,247	26	1	(132)	(6)
Performance and transaction fees	201	91	199	111	122	(109)	(55)
Other	(10)	(19)	86	9	(48)	(104)	N/M
Total net revenues	2,332	2,187	2,532	146	7	(346)	(14)
Provision for credit losses	1	(1)	(1)	2	N/M	(0)	67
Noninterest expenses							
Compensation and benefits	832	787	812	45	6	(25)	(3)
General and administrative expenses	851	929	978	(78)	(8)	(49)	(5)
Impairment of goodwill and other intangible assets	0	0	3	0	N/M	(3)	N/M
Restructuring activities	29	19	6	10	51	13	N/M
Total noninterest expenses	1,711	1,735	1,799	(23)	(1)	(64)	(4)
Noncontrolling interests	152	85	1	68	80	83	N/M
Profit (loss) before tax	468	368	732	99	27	(364)	(50)
Total assets (in € bn) ¹	10	10	8	(0)	(1)	2	25
Assets under Management (in € bn)	768	664	702	103	16	(37)	(5)
Net flows (in € bn)	25	(23)	16	48	N/M	(38)	N/M
Employees (full-time equivalent)	3,924	4,013	4,002	(88)	(2)	11	0

N/M – Not meaningful

¹ Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances.

Capital Release Unit

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues	208	1,878	2,044	(1,670)	(89)	(166)	(8)
Provision for credit losses	(14)	(36)	110	22	(61)	(146)	N/M
Noninterest expenses							
Compensation and benefits	443	635	758	(192)	(30)	(123)	(16)
General and administrative expenses	2,811	2,652	2,788	159	6	(135)	(5)
Impairment of goodwill and other intangible assets	0	0	0	0	N/M	0	N/M
Restructuring activities	143	62	21	81	132	40	189
Total noninterest expenses	3,397	3,349	3,567	49	1	(218)	(6)
Noncontrolling interests	1	1	0	1	136	0	58
Profit (loss) before tax	(3,177)	(1,435)	(1,633)	(1,742)	121	198	(12)
Total assets (in € bn) ¹	259	370	462	(111)	(30)	(92)	(20)
Employees (full-time equivalent)	1,205	2,534	4,348	(1,329)	(52)	(1,814)	(42)

N/M – Not meaningful

¹ Segment assets represent consolidated view, i.e., the amounts do not include intersegment balances.

Corporate & Other (C&O)

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Net revenues	155	(120)	(539)	274	N/M	420	(78)
Provision for credit losses	0	1	(0)	(0)	(84)	1	N/M
Noninterest expenses							
Compensation and benefits	2,836	3,079	3,078	(242)	(8)	1	0
General and administrative expenses	(2,320)	(2,656)	(2,497)	336	(13)	(159)	6
Impairment of goodwill and other intangible assets	0	0	0	0	N/M	0	N/M
Restructuring activities	40	(1)	1	41	N/M	(2)	N/M
Total noninterest expenses	556	421	582	135	32	(161)	(28)
Noncontrolling interests	(173)	(109)	(16)	(64)	58	(93)	N/M
Profit (loss) before tax	(229)	(433)	(1,105)	204	(47)	672	(61)
Employees (full-time equivalent)	27,679	29,463	31,590	(1,784)	(6)	(2,127)	(7)

N/M – Not meaningful

Entity-wide disclosures

The Group's Entity-Wide Disclosures include net revenues from internal and external counterparties. Excluding revenues from internal counterparties would require disproportionate IT investment and is not in line with the Bank's management approach. For detail of our net revenue components please see "Management Report: Operating and Financial Review: Results of Operations: Corporate Divisions".

The following table presents total net revenues (before provisions for credit losses) by geographic area for the years ended December 31, 2019, 2018 and 2017, respectively. The information presented for CB, IB, PB, AM and CRU has been classified based primarily on the location of the Group's office in which the revenues are recorded. The information for C&O is presented on a global level only, as management responsibility for C&O is held centrally.

in € m.	2019	2018	2017
Germany:			
Corporate Bank	2,450	2,351	2,492
Investment Bank	326	336	200
Private Bank	5,577	6,022	6,073
Asset Management	1,054	985	1,009
Capital Release Unit	70	52	(14)
Total Germany¹	9,478	9,746	9,758
UK:			
Corporate Bank	208	241	138
Investment Bank	2,250	2,624	2,985
Private Bank	29	26	34
Asset Management	345	295	434
Capital Release Unit	(181)	484	706
Total UK	2,651	3,670	4,297
Rest of Europe, Middle East and Africa:			
Corporate Bank	857	832	929
Investment Bank	281	250	343
Private Bank	1,670	1,704	1,763
Asset Management	380	379	465
Capital Release Unit	99	243	291
Total Rest of Europe, Middle East and Africa	3,288	3,409	3,791
Americas (primarily United States):			
Corporate Bank	952	1,023	1,077
Investment Bank	2,684	2,943	3,336
Private Bank	375	362	370
Asset Management	437	413	492
Capital Release Unit	88	712	599
Total Americas	4,536	5,453	5,873
Asia/Pacific:			
Corporate Bank	797	816	741
Investment Bank	1,420	1,313	1,439
Private Bank	593	527	492
Asset Management	116	114	133
Capital Release Unit	130	387	462
Total Asia/Pacific	3,057	3,158	3,267
Corporate and Other	155	(120)	(539)
Consolidated net revenues²	23,165	25,316	26,447

¹ All Postbank operations are disclosed as German operations subject to further systems integration.

² Consolidated net revenues comprise interest and similar income, interest expenses and total noninterest income (including net commission and fee income). Revenues are attributed to countries based on the location in which the Group's booking office is located. The location of a transaction on the Group's books is sometimes different from the location of the headquarters or other offices of a customer and different from the location of the Group's personnel who entered into or facilitated the transaction. Where the Group records a transaction involving its staff and customers and other third parties in different locations frequently depends on other considerations, such as the nature of the transaction, regulatory considerations and transaction processing considerations.

Notes to the consolidated income statement

05 – Net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss

Net interest income

in € m.	2019	2018	2017
Interest and similar income:			
Interest income on cash and central bank balances	1,762	1,860	1,070
Interest income on interbank balances (w/o central banks)	293	223	245
Central bank funds sold and securities purchased under resale agreements	340	221	292
Interest income on financial assets available for sale	N/A	N/A	1,083
Dividend income on financial assets available for sale	N/A	N/A	88
Loans	13,760	12,992	12,004
Interest income on securities held to maturity	N/A	N/A	68
Other	844	497	1,406
Total Interest and similar income from assets at amortized cost	16,999	15,793	16,256
Interest income on financial assets at fair value through other comprehensive income	1,023	1,014	N/A
Total interest and similar income not at fair value through profit or loss	18,022	16,807	16,256
Financial assets at fair value through profit or loss	7,127	7,985	7,286
Total interest and similar income	25,149	24,793	23,542
Interest expense:			
Interest-bearing deposits	3,643	3,122	2,833
Central bank funds purchased and securities sold under repurchase agreements	367	379	431
Other short-term borrowings	163	139	135
Long-term debt	2,002	1,981	1,795
Trust preferred securities	187	234	413
Other	1,667	1,923	1,500
Total interest expense not at fair value through profit or loss	8,029	7,778	7,107
Financial liabilities at fair value through profit or loss	3,370	3,822	4,058
Total interest expense	11,400	11,601	11,164
Net interest income	13,749	13,192	12,378

Interest income recorded on impaired financial assets was €61 million for the year ended December 31, 2017.

Other interest income for the year ended December 31, 2019, 2018 and 2017 included €93 million, €93 million and €116 million, respectively, which were related to government grants under the Targeted Longer-Term Refinancing Operations II (TLTRO II)-program.

Net gains (losses) on financial assets/liabilities at fair value through profit or loss

in € m.	2019	2018	2017
Trading income:			
Sales & Trading (Equity)	87	493	805
Sales & Trading (FIC)	2,595	2,734	4,227
Total Sales & Trading	2,682	3,227	5,032
Other trading income	(2,486)	(3,175)	(1,659)
Total trading income	197	52	3,374
Net gains (losses) on non-trading financial assets mandatory at fair value through profit or loss:			
Breakdown by financial assets category:			
Debt Securities	43	(77)	N/A
Equity Securities	300	159	N/A
Loans and loan commitments	28	77	N/A
Deposits	(19)	27	N/A
Others non-trading financial assets mandatory at fair value through profit and loss	25	26	N/A
Total net gains (losses) on non-trading financial assets mandatory at fair value through profit or loss:	377	212	N/A
Net gains (losses) on financial assets/liabilities designated at fair value through profit or loss:			
Breakdown by financial asset/liability category:			
Securities purchased/sold under resale/repurchase agreements	3	4	3
Loans and loan commitments	(9)	7	(32)
Deposits	(0)	19	(30)
Long-term debt	(386)	1,118	(398)
Other financial assets/liabilities designated at fair value through profit or loss	12	(79)	9
Total net gains (losses) on financial assets/liabilities designated at fair value through profit or loss	(381)	1,069	(448)
Total net gains (losses) on financial assets/liabilities at fair value through profit or loss	193	1,332	2,926

Combined net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss

in € m.	2019	2018	2017
Net interest income	13,749	13,192	12,378
Trading income ¹	197	52	3,374
Net gains (losses) on non-trading financial assets mandatory at fair value through profit or loss	377	212	N/A
Net gains (losses) on financial assets/liabilities designated at fair value through profit or loss	(381)	1,069	(448)
Total net gains (losses) on financial assets/liabilities at fair value through profit or loss	193	1,332	2,926
Total net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss	13,943	14,524	15,304
Commercial Banking	1,047	987	948
Global Transaction Banking	1,614	1,493	1,550
Corporate Bank	2,660	2,480	2,498
FIC Sales & Trading	5,718	5,256	6,469
Remaining Products	(297)	(54)	(583)
Investment Bank	5,421	5,202	5,886
Private Bank	4,094	4,859	5,422
Asset Management	87	(88)	31
Capital Release Unit	146	1,409	1,405
Corporate & Other	1,535	662	63
Total net interest income and net gains (losses) on financial assets/liabilities at fair value through profit or loss	13,943	14,524	15,304

¹ Trading income includes gains and losses from derivatives not qualifying for hedge accounting.

The Group's trading and risk management businesses include significant activities in interest rate instruments and related derivatives. Under IFRS, interest and similar income earned from trading instruments and financial instruments designated at fair value through profit or loss (i.e., coupon and dividend income), and the costs of funding net trading positions, are part of net interest income. The Group's trading activities can periodically shift income to either net interest income or to net gains (losses) of financial assets/liabilities at fair value through profit or loss depending on a variety of factors, including risk management strategies. The above table combines net interest income and net gains (losses) of financial assets/liabilities at fair value through profit or loss by business division and by product within the Investment Bank.

06 – Commissions and fee income

in € m.	2019	2018	2017
Commission and fee income and expense:			
Commission and fee income	12,283	12,921	14,102
Commission and fee expense	2,763	2,882	3,100
Net commissions and fee income	9,520	10,039	11,002

Disaggregation of revenues by product type and business segment

in € m. (unless stated otherwise)							Dec 31, 2019
	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total Consolidated
Major type of services:							
Commissions for administration	249	8	235	23	5	(0)	521
Commissions for assets under management	22	1	304	3,219	1	2	3,547
Commissions for other securities	330	(0)	28	1	1	0	359
Underwriting and advisory fees	29	1,568	15	0	61	(17)	1,656
Brokerage fees	11	253	932	81	470	5	1,751
Commissions for local payments	457	0	1,015	(0)	1	0	1,474
Commissions for foreign commercial business	454	26	107	0	0	(1)	586
Commissions for foreign currency/exchange business	7	0	7	0	0	0	15
Commissions for loan processing and guarantees	494	189	284	0	16	5	989
Intermediary fees	26	2	494	0	1	11	535
Fees for sundry other customer services	303	349	48	127	23	0	850
Total fee and commissions income	2,382	2,397	3,470	3,451	578	6	12,283
Gross expense							(2,763)
Net fees and commissions							9,520

in € m. (unless stated otherwise)	Dec 31, 2018						
	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total Consolidated
Major type of services:							
Commissions for administration	274	10	250	22	15	(3)	568
Commissions for assets under management	23	16	260	3,131	6	(0)	3,436
Commissions for other securities	301	0	29	2	2	0	335
Underwriting and advisory fees	38	1,479	15	(1)	193	(28)	1,696
Brokerage fees	10	260	886	82	999	0	2,238
Commissions for local payments	470	(1)	980	(0)	12	(2)	1,460
Commissions for foreign commercial business	469	32	118	0	2	(1)	621
Commissions for foreign currency/exchange business	7	0	7	0	1	(0)	15
Commissions for loan processing and guarantees	519	187	248	0	26	1	981
Intermediary fees	20	1	446	0	13	12	493
Fees for sundry other customer services	287	578	63	117	31	0	1,076
Total fee and commissions income	2,420	2,564	3,303	3,352	1,300	(19)	12,921
Gross expense							(2,898)
Net fees and commissions							10,039

The Group has applied IFRS 15 to reporting periods beginning on or after January 1, 2018 (as allowed under the cumulative effect method under IFRS 15). Prior to adoption of IFRS 15, the Group disclosed total commissions and fee income and expenses on a gross basis annually. The disaggregation of commissions and fees were reported annually on a net basis. For the year ended, 31, December 2017, annual commissions and fees were €4.3 billion for fiduciary activities, €3.0 billion for brokers' fees, mark-ups on securities underwriting and other securities activities, and €3.7 billion for fees for other customer services.

As of December 31, 2019 and December 31, 2018, the Group's balance of receivables from commission and fee income was €861 million and €839 million, respectively. As of December 31, 2019 and December 31, 2018, the Group's balance of contract liabilities associated to commission and fee income was €195 million and €74 million, respectively. Contract liabilities arise from the Group's obligation to provide future services to a customer for which it has received consideration from the customer prior to completion of the services. The balances of receivables and contract liabilities do not vary significantly from period to period reflecting the fact that they predominately relate to recurring service contracts with service periods of less than one year such as monthly current account services and quarterly asset management services. Customer payment in exchange for services provided are generally subject to performance by the Group over the specific service period such that the Group's right to payment arises at the end of the service period when its performance obligations are fully completed. Therefore, no material balance of contract asset is reported.

07 – Net gains (losses) on financial assets available for sale

in € m.	2019	2018	2017
Net gains (losses) on financial assets available for sale:			
Net gains (losses) on debt securities:	N/A	N/A	114
Net gains (losses) from disposal	N/A	N/A	115
Impairments	N/A	N/A	(1)
Net gains (losses) on equity securities:	N/A	N/A	219
Net gains (losses) from disposal/remeasurement	N/A	N/A	219
Impairments	N/A	N/A	(1)
Net gains (losses) on loans:	N/A	N/A	37
Net gains (losses) from disposal	N/A	N/A	45
Impairments	N/A	N/A	(8)
Reversal of impairments	N/A	N/A	0
Net gains (losses) on other equity interests:	N/A	N/A	110
Net gains (losses) from disposal	N/A	N/A	137
Impairments	N/A	N/A	(27)
Total net gains (losses) on financial assets available for sale	N/A	N/A	479

08 – Other income

in € m.	2019	2018	2017
Other income:			
Net gains (losses) on disposal of loans	3	(4)	19
Insurance premiums	3	3	4
Net income (loss) from hedge relationships qualifying for hedge accounting	(635)	(497)	(609)
Remaining other income (loss) ¹	(40)	712	112
Total other income (loss)	(669)	215	(475)

¹ Includes net gains (losses) of € 4 million, € 141 million and € (81) million for the years ended December 31, 2019, 2018 and 2017, respectively, that are related to non-current assets and disposal groups held for sale.

09 – General and administrative expenses

in € m.	2019	2018	2017
General and administrative expenses:			
IT costs	4,814	3,822	3,816
Occupancy, furniture and equipment expenses	1,720	1,723	1,849
Regulatory, tax & insurance ¹	1,413	1,545	1,489
Professional service fees	1,324	1,530	1,750
Banking and transaction charges	786	753	744
Communication and data services	619	636	686
Travel expenses ²	256	288	334
Marketing expenses ²	251	299	329
Other expenses ^{2,3}	1,071	690	975
Total general and administrative expenses	12,253	11,286	11,973

¹ Includes bank levy of € 622 million in 2019, € 690 million in 2018 and € 596 million in 2017.

² Prior year numbers have been restated to reflect the shift of representation expenses from travel expenses to marketing and other expenses.

³ Includes litigation related expenses of € 473 million in 2019, € 88 million in 2018 and € 213 million in 2017. See Note 27 "Provisions", for more detail on litigation.

10 – Restructuring

Restructuring is primarily driven by the implementation of the Group's strategic changes as announced in the third quarter 2019. We have defined measures that aim to strengthen the bank, position it for growth and simplify its organizational set-up. The measures also aim to reduce adjusted costs through higher efficiency, by optimizing and streamlining processes, and by exploiting synergies.

Restructuring expense is comprised of termination benefits, additional expenses covering the acceleration of deferred compensation awards not yet amortized due to the discontinuation of employment and contract termination costs related to real estate.

Net restructuring expense by division

in € m.	2019	2018	2017
Corporate Bank	137	31	20
Investment Bank	169	200	40
Private Bank	126	49	358
Asset Management	29	19	6
Capital Release Unit	143	62	21
Corporate & Other	40	(1)	1
Total Net Restructuring Charges	644	360	447

Net restructuring by type

in € m.	2019	2018	2017
Restructuring – Staff related	641	367	430
thereof:			
Termination Benefits	476	248	402
Retention Acceleration	156	113	26
Social Security	9	6	2
Restructuring – Non Staff related	2	(6)	17
Total Net Restructuring Charges	644	360	447

Provisions for restructuring amounted to €684 million, €585 million and €696 million as of December 31, 2019, December 31, 2018 and December 31, 2017, respectively. The majority of the current provisions for restructuring are expected to be utilized in the next two years.

During 2019, 2,247 full-time equivalent staff was reduced through restructuring (2018: 3,000 and 2017: 2,045).

Organizational changes

Full-time equivalent staff	2019	2018	2017
Corporate Bank	137	222	332
Investment Bank	626	670	233
Private Bank	440	717	946
Asset Management	136	92	47
Capital Release Unit	514	243	162
Infrastructure	394	1,056	325
Total full-time equivalent staff	2,247	3,000	2,045

11 – Earnings per share

Basic earnings per share amounts are computed by dividing net income (loss) attributable to Deutsche Bank shareholders by the average number of common shares outstanding during the year. The average number of common shares outstanding is defined as the average number of common shares issued, reduced by the average number of shares in treasury and by the average number of shares that will be acquired under physically-settled forward purchase contracts, and increased by undistributed vested shares awarded under deferred share plans.

Diluted earnings per share assumes the conversion into common shares of outstanding securities or other contracts to issue common stock, such as share options, convertible debt, unvested deferred share awards and forward contracts. The aforementioned instruments are only included in the calculation of diluted earnings per share if they are dilutive in the respective reporting period.

Computation of basic and diluted earnings per share

in € m.	2019	2018	2017
Net income (loss) attributable to Deutsche Bank shareholders and additional equity components	(5,390)	267	(751)
Coupons paid on additional equity components ¹	(330)	(292)	(298)
Net income (loss) attributable to Deutsche Bank shareholders – numerator for basic earnings per share	(5,719)	(26)	(1,049)
Effect of dilutive securities	0	0	0
Net income (loss) attributable to Deutsche Bank shareholders after assumed conversions – numerator for diluted earnings per share	(5,719)	(26)	(1,049)
Number of shares in million			
Weighted-average shares outstanding – denominator for basic earnings per share	2,110.0	2,102.2	1,967.7
Effect of dilutive securities:			
Forwards	0.0	0.0	0.0
Employee stock compensation options	0.0	0.0	0.0
Deferred shares	0.0	0.0	0.0
Other (including trading options)	0.0	0.0	0.0
Dilutive potential common shares	0.0	0.0	0.0
Adjusted weighted-average shares after assumed conversions – denominator for diluted earnings per share	2,110.0	2,102.2	1,967.7

¹ In 2019 tax impact is recognized in income (loss) directly, which did not have a material impact as noted in Note 2.

Earnings per share

in €	2019	2018	2017
Basic earnings per share	(2.71)	(0.01)	(0.53)
Diluted earnings per share	(2.71)	(0.01)	(0.53)

On April 7, 2017, Deutsche Bank AG completed a capital increase with subscription rights. As the subscription price of the new shares was lower than the market price of the existing shares, the capital increase included a bonus element. According to IAS 33, the bonus element is the result of an implicit change in the number of shares outstanding for all periods prior to the capital increase without a fully proportionate change in resources. As a consequence, the weighted average number of shares outstanding has been adjusted retrospectively.

In accordance with IAS 33 the coupons paid on Additional Tier 1 Notes are not attributable to Deutsche Bank shareholders and therefore need to be deducted in the calculation. This adjustment created a net loss situation for Earnings per Common Share in 2018. Due to the net loss situation for 2019, 2018 and 2017 potentially dilutive shares are generally not considered for the earnings per share calculation, because to do so would have been anti-dilutive and hence decreased the net loss per share.

Instruments outstanding and not included in the calculation of diluted earnings per share¹

Number of shares in m.	2019	2018	2017
Call options sold	0.0	0.0	0.0
Employee stock compensation options	0.0	0.0	0.0
Deferred shares	117.6	108.8	104.4

¹ Not included in the calculation of diluted earnings per share, because to do so would have been anti-dilutive.

Notes to the consolidated balance sheet

12 – Financial assets/liabilities at fair value through profit or loss

in € m.	Dec 31, 2019	Dec 31, 2018
Trading Financial assets:		
Trading assets:		
Trading securities	97,986	140,720
Other trading assets ¹	12,889	12,017
Total trading assets	110,875	152,738
Positive market values from derivative financial instruments	332,931	320,058
Total Trading Financial assets	443,805	472,796
Non-trading financial assets mandatory at fair value through profit or loss:		
Securities purchased under resale agreements	53,366	44,543
Securities borrowed	17,918	24,210
Loans	3,174	12,741
Other financial assets mandatory at fair value through profit or loss	12,443	18,951
Total Non-trading financial assets mandatory at fair value through profit or loss	86,901	100,444
Financial assets designated at fair value through profit or loss:		
Loans	7	0
Other financial assets designated at fair value through profit or loss	0	104
Total financial assets designated at fair value through profit or loss	7	104
Total financial assets at fair value through profit or loss	530,713	573,344

¹ Includes traded loans of €12.3 billion and €11.5 billion at December 31, 2019 and 2018 respectively.

in € m.	Dec 31, 2019	Dec 31, 2018
Financial liabilities classified as held for trading:		
Trading liabilities:		
Trading securities	36,692	59,629
Other trading liabilities	373	295
Total trading liabilities	37,065	59,924
Negative market values from derivative financial instruments	316,506	301,487
Total financial liabilities classified as held for trading	353,571	361,411
Financial liabilities designated at fair value through profit or loss:		
Securities sold under repurchase agreements	42,723	46,254
Loan commitments	1	0
Long-term debt	4,761	5,607
Other financial liabilities designated at fair value through profit or loss	2,847	1,895
Total financial liabilities designated at fair value through profit or loss	50,332	53,757
Investment contract liabilities	544	512
Total financial liabilities at fair value through profit or loss	404,448	415,680

Financial assets & liabilities designated at fair value through profit or loss

The Group has designated various lending relationships at fair value through profit or loss. Lending facilities consist of drawn loan assets and undrawn irrevocable loan commitments. The maximum exposure to credit risk on a drawn loan is its fair value. The Group's maximum exposure to credit risk on drawn loans, including securities purchased under resale agreements and securities borrowed, was €7 million and €0 million as of December 31, 2019, and 2018, respectively. Exposure to credit risk also exists for undrawn irrevocable loan commitments and is predominantly counterparty credit risk.

The credit risk on the securities purchased under resale agreements and securities borrowed designated under the fair value option is mitigated by the holding of collateral. The valuation of these instruments takes into account the credit enhancement in the form of the collateral received. As such there is no material movement during the year or cumulatively due to movements in counterparty credit risk on these instruments.

Changes in fair value of financial assets attributable to movements in counterparty credit risk

in € m.	Dec 31, 2019	Dec 31, 2018
Notional value of financial assets exposed to credit risk	0	0
Annual change in the fair value reflected in the Statement of Income	0	0
Cumulative change in the fair value	0	0
Notional of credit derivatives used to mitigate credit risk	0	0
Annual change in the fair value reflected in the Statement of Income	0	0
Cumulative change in the fair value	0	0

Changes in fair value of financial liabilities attributable to movements in the Group's credit risk¹

in € m.	Dec 31, 2019	Dec 31, 2018 ²
Presented in Other comprehensive Income		
Cumulative change in the fair value	(34)	(49)
Presented in Statement of income		
Annual change in the fair value reflected in the Statement of Income	0	0
Cumulative change in the fair value	0	0

¹ The fair value of a financial liability incorporates the credit risk of that financial liability. Changes in the fair value of financial liabilities issued by consolidated structured entities have been excluded as this is not related to the Group's credit risk but to that of the legally isolated structured entity, which is dependent on the collateral it holds.

Transfers of the cumulative gains or losses within equity during the period

in € m.	Dec 31, 2019	Dec 31, 2018
Cumulative gains or losses within equity during the period	0	0

Amounts realized on derecognition of liabilities designated at fair value through profit or loss

in € m.	Dec 31, 2019	Dec 31, 2018
Amount presented in other comprehensive income realized at derecognition	0	(3)

The excess of the contractual amount repayable at maturity over the carrying value of financial liabilities¹

in € m.	Dec 31, 2019	Dec 31, 2018
Including undrawn loan commitments ²	873	2,545
Excluding undrawn loan commitments	357	2,536

¹ Assuming the liability is extinguished at the earliest contractual maturity that the Group can be required to repay. When the amount payable is not fixed, it is determined by reference to conditions existing at the reporting date.

² The contractual cash flows at maturity for undrawn loan commitments assume full drawdown of the facility.

13 – Financial Instruments carried at Fair Value

Valuation Methods and Control

The Group has an established valuation control framework which governs internal control standards, methodologies, and procedures over the valuation process.

Prices Quoted in Active Markets – The fair value of instruments that are quoted in active markets are determined using the quoted prices where they represent prices at which regularly and recently occurring transactions take place.

Valuation Techniques – The Group uses valuation techniques to establish the fair value of instruments where prices, quoted in active markets, are not available. Valuation techniques used for financial instruments include modelling techniques, the use of indicative quotes for proxy instruments, quotes from recent and less regular transactions and broker quotes.

For some financial instruments a rate or other parameter, rather than a price, is quoted. Where this is the case then the market rate or parameter is used as an input to a valuation model to determine fair value. For some instruments, modelling techniques follow industry standard models, for example, discounted cash flow analysis and standard option pricing models. These models are dependent upon estimated future cash flows, discount factors and volatility levels. For more complex or unique instruments, more sophisticated modelling techniques are required, and may rely upon assumptions or more complex parameters such as correlations, prepayment speeds, default rates and loss severity.

Frequently, valuation models require multiple parameter inputs. Where possible, parameter inputs are based on observable data or are derived from the prices of relevant instruments traded in active markets. Where observable data is not available for parameter inputs, then other market information is considered. For example, indicative broker quotes and consensus pricing information are used to support parameter inputs where they are available. Where no observable information is available to support parameter inputs then they are based on other relevant sources of information such as prices for similar transactions, historic data, economic fundamentals, and research information, with appropriate adjustment to reflect the terms of the actual instrument being valued and current market conditions.

Valuation Adjustments – Valuation adjustments are an integral part of the valuation process. In making appropriate valuation adjustments, the Group follows methodologies that consider factors such as bid-offer spreads, counterparty/own credit and funding risk. Bid-offer spread valuation adjustments are required to adjust mid-market valuations to the appropriate bid or offer valuation. The bid or offer valuation is the best representation of the fair value for an instrument, and therefore its fair value. The carrying value of a long position is adjusted from mid to bid, and the carrying value of a short position is adjusted from mid to offer. Bid-offer valuation adjustments are determined from bid-offer prices observed in relevant trading activity and in quotes from other broker-dealers or other knowledgeable counterparties. Where the quoted price for the instrument is already a bid-offer price then no additional bid-offer valuation adjustment is necessary. Where the fair value of financial instruments is derived from a modelling technique, then the parameter inputs into that model are normally at a mid-market level. Such instruments are generally managed on a portfolio basis and, when specified criteria are met, valuation adjustments are taken to reflect the cost of closing out the net exposure the Bank has to individual market or counterparty risks. These adjustments are determined from bid-offer prices observed in relevant trading activity and quotes from other broker-dealers.

Where complex valuation models are used, or where less-liquid positions are being valued, then bid-offer levels for those positions may not be available directly from the market, and therefore for the close-out cost of these positions, models and parameters must be estimated. When these adjustments are designed, the Group closely examines the valuation risks associated with the model as well as the positions themselves, and the resulting adjustments are closely monitored on an ongoing basis.

Counterparty Credit Valuation Adjustments (CVAs) are required to cover expected credit losses to the extent that the valuation technique does not already include an expected credit loss factor relating to the non-performance risk of the counterparty. The CVA amount is applied to all relevant over-the-counter (OTC) derivatives, and is determined by assessing the potential credit exposure to a given counterparty and taking into account any collateral held, the effect of any relevant netting arrangements, expected loss given default and the probability of default, based on available market information, including Credit Default Swap (CDS) spreads. Where counterparty CDS spreads are not available, relevant proxies are used.

The fair value of the Group's financial liabilities at fair value through profit or loss (i.e., OTC derivative liabilities and issued note liabilities designated at fair value through profit or loss) incorporates valuation adjustments to measure the change in the Group's own credit risk (i.e. Debt Valuation Adjustments (DVA) for Derivatives and Own Credit Adjustment (OCA) for structured notes). For derivative liabilities the Group considers its own creditworthiness by assessing all counterparties' expected future exposure to the Group, taking into account any collateral posted by the Group, the effect of relevant netting arrangements, the probability of default of the Group, based on the Group's market CDS level and the expected loss given default, taking into account the seniority of derivative claims under resolution (statutory subordination). Issued note liabilities are discounted utilizing the spread at which similar instruments would be issued or bought back at the measurement date as this reflects the value from the perspective of a market participant who holds the identical item as an asset. This spread is further parameterized into a market level of funding component and an idiosyncratic own credit component. Under IFRS 9 the change in the own credit component is reported under Other Comprehensive Income (OCI).

When determining CVA and DVA, additional adjustments are made where appropriate to achieve fair value, due to the expected loss estimate of a particular arrangement, or where the credit risk being assessed differs in nature to that described by the available CDS instrument.

Funding Valuation Adjustments (FVA) are required to incorporate the market implied funding costs into the fair value of derivative positions. The FVA reflects a discounting spread applied to uncollateralized and partially collateralized derivatives and is determined by assessing the market-implied funding costs on both assets and liabilities.

Where there is uncertainty in the assumptions used within a modelling technique, an additional adjustment is taken to calibrate the model price to the expected market price of the financial instrument. Typically, such transactions have bid-offer levels which are less observable, and these adjustments aim to estimate the bid-offer by computing the liquidity-premium associated with the transaction. Where a financial instrument is of sufficient complexity that the cost of closing it out would be higher than the cost of closing out its component risks, then an additional adjustment is taken to reflect this.

Valuation Control – The Group has an independent specialized valuation control group within the Risk function which governs and develops the valuation control framework and manages the valuation control processes. The mandate of this specialist function includes the performance of the independent valuation control process for all businesses, the continued development of valuation control methodologies and techniques, as well as devising and governing the formal valuation control policy framework. Special attention of this independent valuation control group is directed to areas where management judgment forms part of the valuation process.

Results of the valuation control process are collected and analyzed as part of a standard monthly reporting cycle. Variances of differences outside of preset and approved tolerance levels are escalated both within the Finance function and with Senior Business Management for review, resolution and, if required, adjustment.

For instruments where fair value is determined from valuation models, the assumptions and techniques used within the models are independently validated by an independent specialist model validation group that is part of the Group's Risk Management function.

Quotes for transactions and parameter inputs are obtained from a number of third party sources including exchanges, pricing service providers, firm broker quotes and consensus pricing services. Price sources are examined and assessed to determine the quality of fair value information they represent, with greater emphasis given to those possessing greater valuation certainty and relevance. The results are compared against actual transactions in the market to ensure the model valuations are calibrated to market prices.

Price and parameter inputs to models, assumptions and valuation adjustments are verified against independent sources. Where they cannot be verified to independent sources due to lack of observable information, the estimate of fair value is subject to procedures to assess its reasonableness. Such procedures include performing revaluation using independently generated models (including where existing models are independently recalibrated), assessing the valuations against appropriate proxy instruments and other benchmarks, and performing extrapolation techniques. Assessment is made as to whether the valuation techniques produce fair value estimates that are reflective of market levels by calibrating the results of the valuation models against market transactions where possible.

Fair Value Hierarchy

The financial instruments carried at fair value have been categorized under the three levels of the IFRS fair value hierarchy as follows:

Level 1 – Instruments valued using quoted prices in active markets are instruments where the fair value can be determined directly from prices which are quoted in active, liquid markets and where the instrument observed in the market is representative of that being priced in the Group's inventory.

These include: government bonds, exchange-traded derivatives and equity securities traded on active, liquid exchanges.

Level 2 – Instruments valued with valuation techniques using observable market data are instruments where the fair value can be determined by reference to similar instruments trading in active markets, or where a technique is used to derive the valuation but where all inputs to that technique are observable.

These include: many OTC derivatives; many investment-grade listed credit bonds; some CDS; many collateralized debt obligations (CDO); and many less-liquid equities.

Level 3 – Instruments valued using valuation techniques using market data which is not directly observable are instruments where the fair value cannot be determined directly by reference to market-observable information, and some other pricing technique must be employed. Instruments classified in this category have an element which is unobservable and which has a significant impact on the fair value.

These include: more-complex OTC derivatives; distressed debt; highly-structured bonds; illiquid asset-backed securities (ABS); illiquid CDO's (cash and synthetic); monoline exposures; some private equity placements; many commercial real estate (CRE) loans; illiquid loans; and some municipal bonds.

Carrying value of the financial instruments held at fair value¹

in € m.	Dec 31, 2019			Dec 31, 2018		
	Quoted prices in active market (Level 1)	Valuation technique observable parameters (Level 2)	Valuation technique unobservable parameters (Level 3)	Quoted prices in active market (Level 1)	Valuation technique observable parameters (Level 2)	Valuation technique unobservable parameters (Level 3)
Financial assets held at fair value:						
Trading assets	44,595	56,713	9,567	75,415	67,560	9,763
Trading securities	44,427	50,128	3,430	75,210	61,424	4,086
Other trading assets	168	6,584	6,137	205	6,136	5,676
Positive market values from derivative financial instruments	2,682	322,082	8,167	10,140	301,609	8,309
Non-trading financial assets mandatory at fair value through profit or loss	3,806	77,818	5,278	8,288	86,090	6,066
Financial assets designated at fair value through profit or loss	0	0	7	104	0	0
Financial assets at fair value through other comprehensive income	30,924	13,529	1,050	32,517	18,397	268
Other financial assets at fair value	2	7,366 ²	363	42	2,779 ²	207
Total financial assets held at fair value	82,009	477,507	24,431	126,505	476,435	24,614
Financial liabilities held at fair value:						
Trading liabilities	23,873	13,152	41	42,548	17,361	15
Trading securities	23,862	12,828	2	42,547	17,082	0
Other trading liabilities	11	324	38	1	279	15
Negative market values from derivative financial instruments	2,841	307,013	6,652	9,638	285,561	6,289
Financial liabilities designated at fair value through profit or loss	0	48,378	1,954	119	51,617	2,021
Investment contract liabilities	0	544	0	0	512	0
Other financial liabilities at fair value	527	4,609 ²	(34) ³	201	2,658 ²	(611) ³
Total financial liabilities held at fair value	27,241	373,697	8,612	52,505	357,709	7,714

¹ Amounts in this table are generally presented on a gross basis, in line with the Group's accounting policy regarding offsetting of financial instruments, as described in Note 1 "Significant Accounting Policies and Critical Accounting Estimates".

² Predominantly relates to derivatives qualifying for hedge accounting.

³ Relates to derivatives which are embedded in contracts where the host contract is held at amortized cost but for which the embedded derivative is separated. The separated embedded derivatives may have a positive or a negative fair value but have been presented in this table to be consistent with the classification of the host contract. The separated embedded derivatives are held at fair value on a recurring basis and have been split between the fair value hierarchy classifications.

In 2019, there were no material transfers between Level 1 and Level 2 based on changes in liquidity testing procedures.

During the second quarter of 2019, the Group implemented revisions to the fair value hierarchy classification framework applicable to financial instruments carried at fair value under IFRS 13. Under the revised framework, valuation inputs are considered observable where they are directly supported by current market transactions or quoted levels. The significance of unobservable market data inputs to the valuation of a trade is determined via sensitivity testing. Previously, the approach to assess observability included the use of consensus pricing data which was back-tested against market transactions, and the scope of sensitivity testing was less granular than that applied under the revised approach. The impact of these changes was the net movement of approximately € 1.2 billion of financial assets held at fair value into Level 2 from Level 3, and the net movement of approximately € 0.7 billion of financial liabilities held at fair value into Level 3 from Level 2.

Valuation Techniques

The following is an explanation of the valuation techniques used in establishing the fair value of the different types of financial instruments that the Group trades.

Sovereign, Quasi-sovereign and Corporate Debt and Equity Securities – Where there are no recent transactions then fair value may be determined from the last market price adjusted for all changes in risks and information since that date. Where a close proxy instrument is quoted in an active market then fair value is determined by adjusting the proxy value for differences in the risk profile of the instruments. Where close proxies are not available then fair value is estimated using more complex modelling techniques. These techniques include discounted cash flow models using current market rates for credit, interest, liquidity and other risks. For equity securities modeling techniques may also include those based on earnings multiples.

Mortgage- and Other Asset-Backed Securities (MBS/ABS) include residential and commercial MBS and other ABS including CDOs. ABS have specific characteristics as they have different underlying assets and the issuing entities have different capital structures. The complexity increases further where the underlying assets are themselves ABS, as is the case with many of the CDO instruments.

Where no reliable external pricing is available, ABS are valued, where applicable, using either relative value analysis which is performed based on similar transactions observable in the market, or industry-standard valuation models making largest possible use of available observable inputs. The industry standard models calculate principal and interest payments for a given deal based on assumptions that can be independently price tested. The inputs include prepayment speeds, loss assumptions (timing and severity) and a discount rate (spread, yield or discount margin). These inputs/assumptions are derived from actual transactions, external market research and market indices where appropriate.

Loans – For certain loans fair value may be determined from the market price on a recently occurring transaction adjusted for all changes in risks and information since that transaction date. Where there are no recent market transactions then broker quotes, consensus pricing, proxy instruments or discounted cash flow models are used to determine fair value. Discounted cash flow models incorporate parameter inputs for credit risk, interest rate risk, foreign exchange risk, loss given default estimates and amounts utilized given default, as appropriate. Credit risk, loss given default and utilization given default parameters are determined using information from the loan or other credit markets, where available and appropriate.

Leveraged loans can have transaction-specific characteristics which can limit the relevance of market-observed transactions. Where similar transactions exist for which observable quotes are available from external pricing services then this information is used with appropriate adjustments to reflect the transaction differences. When no similar transactions exist, a discounted cash flow valuation technique is used with credit spreads derived from the appropriate leveraged loan index, incorporating the industry classification, subordination of the loan, and any other relevant information on the loan and loan counterparty.

Over-The-Counter Derivative Financial Instruments – Market standard transactions in liquid trading markets, such as interest rate swaps, foreign exchange forward and option contracts in G7 currencies, and equity swap and option contracts on listed securities or indices are valued using market standard models and quoted parameter inputs. Parameter inputs are obtained from pricing services, consensus pricing services and recently occurring transactions in active markets wherever possible.

More complex instruments are modeled using more sophisticated modeling techniques specific for the instrument and are calibrated to available market prices. Where the model output value does not calibrate to a relevant market reference then valuation adjustments are made to the model output value to adjust for any difference. In less active markets, data is obtained from less frequent market transactions, broker quotes and through extrapolation and interpolation techniques. Where observable prices or inputs are not available, management judgment is required to determine fair values by assessing other relevant sources of information such as historical data, fundamental analysis of the economics of the transaction and proxy information from similar transactions.

Financial Liabilities Designated at Fair Value through Profit or Loss under the Fair Value Option – The fair value of financial liabilities designated at fair value through profit or loss under the fair value option incorporates all market risk factors including a measure of the Group's credit risk relevant for that financial liability. The financial liabilities include structured note issuances, structured deposits, and other structured securities issued by consolidated vehicles, which may not be quoted in an active market. The fair value of these financial liabilities is determined by discounting the contractual cash flows using the relevant credit-adjusted yield curve. The market risk parameters are valued consistently to similar instruments held as assets, for example, any derivatives embedded within the structured notes are valued using the same methodology discussed in the "Over-The-Counter Derivative Financial Instruments" section above.

Where the financial liabilities designated at fair value through profit or loss under the fair value option are collateralized, such as securities loaned and securities sold under repurchase agreements, the credit enhancement is factored into the fair valuation of the liability.

Investment Contract Liabilities – Assets which are linked to the investment contract liabilities are owned by the Group. The investment contract obliges the Group to use these assets to settle these liabilities. Therefore, the fair value of investment contract liabilities is determined by the fair value of the underlying assets (i.e., amount payable on surrender of the policies).

Analysis of Financial Instruments with Fair Value Derived from Valuation Techniques Containing Significant Unobservable Parameters (Level 3)

Some of the financial assets and financial liabilities in Level 3 of the fair value hierarchy have identical or similar offsetting exposures to the unobservable input. However, according to IFRS they are required to be presented gross.

Trading Securities – Certain illiquid emerging market corporate bonds and illiquid highly structured corporate bonds are included in this level of the hierarchy. In addition, some of the holdings of notes issued by securitization entities, commercial and residential MBS, collateralized debt obligation securities and other ABS are reported here. The decrease in the year is mainly due to a combination of sales, settlements and transfers between Level 2 and Level 3 due to changes in the observability of input parameters used to value these instruments offset by purchases and gains.

Positive and Negative Market Values from Derivative Instruments categorized in this level of the fair value hierarchy are valued based on one or more significant unobservable parameters. The unobservable parameters may include certain correlations, certain longer-term volatilities, certain prepayment rates, credit spreads and other transaction-specific parameters.

Level 3 derivatives includes certain options where the volatility is unobservable; certain basket options in which the correlations between the referenced underlying assets are unobservable; longer-term interest rate option derivatives; multi-currency foreign exchange derivatives; and certain credit default swaps for which the credit spread is not observable.

The decrease in assets was due to settlements and transfers between Level 2 and Level 3 due to changes in the observability of input parameters used to value these instruments offset by gains. The increase in liabilities was due to losses and transfers between Level 2 and Level 3 offset by settlements.

Other Trading Instruments classified in Level 3 of the fair value hierarchy mainly consist of traded loans valued using valuation models based on one or more significant unobservable parameters. Level 3 loans comprise illiquid leveraged loans and illiquid residential and commercial mortgage loans. The balance increased in the year due to purchases, issuances, gains and transfers between Level 2 and Level 3 due to changes in the observability of input parameters used to value these instruments offset by sales, settlements and due to deconsolidation.

Non-trading financial assets mandatory at fair value through profit or loss classified in Level 3 of fair value hierarchy consist of any non-trading financial asset that does not fall into the Hold to Collect nor Hold to Collect and Sell business models. This includes predominately reverse repurchase agreements which are managed on a fair value basis. Additionally, any financial asset that falls into the Hold to Collect or Hold to Collect and Sell business models for which the contractual cash flow characteristics are not SPPI. The decrease in the period is driven by sales, settlements, deconsolidation and transfers between Level 2 and Level 3 due to changes in the observability of input parameters used to value these instruments offset by purchases, issuances and gains.

Financial Assets/Liabilities designated at Fair Value through Profit or Loss – Certain corporate loans and structured liabilities which were designated at fair value through profit or loss under the fair value option were categorized in this level of the fair value hierarchy. The corporate loans are valued using valuation techniques which incorporate observable credit spreads, recovery rates and unobservable utilization parameters. Revolving loan facilities are reported in the third level of the hierarchy because the utilization in the event of the default parameter is significant and unobservable.

In addition, certain hybrid debt issuances designated at fair value through profit or loss containing embedded derivatives are valued based on significant unobservable parameters. These unobservable parameters include single stock volatility correlations. The assets marginally increased during the year due to issuances, gains and transfers between Level 2 and Level 3 offset by settlements. The liabilities decreased in the year due to settlements and transfers between Level 2 and Level 3 offset by issuances and gains.

Financial assets at fair value through other comprehensive income include non-performing loan portfolios where there is no trading intent and the market is very illiquid. The increase in assets due to purchases, gains and transfers between Level 2 and Level 3 offset by sales and settlements.

Reconciliation of financial instruments classified in Level 3

Reconciliation of financial instruments classified in Level 3

Dec 31, 2019

in € m.	Balance, beginning of year	Changes in the group of consolidated companies	Total gains/losses ¹	Purchases	Sales	Issuances ²	Settlements ³	Transfers into Level 3 ⁴	Transfers out of Level 3 ⁴	Balance, end of year
Financial assets held at fair value:										
Trading securities	4,086	(0)	76	2,122	(2,242)	0	(408)	537	(742)	3,430
Positive market values from derivative financial instruments	8,309	0	1,547	0	0	0	(1,420)	1,571	(1,840)	8,167
Other trading assets	5,676	(75)	176	1,031	(2,493)	2,615	(1,186)	729	(337)	6,137
Non-trading financial assets mandatory at fair value through profit or loss	6,066	(12)	401	1,448	(473)	592	(1,822)	727	(1,649)	5,278
Financial assets designated at fair value through profit or loss	0	0	2	0	0	8	(16)	12	0	7
Financial assets at fair value through other comprehensive income	268	0	2 ⁵	536	(35)	0	(19)	300	(2)	1,050
Other financial assets at fair value	207	0	0	0	0	0	(6)	176	(14)	363
Total financial assets held at fair value	24,614	(86)	2,204^{6,7}	5,136	(5,243)	3,215	(4,877)	4,052	(4,584)	24,431
Financial liabilities held at fair value:										
Trading securities	0	0	2	0	0	0	0	0	0	2
Negative market values from derivative financial instruments	6,289	0	1,337	0	0	0	(1,175)	1,904	(1,702)	6,652
Other trading liabilities	15	0	(8)	0	0	0	(4)	34	0	38
Financial liabilities designated at fair value through profit or loss	2,021	(77)	290	0	0	385	(489)	681	(856)	1,954
Other financial liabilities at fair value	(611)	0	304	0	0	0	100	56	117	(34)
Total financial liabilities held at fair value	7,714	(77)	1,925^{6,7}	0	0	385	(1,568)	2,674	(2,441)	8,612

¹ Total gains and losses predominantly relate to net gains (losses) on financial assets/liabilities at fair value through profit or loss reported in the consolidated statement of income. The balance also includes net gains (losses) on financial assets available for sale reported in the consolidated statement of income and unrealized net gains (losses) on financial assets available for sale and exchange rate changes reported in other comprehensive income, net of tax. Further, certain instruments are hedged with instruments in Level 1 or Level 2 but the table above does not include the gains and losses on these hedging instruments. Additionally, both observable and unobservable parameters may be used to determine the fair value of an instrument classified within Level 3 of the fair value hierarchy; the gains and losses presented below are attributable to movements in both the observable and unobservable parameters.

² Issuances relate to the cash amount received on the issuance of a liability and the cash amount paid on the primary issuance of a loan to a borrower.

³ Settlements represent cash flows to settle the asset or liability. For debt and loan instruments this includes principal on maturity, principal amortizations and principal repayments. For derivatives all cash flows are presented in settlements.

⁴ Transfers in and transfers out of Level 3 are related to changes in observability of input parameters. During the year they are recorded at their fair value at the beginning of year. For instruments transferred into Level 3 the table shows the gains and losses and cash flows on the instruments as if they had been transferred at the beginning of the year. Similarly for instruments transferred out of Level 3 the table does not show any gains or losses or cash flows on the instruments during the year since the table is presented as if they have been transferred out at the beginning of the year.

⁵ Total gains and losses on financial assets at fair value through other comprehensive income include a loss of €3 million recognized in other comprehensive income, net of tax.

⁶ This amount includes the effect of exchange rate changes. For total financial assets held at fair value this effect is a gain of €157 million and for total financial liabilities held at fair value this is a loss of €25 million. The effect of exchange rate changes is reported in other comprehensive income, net of tax.

⁷ For assets positive balances represent gains, negative balances represent losses. For liabilities positive balances represent losses, negative balances represent gains.

Dec 31, 2018

in € m.	Balance, beginning of year	Changes in the group of consolidated companies	Total gains/losses ¹	Purchases	Sales	Issuances ²	Settlements ³	Transfers into Level 3 ⁴	Transfers out of Level 3 ⁴	Balance, end of year
Financial assets held at fair value:										
Trading securities	4,148	6	105	2,146	(1,908)	0	(481)	897	(826)	4,086
Positive market values from derivative financial instruments	7,340	0	718	0	0	0	(137)	1,940	(1,551)	8,309
Other trading assets	4,426	0	233	981	(2,027)	3,055	(1,241)	506	(257)	5,676
Non-trading financial assets mandatory at fair value through profit or loss	4,573	3	426	3,627	(567)	1,013	(3,128)	411	(292)	6,066
Financial assets designated at fair value through profit or loss	91	0	4	0	0	0	(22)	0	(72)	0
Financial assets at fair value through other comprehensive income	231	3	(4) ⁵	260	(162)	0	(6)	2	(55)	268
Other financial assets at fair value	47	0	0	0	0	0	0	207	(47)	207
Total financial assets held at fair value	20,855	12	1,481^{6,7}	7,014	(4,664)	4,068	(5,015)	3,963	(3,100)	24,614
Financial liabilities held at fair value:										
Trading securities	2	(0)	(1)	0	0	0	(0)	0	(1)	0
Negative market values from derivative financial instruments	5,992	0	531	0	0	0	(522)	1,319	(1,031)	6,289
Other trading liabilities	0	0	(1)	0	0	0	16	0	0	15
Financial liabilities designated at fair value through profit or loss	1,444	0	(121)	0	0	692	(270)	408	(134)	2,021
Other financial liabilities at fair value	(298)	0	(299)	0	0	0	38	(29)	(23)	(611)
Total financial liabilities held at fair value	7,139	0	110^{6,7}	0	0	692	(738)	1,699	(1,189)	7,714

¹ Total gains and losses predominantly relate to net gains (losses) on financial assets/liabilities at fair value through profit or loss reported in the consolidated statement of income. The balance also includes net gains (losses) on financial assets available for sale reported in the consolidated statement of income and unrealized net gains (losses) on financial assets available for sale and exchange rate changes reported in other comprehensive income, net of tax. Further, certain instruments are hedged with instruments in Level 1 or Level 2 but the table above does not include the gains and losses on these hedging instruments. Additionally, both observable and unobservable parameters may be used to determine the fair value of an instrument classified within Level 3 of the fair value hierarchy; the gains and losses presented below are attributable to movements in both the observable and unobservable parameters.

² Issuances relate to the cash amount received on the issuance of a liability and the cash amount paid on the primary issuance of a loan to a borrower.

³ Settlements represent cash flows to settle the asset or liability. For debt and loan instruments this includes principal on maturity, principal amortizations and principal repayments. For derivatives all cash flows are presented in settlements.

⁴ Transfers in and transfers out of Level 3 are related to changes in observability of input parameters. During the year they are recorded at their fair value at the beginning of year. For instruments transferred into Level 3 the table shows the gains and losses and cash flows on the instruments as if they had been transferred at the beginning of the year. Similarly for instruments transferred out of Level 3 the table does not show any gains or losses or cash flows on the instruments during the year since the table is presented as if they have been transferred out at the beginning of the year.

⁵ Total gains and losses on financial assets at fair value through other comprehensive income include a loss of €8 million recognized in other comprehensive income, net of tax, and a loss of €4 million recognized in the income statement presented in net gains (losses).

⁶ This amount includes the effect of exchange rate changes. For total financial assets held at fair value this effect is a gain of €136 million and for total financial liabilities held at fair value this is a loss of €33 million. The effect of exchange rate changes is reported in other comprehensive income, net of tax.

⁷ For assets positive balances represent gains, negative balances represent losses. For liabilities positive balances represent losses, negative balances represent gains.

Sensitivity Analysis of Unobservable Parameters

Where the value of financial instruments is dependent on unobservable parameter inputs, the precise level for these parameters at the balance sheet date might be drawn from a range of reasonably possible alternatives. In preparing the financial statements, appropriate levels for these unobservable input parameters are chosen so that they are consistent with prevailing market evidence and in line with the Group's approach to valuation control detailed above. Were the Group to have marked the financial instruments concerned using parameter values drawn from the extremes of the ranges of reasonably possible alternatives then as of December 31, 2019 it could have increased fair value by as much as €1.7 billion or decreased fair value by as much as €1.2 billion. As of December 31, 2018 it could have increased fair value by as much as €1.6 billion or decreased fair value by as much as €1.0 billion.

The changes in sensitive amounts from December 31, 2018 to December 31, 2019 were an increase in positive fair value movement of €26 million, and an increase in negative fair value movement of €105 million.

The increases in positive and negative fair value movements were aligned with the increase in Gross Level 3 Assets & Liabilities in the period. Gross Level 3 Assets & Liabilities increased from €32.3 billion at December 31, 2018 to €33.0 billion at December 31, 2019, a percentage increase of 2 %, and the change in positive fair value movements from December 31, 2018 to December 31, 2019 represented a comparable 2 % increase. The change in negative fair value movements in the same period was proportionally larger with this due to a range of smaller idiosyncratic factors.

Our sensitivity calculation of unobservable parameters for Level 3 aligns to the approach used to assess valuation uncertainty for Prudent Valuation purposes. Prudent Valuation is a capital requirement for assets held at fair value. It provides a mechanism for quantifying and capitalizing valuation uncertainty in accordance with the European Commission Delegated Regulation (EU) 2016/101, which supplements Article 34 of Regulation (EU) No. 2019/876 (CRR), requiring institutions to apply as a deduction from CET 1 for the amount of any additional valuation adjustments on all assets measured at fair value calculated in accordance with Article 105 (14). This utilizes exit price analysis performed for the relevant assets and liabilities in the Prudent Valuation assessment. The downside sensitivity may be limited in some cases where the fair value is already demonstrably prudent.

This disclosure is intended to illustrate the potential impact of the relative uncertainty in the fair value of financial instruments for which valuation is dependent on unobservable input parameters. However, it is unlikely in practice that all unobservable parameters would be simultaneously at the extremes of their ranges of reasonably possible alternatives. Hence, the estimates disclosed above are likely to be greater than the true uncertainty in fair value at the balance sheet date. Furthermore, the disclosure is neither predictive nor indicative of future movements in fair value.

For many of the financial instruments considered here, in particular derivatives, unobservable input parameters represent only a subset of the parameters required to price the financial instrument, the remainder being observable. Hence for these instruments the overall impact of moving the unobservable input parameters to the extremes of their ranges might be relatively small compared with the total fair value of the financial instrument. For other instruments, fair value is determined based on the price of the entire instrument, for example, by adjusting the fair value of a reasonable proxy instrument. In addition, all financial instruments are already carried at fair values which are inclusive of valuation adjustments for the cost to close out that instrument and hence already factor in uncertainty as it reflects itself in market pricing. Any negative impact of uncertainty calculated within this disclosure, then, will be over and above that already included in the fair value contained in the financial statements.

Breakdown of the sensitivity analysis by type of instrument¹

in € m.	Dec 31, 2019		Dec 31, 2018	
	Positive fair value movement from using reasonable possible alternatives	Negative fair value movement from using reasonable possible alternatives	Positive fair value movement from using reasonable possible alternatives	Negative fair value movement from using reasonable possible alternatives
Securities:				
Debt securities	256	108	179	118
Commercial mortgage-backed securities	4	1	5	4
Mortgage and other asset-backed securities	37	20	38	37
Corporate, sovereign and other debt securities	215	86	136	77
Equity securities	62	85	84	67
Derivatives:				
Credit	189	123	151	116
Equity	168	128	257	207
Interest related	312	303	346	206
Foreign Exchange	44	39	49	26
Other	116	101	106	89
Loans:				
Loans	525	264	475	219
Other	0	0	0	0
Total	1,673	1,151	1,647	1,046

¹ Where the exposure to an unobservable parameter is offset across different instruments then only the net impact is disclosed in the table.

Quantitative Information about the Sensitivity of Significant Unobservable Inputs

The behaviour of the unobservable parameters on Level 3 fair value measurement is not necessarily independent, and dynamic relationships often exist between the other unobservable parameters and the observable parameters. Such relationships, where material to the fair value of a given instrument, are explicitly captured via correlation parameters, or are otherwise controlled via pricing models or valuation techniques. Frequently, where a valuation technique utilizes more than one input, the choice of a certain input will bound the range of possible values for other inputs. In addition, broader market factors (such as interest rates, equity, credit or commodity indices or foreign exchange rates) can also have effects.

The range of values shown below represents the highest and lowest inputs used to value the significant exposures within Level 3. The diversity of financial instruments that make up the disclosure is significant and therefore the ranges of certain parameters can be large. For example, the range of credit spreads on mortgage backed securities represents performing, more liquid positions with lower spreads than the less liquid, non-performing positions which will have higher credit spreads. As Level 3 contains the less liquid fair value instruments, the wide ranges of parameters seen is to be expected, as there is a high degree of pricing differentiation within each exposure type to capture the relevant market dynamics. There follows a brief description of each of the principal parameter types, along with a commentary on significant interrelationships between them.

Credit Parameters are used to assess the creditworthiness of an exposure, by enabling the probability of default and resulting losses of a default to be represented. The credit spread is the primary reflection of creditworthiness, and represents the premium or yield return above the benchmark reference instrument (typically LIBOR, or relevant Treasury Instrument, depending upon the asset being assessed), that a bond holder would require to allow for the credit quality difference between that entity and the reference benchmark. Higher credit spreads will indicate lower credit quality, and lead to a lower value for a given bond or other loan-asset that is to be repaid to the holder or lender by the borrower. Recovery Rates represent an estimate of the amount a lender would receive in the case of a default of a loan, or a bond holder would receive in the case of default of the bond. Higher recovery rates will give a higher valuation for a given bond position, if other parameters are held constant. Constant Default Rate (CDR) and Constant Prepayment Rate (CPR) allow more complex loan and debt assets to be assessed, as these parameters estimate the ongoing defaults arising on scheduled repayments and coupons, or whether the borrower is making additional (usually voluntary) prepayments. These parameters are particularly relevant when forming a fair value opinion for mortgage or other types of lending, where repayments are delivered by the borrower through time, or where the borrower may pre-pay the loan (seen for example in some residential mortgages). Higher CDR will lead to lower valuation of a given loan or mortgage as the lender will ultimately receive less cash.

Interest rates, credit spreads, inflation rates, foreign exchange rates and equity prices are referenced in some option instruments, or other complex derivatives, where the payoff a holder of the derivative will receive is dependent upon the behaviour of these underlying references through time. Volatility parameters describe key attributes of option behaviour by enabling the variability of returns of the underlying instrument to be assessed. This volatility is a measure of probability, with higher volatilities denoting higher probabilities of a particular outcome occurring. The underlying references (interest rates, credit spreads etc.) have an effect on the valuation of options, by describing the size of the return that can be expected from the option. Therefore the value of a given option is dependent upon the value of the underlying instrument, and the volatility of that instrument, representing the size of the payoff, and the probability of that payoff occurring. Where volatilities are high, the option holder will see a higher option value as there is greater probability of positive returns. A higher option value will also occur where the payoff described by the option is significant.

Correlations are used to describe influential relationships between underlying references where a derivative or other instrument has more than one underlying reference. Behind some of these relationships, for example commodity correlation and interest rate-foreign exchange correlations, typically lie macroeconomic factors such as the impact of global demand on groups of commodities, or the pricing parity effect of interest rates on foreign exchange rates. More specific relationships can exist between credit references or equity stocks in the case of credit derivatives and equity basket derivatives, for example. Credit correlations are used to estimate the relationship between the credit performance of a range of credit names, and stock correlations are used to estimate the relationship between the returns of a range of equities. A derivative with a correlation exposure will be either long- or short-correlation. A high correlation suggests a strong relationship between the underlying references is in force, and this will lead to an increase in value of a long-correlation derivative. Negative correlations suggest that the relationship between underlying references is opposing, i.e., an increase in price of one underlying reference will lead to a reduction in the price of the other.

An EBITDA ('earnings before interest, tax, depreciation and amortization') multiple approach can be used in the valuation of less liquid securities. Under this approach the enterprise value ('EV') of an entity can be estimated via identifying the ratio of the EV to EBITDA of a comparable observable entity and applying this ratio to the EBITDA of the entity for which a valuation is being estimated. Under this approach a liquidity adjustment is often applied due to the difference in liquidity between the generally listed comparable used and the company under valuation. A higher EV/EBITDA multiple will result in a higher fair value.

Financial instruments classified in Level 3 and quantitative information about unobservable inputs

Dec 31, 2019

in € m. (unless stated otherwise)	Fair value		Valuation technique(s) ¹	Significant unobservable input(s) (Level 3)	Range	
	Assets	Liabilities				
Financial instruments held at fair value –						
Non-Derivative financial instruments held at fair value:						
Mortgage and other asset backed securities held for trading:						
Commercial mortgage-backed securities	33	0	Price based Discounted cash flow	Price Credit spread (bps)	0 % 102	3623 % 1,899
Mortgage- and other asset-backed securities	225	0	Price based Discounted cash flow	Price Credit spread (bps) Recovery rate Constant default rate Constant prepayment rate	0 % 54 25 % 1 % 3 %	101 % 2,460 75 % 4 % 24 %
Total mortgage- and other asset-backed securities	258	0				
Debt securities and other debt obligations	4,698	1,679	Price based	Price	0 %	203 %
Held for trading	3,090	2	Discounted cash flow	Credit spread (bps)	15	460
Corporate, sovereign and other debt securities	3,090					
Non-trading financial assets mandatory at fair value through profit or loss	1,552					
Designated at fair value through profit or loss	0	1,676				
Financial assets at fair value through other comprehensive income	56					
Equity securities	996	0	Market approach	Price per net asset value	0 %	101 %
Held for trading	82	0		Enterprise value/EBITDA (multiple)	5	17
Non-trading financial assets mandatory at fair value through profit or loss	914		Discounted cash flow	Weighted average cost capital	0 %	20 %
Loans	8,302	38	Price based	Price	0 %	341 %
Held for trading	6,110	38	Discounted cash flow	Credit spread (bps)	11	1,209
Non-trading financial assets mandatory at fair value through profit or loss	1,193			Constant default rate	0	0
Designated at fair value through profit or loss	6	0		Recovery rate	35 %	90 %
Financial assets at fair value through other comprehensive income	993					
Loan commitments	0	1	Discounted cash flow	Credit spread (bps) Recovery rate Utilization	8 25 % 0 %	979 95 % 84 %
Other financial instruments	1,654 ²	278 ³	Discounted cash flow	IRR Repo rate (bps)	7 % 5	46 % 271
Total non-derivative financial instruments held at fair value	15,908	1,996				

¹ Valuation technique(s) and subsequently the significant unobservable input(s) relate to the respective total position.

² Other financial assets include € 28 million of other trading assets and € 1.6 billion of other non-trading financial assets mandatory at fair value.

³ Other financial liabilities include € 186 million of securities sold under repurchase agreements designated at fair value and € 92 million of other financial liabilities designated at fair value.

Dec 31, 2019

in € m. (unless stated otherwise)	Fair value		Valuation technique(s)	Significant unobservable input(s) (Level 3)	Range
	Assets	Liabilities			
Financial instruments held at fair value:					
Market values from derivative financial instruments:					
Interest rate derivatives	4,941	3,387	Discounted cash flow	Swap rate (bps)	(69) 668
				Inflation swap rate	0 % 3 %
				Constant default rate	0 % 13 %
				Constant prepayment rate	2 % 59 %
			Option pricing model	Inflation volatility	0 % 5 %
				Interest rate volatility	0 % 33 %
				IR - IR correlation	(25) % 99 %
				Hybrid correlation	(70) % 100 %
Credit derivatives	618	822	Discounted cash flow	Credit spread (bps)	0 18,812
				Recovery rate	0 % 75 %
			Correlation pricing model	Credit correlation	33 % 84 %
Equity derivatives	834	1,132	Option pricing model	Stock volatility	4 % 93 %
				Index volatility	4 % 69 %
				Index - index correlation	1 1
				Stock - stock correlation	18 % 93 %
				Stock Forwards	0 % 18 %
				Index Forwards	0 % 5 %
FX derivatives	1,320	1,158	Option pricing model	Volatility	(12) % 27 %
Other derivatives	810	117 ¹	Discounted cash flow	Credit spread (bps)	– –
			Option pricing model	Index volatility	7 % 67 %
				Commodity correlation	5 % 86 %
Total market values from derivative financial instruments	8,524	6,616			

¹ Includes derivatives which are embedded in contracts where the host contract is held at amortized cost but for which the embedded derivative is separated.

Dec 31, 2018

in € m. (unless stated otherwise)	Fair value		Valuation technique(s) ¹	Significant unobservable input(s) (Level 3)	Range	
	Assets	Liabilities				
Financial instruments held at fair value –						
Non-Derivative financial instruments						
held at fair value:						
Mortgage and other asset backed securities held for trading:						
Commercial mortgage-backed securities	66	0	Price based	Price	0 %	120 %
			Discounted cash flow	Credit spread (bps)	97	1,444
Mortgage- and other asset-backed securities	745	0	Price based	Price	0 %	102 %
			Discounted cash flow	Credit spread (bps)	26	2,203
				Recovery rate	0 %	90 %
				Constant default rate	0 %	16 %
				Constant prepayment rate	0 %	42 %
Total mortgage- and other asset-backed securities	811	0				
Debt securities and other debt obligations	3,876	1,764	Price based	Price	0 %	148 %
Held for trading	3,037	0	Discounted cash flow	Credit spread (bps)	5	582
Corporate, sovereign and other debt securities	3,037					
Non-trading financial assets mandatory at fair value through profit or loss	726					
Designated at fair value through profit or loss	0	1,764				
Financial assets at fair value through other comprehensive income	114					
Equity securities	1,244	0	Market approach	Price per net asset value	70 %	100 %
Held for trading	239	0		Enterprise value/EBITDA (multiple)	6	17
Non-trading financial assets mandatory at fair value through profit or loss	1,005		Discounted cash flow	Weighted average cost capital	7 %	20 %
Loans	7,167	15	Price based	Price	0 %	341 %
Held for trading	5,651	15	Discounted cash flow	Credit spread (bps)	40	930
Non-trading financial assets mandatory at fair value through profit or loss	1,362			Constant default rate	0	0
Designated at fair value through profit or loss	0	0		Recovery rate	35 %	40 %
Financial assets at fair value through other comprehensive income	154					
Loan commitments	0	0	Discounted cash flow	Credit spread (bps)	30	2,864
				Recovery rate	25 %	75 %
			Loan pricing model	Utilization	0 %	100 %
Other financial instruments	2,999 ²	257 ³	Discounted cash flow	IRR	3 %	46 %
				Repo rate (bps)	65	387
Total non-derivative financial instruments held at fair value	16,097	2,037				

¹ Valuation technique(s) and subsequently the significant unobservable input(s) relate to the respective total position.

² Other financial assets include € 26 million of other trading assets and € 3.0 billion other financial assets mandatory at fair value.

³ Other financial liabilities include € 185 million of securities sold under repurchase agreements designated at fair value and € 72 million of other financial liabilities designated at fair value.

Dec 31, 2018

in € m. (unless stated otherwise)	Fair value		Valuation technique(s)	Significant unobservable input(s) (Level 3)	Range
	Assets	Liabilities			
Financial instruments held at fair value:					
Market values from derivative financial instruments:					
Interest rate derivatives	4,264	2,568	Discounted cash flow	Swap rate (bps)	(124) 2,316
				Inflation swap rate	1 % 6 %
				Constant default rate	0 % 35 %
				Constant prepayment rate	2 % 43 %
			Option pricing model	Inflation volatility	0 % 5 %
				Interest rate volatility	0 % 31 %
				IR - IR correlation	(30) % 90 %
				Hybrid correlation	(59) % 75 %
Credit derivatives	638	964	Discounted cash flow	Credit spread (bps)	0 1,541
				Recovery rate	0 % 80 %
			Correlation pricing model	Credit correlation	25 % 85 %
Equity derivatives	1,583	1,498	Option pricing model	Stock volatility	4 % 96 %
				Index volatility	11 % 79 %
				Index - index correlation	1 1
				Stock - stock correlation	2 % 89 %
				Stock Forwards	0 % 63 %
				Index Forwards	0 % 5 %
FX derivatives	1,034	1,005	Option pricing model	Volatility	(6) % 34 %
Other derivatives	997	(357) ¹	Discounted cash flow	Credit spread (bps)	– –
			Option pricing model	Index volatility	5 % 92 %
				Commodity correlation	0 % 0 %
Total market values from derivative financial instruments	8,516	5,677			

¹ Includes derivatives which are embedded in contracts where the host contract is held at amortized cost but for which the embedded derivative is separated.

Unrealized Gains or Losses on Level 3 Instruments held or in Issue at the Reporting Date

The unrealized gains or losses on Level 3 Instruments are not due solely to unobservable parameters. Many of the parameter inputs to the valuation of instruments in this level of the hierarchy are observable and the gain or loss is partly due to movements in these observable parameters over the period. Many of the positions in this level of the hierarchy are economically hedged by instruments which are categorized in other levels of the fair value hierarchy. The offsetting gains and losses that have been recorded on all such hedges are not included in the table below, which only shows the gains and losses related to the Level 3 classified instruments themselves held at the reporting date in accordance with IFRS 13. The unrealized gains and losses on Level 3 instruments are included in both net interest income and net gains on financial assets/liabilities at fair value through profit or loss in the consolidated income statement.

in € m.	Dec 31, 2019	Dec 31, 2018
Financial assets held at fair value:		
Trading securities	60	46
Positive market values from derivative financial instruments	1,906	1,152
Other trading assets	35	136
Non-trading financial assets mandatory at fair value through profit or loss	387	354
Financial assets designated at fair value through profit or loss	2	0
Financial assets at fair value through other comprehensive income	0	2
Other financial assets at fair value	6	2
Total financial assets held at fair value	2,397	1,692
Financial liabilities held at fair value:		
Trading securities	(2)	0
Negative market values from derivative financial instruments	(1,660)	(849)
Other trading liabilities	6	0
Financial liabilities designated at fair value through profit or loss	(259)	124
Other financial liabilities at fair value	(308)	294
Total financial liabilities held at fair value	(2,223)	(431)
Total	174	1,261

Recognition of Trade Date Profit

If there are significant unobservable inputs used in a valuation technique, the financial instrument is recognized at the transaction price and any trade date profit is deferred. The table below presents the year-to-year movement of the trade date profits deferred due to significant unobservable parameters for financial instruments classified at fair value through profit or loss. The balance is predominantly related to derivative instruments.

in € m.	2019	2018
Balance, beginning of year	531	596
New trades during the period	170	226
Amortization	(106)	(126)
Matured trades	(95)	(126)
Subsequent move to observability	(60)	(42)
Exchange rate changes	1	2
Balance, end of year	441	531

14 – Fair Value of Financial Instruments not carried at Fair Value

Financial instruments not carried at fair value are not managed on a fair value basis. For these instruments fair values are calculated for disclosure purposes only and do not impact the Group balance sheet or income statement. Additionally, since the instruments generally do not trade there is significant management judgment required to determine these fair values.

For the following financial instruments which are predominantly short-term the carrying value represents a reasonable estimate of the fair value:

Assets	Liabilities
Cash and central bank balances	Deposits
Interbank balances (w/o central banks)	Central bank funds purchased and securities sold under repurchase agreements
Central bank funds sold and securities purchased under resale agreements	Securities loaned
Securities borrowed	Other short-term borrowings
Other financial assets	Other financial liabilities

For retail lending portfolios with a large number of homogenous loans (e.g. residential mortgages), the fair value is calculated for each product segment by discounting the portfolio's contractual cash flows using the Group's new loan rates for lending to issuers of similar credit quality. Key inputs for retail mortgages are the difference between historic and current product margins and the estimated repayment rates. Capitalized broker fees included in the carrying value are considered to also be fair value.

The fair value of corporate lending portfolio is estimated by discounting the loan till its maturity with loan specific credit spreads and funding costs for the Group.

For long-term debt and trust preferred securities, fair value is determined from quoted market prices, where available. Where quoted market prices are not available, fair value is estimated using a valuation technique that discounts the remaining contractual cash flows at a rate at which an instrument with similar characteristics is quoted in the market.

Estimated fair value of financial instruments not carried at fair value on the balance sheet¹

in € m.	Dec 31, 2019				
	Carrying value	Fair value	Quoted prices in active market (Level 1)	Valuation technique observable parameters (Level 2)	Valuation technique unobservable parameters (Level 3)
Financial assets:					
Cash and central bank balances	137,592	137,592	137,592	0	0
Interbank balances (w/o central banks)	9,636	9,636	116	9,520	0
Central bank funds sold and securities purchased under resale agreements	13,801	13,801	0	13,801	0
Securities borrowed	428	428	0	428	0
Loans	429,841	436,997	0	11,376	425,620
Other financial assets	94,157	94,423	15,960	78,463	0
Financial liabilities:					
Deposits	572,208	572,596	120	572,476	0
Central bank funds purchased and securities sold under repurchase agreements	3,115	3,114	0	3,114	0
Securities loaned	259	259	0	259	0
Other short-term borrowings	5,218	5,221	0	5,219	2
Other financial liabilities	87,669	87,669	1,898	85,771	0
Long-term debt	136,473	136,494	0	125,344	11,150
Trust preferred securities	2,013	2,236	0	2,236	0

in € m.	Dec 31, 2018				
	Carrying value	Fair value	Quoted prices in active market (Level 1)	Valuation technique observable parameters (Level 2)	Valuation technique unobservable parameters (Level 3)
Financial assets:					
Cash and central bank balances	188,731	188,731	188,731	0	0
Interbank balances (w/o central banks)	8,881	8,881	78	8,804	0
Central bank funds sold and securities purchased under resale agreements	8,222	8,223	0	8,223	0
Securities borrowed	3,396	3,396	0	3,396	0
Loans	400,297	395,900	0	10,870	385,029
Other financial assets	80,089	80,193	850	79,343	1
Financial liabilities:					
Deposits	564,405	564,637	516	563,850	272
Central bank funds purchased and securities sold under repurchase agreements	4,867	4,867	0	4,867	0
Securities loaned	3,359	3,359	0	3,359	0
Other short-term borrowings	14,158	14,159	0	14,159	0
Other financial liabilities	100,683	100,683	1,816	98,866	1
Long-term debt	152,083	149,128	0	140,961	8,167
Trust preferred securities	3,168	3,114	0	3,114	0

¹ Amounts generally presented on a gross basis, in line with the Group's accounting policy regarding offsetting of financial instruments as described in Note 1 "Significant Accounting Policies and Critical Accounting Estimates".

For loans, the difference between fair value and carrying value is due to the effect of product margin movements since initial recognition.

For long-term debt and trust preferred securities, the difference between fair value and carrying value is due to the effect of changes in the rates at which the Group could issue debt with similar maturity and subordination at the balance sheet date compared to when the instrument was issued.

15 – Financial assets at fair value through other comprehensive income

in € m.	Dec 31, 2019	Dec 31, 2018
Securities purchased under resale agreement	1,415	1,097
Debt securities:		
German government	6,243	7,705
U.S. Treasury and U.S. government agencies	7,703	13,118
U.S. local (municipal) governments	0	101
Other foreign governments	21,020	18,152
Corporates	3,423	5,606
Other asset-backed securities	36	27
Mortgage-backed securities, including obligations of U.S. federal agencies	457	103
Other debt securities	332	181
Total debt securities	39,214	44,993
Loans	4,874	5,092
Total financial assets at fair value through other comprehensive income	45,503	51,182

16 – Equity Method Investments

Investments in associates and jointly controlled entities are accounted for using the equity method of accounting.

The Group holds interests in 65 (2018: 65) associates and 13 (2018: 13) jointly controlled entities. Two associates are considered to be material to the Group.

Significant investments as of December 31, 2019¹

Investment	Principal place of business	Nature of relationship	Ownership percentage
Huarong Rongde Asset Management Company Limited	Beijing, China	Strategic Investment	40.7 %
Harvest Fund Management Co., Ltd.	Shanghai, China	Strategic Investment	30.0 %

¹ The Group has significant influence over these investees through its holding percentage and representation on the board seats.

Summarized financial information on Huarong Rongde Asset Management Company Limited¹

in € m.	Dec 31, 2018	Dec 31, 2017
Total net revenues	118	197
Net income	74	157
Other comprehensive income	(55)	(19)
Total comprehensive income²	19	138

in € m.	Dec 31, 2018	Dec 31, 2017
Total assets	5,667	7,058
Total liabilities	4,532	5,579
Noncontrolling Interest	417	739
Net assets of the equity method investee	718	740

¹ Due to the difference in reporting timelines for the Group and Huarong Rongde Asset Management Company Limited Equity method accounting was performed for December 2019 based on December 2018 PRC GAAP audited financials and for December 2018 based on December 2017 PRC GAAP audited financials.

² The Group received dividends from Huarong Rongde Asset Management Company Limited of € 7 million during the reporting period 2019 (2018: € 17 million)

Reconciliation of total net assets of Huarong Rongde Asset Management Company Limited to the Group's carrying amount¹

in € m.	Dec 31, 2018	Dec 31, 2017
Net assets of the equity method investee	718	740
Group's ownership percentage on the investee's equity	40.7 %	40.7 %
Group's share of net assets	292	301
Goodwill	0	0
Intangible Assets	0	0
Other adjustments	(7)	(17)
Carrying amount²	286	284

¹ Due to the difference in reporting timelines for the Group and Huarong Rongde Asset Management Company Limited Equity method accounting was performed for December 2019 based on December 2018 PRC GAAP audited financials and for December 2018 based on December 2017 PRC GAAP audited financials.

² There is no impairment loss in 2018 and 2017

Summarized financial information on Harvest Fund Management Co., Ltd.

in € m.	Dec 31, 2019 ¹	Dec 31, 2018 ²
Total net revenues	590	564
Net income	144	148
Other comprehensive income	0	4
Total comprehensive income³	144	152

in € m.	Dec 31, 2019	Dec 31, 2018
Total assets	1,651	1,319
Total liabilities	863	612
Noncontrolling Interest	19	21
Net assets of the equity method investee	770	685

¹ December 2019 numbers are based on 2019 unaudited financials

² December 2018 numbers are based on 2018 audited financials

³ The Group received dividends from Harvest Fund Management Co., Ltd. of €21 million during the reporting period 2019 (2018: €12 million)

Reconciliation of total net assets of Harvest Fund Management Co., Ltd. to the Group's carrying amount

in € m.	Dec 31, 2019 ¹	Dec 31, 2018 ²
Net assets of the equity method investee	770	685
Group's ownership percentage on the investee's equity	30 %	30 %
Group's share of net assets	231	206
Goodwill	17	17
Intangible Assets	14	14
Other adjustments	(1)	(1)
Carrying amount³	261	236

¹ December 2019 numbers are based on 2019 unaudited financials

² December 2018 numbers are based on 2018 audited financials

³ There is no impairment loss in 2019 (€0 million in 2018)

Aggregated financial information on the Group's share in associates and joint ventures that are individually immaterial

in € m.	Dec 31, 2019	Dec 31, 2018
Carrying amount of all associates that are individually immaterial to the Group	383	359
Aggregated amount of the Group's share of profit (loss) from continuing operations	39	30
Aggregated amount of the Group's share of post-tax profit (loss) from discontinued operations	0	0
Aggregated amount of the Group's share of other comprehensive income	(1)	(8)
Aggregated amount of the Group's share of total comprehensive income	38	22

17 – Offsetting Financial Assets and Financial Liabilities

The Group is eligible to present certain financial assets and financial liabilities on a net basis on the balance sheet pursuant to criteria described in Note 1 “Significant Accounting Policies and Critical Accounting Estimates: Offsetting Financial Instruments”.

The following tables provide information on the impact of offsetting on the consolidated balance sheet, as well as the financial impact of netting for instruments subject to an enforceable master netting arrangement or similar agreement as well as available cash and financial instrument collateral.

Assets

in € m.	Dec 31, 2019						
	Gross amounts of financial assets	Gross amounts set off on the balance sheet	Net amounts of financial assets presented on the balance sheet	Amounts not set off on the balance sheet			Net amount
Impact of Master Netting Agreements				Cash collateral	Financial instrument collateral ¹		
Central bank funds sold and securities purchased under resale agreements (enforceable)	14,174	(2,985)	11,189	0	0	(11,186)	3
Central bank funds sold and securities purchased under resale agreements (non-enforceable)	2,612	0	2,612	0	0	(2,464)	148
Securities borrowed (enforceable)	424	0	424	0	0	(299)	124
Securities borrowed (non-enforceable)	4	0	4	0	0	(4)	0
Financial assets at fair value through profit or loss (enforceable)	476,371	(96,171)	380,200	(263,180)	(41,115)	(65,075)	10,830
Of which: Positive market values from derivative financial instruments (enforceable)	337,117	(17,479)	319,638	(262,326)	(41,115)	(5,535)	10,661
Financial assets at fair value through profit or loss (non-enforceable)	150,513	0	150,513	0	(1,119)	(12,424)	136,971
Of which: Positive market values from derivative financial instruments (non-enforceable)	13,293	0	13,293	0	(1,062)	(896)	11,335
Total financial assets at fair value through profit or loss	626,884	(96,171)	530,713	(263,180)	(42,234)	(77,498)	147,801
Loans at amortized cost	429,841	0	429,841	0	(11,819)	(55,458)	362,563
Other assets	116,259	(5,900)	110,359	(37,267)	(570)	(138)	72,384
Of which: Positive market values from derivatives qualifying for hedge accounting (enforceable)	3,004	(224)	2,780	(2,149)	(443)	(94)	94
Remaining assets subject to netting	1,415	0	1,415	0	0	(1,361)	54
Remaining assets not subject to netting	211,117	0	211,117	0	(745)	(1,276)	209,096
Total assets	1,402,730	(105,056)	1,297,674	(300,447)	(55,368)	(149,685)	792,174

¹ Excludes real estate and other non-financial instrument collateral.

Liabilities

Dec 31, 2019

in € m.	Gross amounts of financial liabilities	Gross amounts set off on the balance sheet	Net amounts of financial liabilities presented on the balance sheet	Amounts not set off on the balance sheet			Net amount
				Impact of Master Netting Agreements	Cash collateral	Financial instrument collateral	
Deposits	572,208	0	572,208	0	0	0	572,208
Central bank funds purchased and securities sold under repurchase agreements (enforceable)	5,452	(2,985)	2,467	0	0	(2,467)	0
Central bank funds purchased and securities sold under repurchase agreements (non-enforceable)	648	0	648	0	0	(400)	248
Securities loaned (enforceable)	191	0	191	0	0	(191)	0
Securities loaned (non-enforceable)	68	0	68	0	0	(61)	7
Financial liabilities at fair value through profit or loss (enforceable)	476,677	(96,316)	380,361	(264,392)	(29,755)	(42,121)	44,093
Of which: Negative market values from derivative financial instruments (enforceable)	324,374	(18,125)	306,249	(263,358)	(29,755)	(6,108)	7,028
Financial liabilities at fair value through profit or loss (non-enforceable)	24,087	0	24,087	0	(1,535)	(7,982)	14,570
Of which: Negative market values from derivative financial instruments (non-enforceable)	10,257	0	10,257	0	(1,286)	(401)	8,571
Total financial liabilities at fair value through profit or loss	500,764	(96,316)	404,448	(264,392)	(31,290)	(50,103)	58,663
Other liabilities	113,719	(5,754)	107,964	(45,985)	(418)	(15)	61,546
Of which: Negative market values from derivatives qualifying for hedge accounting (enforceable)	2,539	(1,109)	1,431	(1,118)	(269)	(15)	28
Remaining liabilities not subject to netting	147,521	0	147,521	0	0	(4)	147,517
Total liabilities	1,340,571	(105,056)	1,235,515	(310,376)	(31,708)	(53,240)	840,190

Other assets include € 1.8 billion positive market values for derivative financial instruments which have been reclassified into asset held for sale, associated with the Prime Finance platform being transferred to BNP Paribas, along with the corresponding impact of master netting agreements and collateralization. Due to the same reason, other liabilities include € 2.5 billion negative market values for derivative financial instruments which have been reclassified into liabilities held for sale, along with the corresponding impact of master netting agreements and collateralization. For further information please refer to Note 24 “Non-Current Assets and Disposal Groups Held for Sale” to the consolidated financial statements.

Effective December 30, 2019, the Group elected to convert its interest rate swaps (IRS) transacted with the Japan Securities Clearing Corporation (JSCC) from the previous collateral model to a settlement model. The IRS are now legally settled on a daily basis resulting in derecognition of the associated assets and liabilities. Previously, the Group applied the principles of IAS 32 offsetting to present net the positive (negative) carrying amounts of the IRS and associated variation margin payables (receivables). As a result, gross amounts of financial assets and financial liabilities and corresponding gross amounts set off on the balance sheet decreased by € 5.0 billion and € 3.9 billion as of December 31, 2019, respectively, with no change to the net amounts of financial assets and financial liabilities presented on the balance sheet.

Assets

Dec 31, 2018							
in € m.	Gross amounts of financial assets	Gross amounts set off on the balance sheet	Net amounts of financial assets presented on the balance sheet	Amounts not set off on the balance sheet			Net amount
				Impact of Master Netting Agreements	Cash collateral	Financial instrument collateral ¹	
Central bank funds sold and securities purchased under resale agreements (enforceable)	8,194	(2,629)	5,565	0	0	(5,565)	0
Central bank funds sold and securities purchased under resale agreements (non-enforceable)	2,656	0	2,656	0	0	(2,169)	488
Securities borrowed (enforceable)	3,157	0	3,157	0	0	(3,055)	102
Securities borrowed (non-enforceable)	239	0	239	0	0	(239)	0
Financial assets at fair value through profit or loss (enforceable)	435,306	(73,286)	362,020	(250,476)	(39,006)	(63,733)	8,805
Of which: Positive market values from derivative financial instruments (enforceable)	324,348	(19,269)	305,080	(250,231)	(38,731)	(6,682)	9,436
Financial assets at fair value through profit or loss (non-enforceable)	211,323	0	211,323	0	(1,858)	(12,013)	197,452
Of which: Positive market values from derivative financial instruments (non-enforceable)	14,978	0	14,978	0	(1,858)	(1,277)	11,843
Total financial assets at fair value through profit or loss	646,629	(73,286)	573,344	(250,476)	(40,864)	(75,746)	206,257
Loans at amortized cost	400,297	0	400,297	0	(13,505)	(39,048)	347,743
Other assets	107,633	(14,189)	93,444	(29,073)	(522)	(92)	63,757
Of which: Positive market values from derivatives qualifying for hedge accounting (enforceable)	3,451	(423)	3,028	(2,347)	(520)	(92)	69
Remaining assets subject to netting	1,097	0	1,097	0	0	(621)	475
Remaining assets not subject to netting	268,338	0	268,338	0	(227)	(1,540)	266,571
Total assets	1,438,241	(90,104)	1,348,137	(279,550)	(55,118)	(128,075)	885,394

¹ Excludes real estate and other non-financial instrument collateral.

Liabilities

Dec 31, 2018							
in € m.	Gross amounts of financial liabilities	Gross amounts set off on the balance sheet	Net amounts of financial liabilities presented on the balance sheet	Amounts not set off on the balance sheet			Net amount
				Impact of Master Netting Agreements	Cash collateral	Financial instrument collateral	
Deposits	564,405	0	564,405	0	0	0	564,405
Central bank funds purchased and securities sold under repurchase agreements (enforceable)	7,145	(3,677)	3,468	0	0	(3,468)	0
Central bank funds purchased and securities sold under repurchase agreements (non-enforceable)	1,399	0	1,399	0	0	(1,140)	259
Securities loaned (enforceable)	3,164	0	3,164	0	0	(3,164)	0
Securities loaned (non-enforceable)	195	0	195	0	0	(164)	31
Financial liabilities at fair value through profit or loss (enforceable)	399,625	(71,469)	328,156	(251,495)	(25,232)	(40,935)	10,493
Of which: Negative market values from derivative financial instruments (enforceable)	309,401	(18,978)	290,423	(250,908)	(25,232)	(4,805)	9,478
Financial liabilities at fair value through profit or loss (non-enforceable)	87,524	0	87,524	0	(2,301)	(11,268)	73,955
Of which: Negative market values from derivative financial instruments (non-enforceable)	11,064	0	11,064	0	(1,494)	(573)	8,996
Total financial liabilities at fair value through profit or loss	487,149	(71,469)	415,680	(251,495)	(27,533)	(52,204)	84,448
Other liabilities	132,470	(14,957)	117,513	(42,260)	(73)	(158)	75,022
Of which: Negative market values from derivatives qualifying for hedge accounting (enforceable)	2,537	(615)	1,922	(1,670)	(71)	(158)	23
Remaining liabilities not subject to netting	173,577	0	173,577	0	0	0	173,577
Total liabilities	1,369,503	(90,104)	1,279,400	(293,755)	(27,606)	(60,297)	897,742

The column 'Gross amounts set off on the balance sheet' discloses the amounts offset in accordance with all the criteria described in Note 1 "Significant Accounting Policies and Critical Accounting Estimates: Offsetting Financial Instruments".

The column 'Impact of Master Netting Agreements' discloses the amounts that are subject to master netting agreements but were not offset because they did not meet the net settlement/simultaneous settlement criteria; or because the rights of set off are conditional upon the default of the counterparty only. The amounts presented for other assets and other liabilities include cash margin receivables and payables respectively.

The columns 'Cash collateral' and 'Financial instrument collateral' disclose the cash and financial instrument collateral amounts received or pledged in relation to the total amounts of assets and liabilities, including those that were not offset.

Non-enforceable master netting agreements or similar agreements refer to contracts executed in jurisdictions where the rights of set off may not be upheld under the local bankruptcy laws.

The cash collateral received against the positive market values of derivatives and the cash collateral pledged towards the negative mark-to-market values of derivatives are booked within the 'Other liabilities' and 'Other assets' balances respectively.

The Cash and Financial instrument collateral amounts disclosed reflect their fair values. The rights of set off relating to the cash and financial instrument collateral are conditional upon the default of the counterparty.

18 – Loans

The entire loan book presented includes Loans classified at amortized cost, loans mandatory at fair value through profit and loss and loans at fair value through other comprehensive income.

The below table gives an overview of our loan exposure by industry, allocated based on the NACE code of the counterparty. NACE (Nomenclature des Activités Économiques dans la Communauté Européenne) is a standard European industry classification system.

Loans by industry classification

in € m.	Dec 31, 2019	Dec 31, 2018
Agriculture, forestry and fishing	676	655
Mining and quarrying	3,027	3,699
Manufacturing	30,199	30,966
Electricity, gas, steam and air conditioning supply	4,577	3,555
Water supply, sewerage, waste management and remediation activities	843	895
Construction	4,110	4,421
Wholesale and retail trade, repair of motor vehicles and motorcycles	22,568	21,871
Transport and storage	5,610	6,548
Accommodation and food service activities	2,633	2,094
Information and communication	6,575	5,281
Financial and insurance activities	98,434	93,886
Real estate activities	45,153	35,153
Professional, scientific and technical activities	7,430	7,020
Administrative and support service activities	7,063	7,921
Public administration and defense, compulsory social security	8,012	10,752
Education	327	698
Human health services and social work activities	3,631	3,618
Arts, entertainment and recreation	867	951
Other service activities	5,766	5,328
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	196,732	188,494
Activities of extraterritorial organizations and bodies	3	25
Gross loans	454,235	433,832
(Deferred expense)/unearned income	340	254
Loans less (deferred expense)/unearned income	453,895	433,578
Less: Allowance for loan losses	4,018	4,247
Total loans	449,876	429,331

19 – Allowance for Credit Losses

The allowance for credit losses consists of an allowance for loan losses and an allowance for off-balance sheet positions.

Development of allowance for credit losses for financial assets at amortized cost

in € m.	Dec 31, 2019				
	Allowance for Credit Losses ³				
	Stage 1	Stage 2	Stage 3	Stage 3 POCl	Total
Balance, beginning of year	509	501	3,247	3	4,259
Movements in financial assets including new business	(57)	102	550	40	636
Transfers due to changes in creditworthiness	120	(106)	(14)	N/M	0
Changes due to modifications that did not result in derecognition	N/M	N/M	N/M	N/M	N/M
Changes in models	0	0	0	0	0
Financial assets that have been derecognized during the period ²	0	0	(872)	(26)	(898)
Recovery of written off amounts	0	0	96	0	96
Foreign exchange and other changes	(22)	(4)	8	18	0
Balance, end of reporting period	549	492	3,015	36	4,093
Provision for Credit Losses excluding country risk ¹	62	(4)	536	40	636

¹ Movements in financial assets including new business, transfers due to changes in creditworthiness and changes in models add up to Provision for Credit Losses excluding country risk.

² This position includes charge offs of allowance for credit losses.

³ Allowance for credit losses does not include allowance for country risk amounting to €3 million as of December 31, 2019.

in € m.	Dec 31, 2018				
	Allowance for Credit Losses ³				
	Stage 1	Stage 2	Stage 3	Stage 3 POCl	Total
Balance, beginning of year	462	494	3,638	3	4,596
Movements in financial assets including new business	(132)	215	440	(17)	507
Transfers due to changes in creditworthiness	199	(137)	(62)	N/M	0
Changes due to modifications that did not result in derecognition	N/M	N/M	N/M	N/M	N/M
Changes in models	0	0	0	0	0
Financial assets that have been derecognized during the period ²	(6)	(17)	(972)	0	(995)
Recovery of written off amounts	0	0	172	0	172
Foreign exchange and other changes	(14)	(54)	30	17	(21)
Balance, end of reporting period	509	501	3,247	3	4,259
Provision for Credit Losses excluding country risk ¹	66	78	379	(17)	507

¹ Movements in financial assets including new business, transfers due to changes in creditworthiness and changes in models add up to Provision for Credit Losses excluding country risk.

² This position includes charge offs of allowance for credit losses.

³ Allowance for credit losses does not include allowance for country risk amounting to €6 million as of December 31, 2018.

Allowance for credit losses for financial assets at fair value through OCI¹

in € m.	Dec 31, 2019				
	Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCl	Total
Fair Value through OCI	16	9	10	0	35

¹ Allowance for credit losses against financial assets at fair value through OCI remained at very low levels (€13 million at December 31, 2018 and €35 million as of December 31, 2019). Due to immateriality, we do not provide any details on the year-over-year development.

in € m.	Dec 31, 2018				
	Allowance for Credit Losses				
	Stage 1	Stage 2	Stage 3	Stage 3 POCl	Total
Fair Value through OCI	11	1	0	(0)	13

¹ Allowance for credit losses against financial assets at fair value through OCI were almost unchanged at very low levels (€12 million at the beginning of year 2018 and €13 million as of December 31, 2018, respectively). Due to immateriality, we do not provide any details on the year-over-year development.

Development of allowance for credit losses for off-balance sheet positions

in € m.	Dec 31, 2019				
	Allowance for Credit Losses ²				
	Stage 1	Stage 2	Stage 3	Stage 3 POCl	Total
Balance, beginning of year	132	73	84	0	289
Movements including new business	(13)	(5)	88	0	70
Transfers due to changes in creditworthiness	9	(12)	3	0	0
Changes in models	0	0	0	0	0
Foreign exchange and other changes	(1)	(7)	(9)	0	(17)
Balance, end of reporting period	128	48	166	0	342
Provision for Credit Losses excluding country risk ¹	(4)	(17)	90	0	70

¹ The above table breaks down the impact on provision for credit losses from movements in financial assets including new business, transfers due to changes in creditworthiness and changes in models.

² Allowance for credit losses does not include allowance for country risk amounting to € 4 million as of December 31, 2019.

in € m.	Dec 31, 2018				
	Allowance for Credit Losses ²				
	Stage 1	Stage 2	Stage 3	Stage 3 POCl	Total
Balance, beginning of year	117	36	119	0	272
Movements including new business	(0)	31	(13)	0	18
Transfers due to changes in creditworthiness	2	(0)	(2)	0	0
Changes in models	0	0	0	0	0
Foreign exchange and other changes	14	6	(20)	0	(0)
Balance, end of reporting period	132	73	84	0	289
Provision for Credit Losses excluding country risk ¹	1	31	(15)	0	18

¹ The above table breaks down the impact on provision for credit losses from movements in financial assets including new business, transfers due to changes in creditworthiness and changes in models.

² Allowance for credit losses does not include allowance for country risk amounting to € 5 million as of December 31, 2018.

Breakdown of the movements in the Group's allowance for loan losses (as previously reported under IAS 39)

in € m.	2017		
	Individually assessed	Collectively assessed	Total
Allowance, beginning of year	2,071	2,475	4,546
Provision for loan losses	299	253	552
Net charge-offs:	(487)	(532)	(1,019)
Charge-offs	(541)	(605)	(1,146)
Recoveries	54	73	127
Other Changes	(117)	(41)	(158)
Allowance, end of year	1,766	2,155	3,921

Activity in the Group's allowance for off-balance sheet positions (contingent liabilities and lending commitments), (as previously reported under IAS 39)

in € m.	2017		
	Individually assessed	Collectively assessed	Total
Allowance, beginning of year	162	183	346
Provision for off-balance sheet positions	(23)	(4)	(27)
Usage	0	0	0
Other changes	(18)	(16)	(34)
Allowance, end of year	122	163	285

20 – Transfer of Financial Assets, Assets Pledged and Received as Collateral

The Group enters into transactions in which it transfers financial assets held on the balance sheet and as a result may either be eligible to derecognize the transferred asset in its entirety or must continue to recognize the transferred asset to the extent of any continuing involvement, depending on certain criteria. These criteria are discussed in Note 1 “Significant Accounting Policies and Critical Accounting Estimates”.

Where financial assets are not eligible to be derecognized, the transfers are viewed as secured financing transactions, with any consideration received resulting in a corresponding liability. The Group is not entitled to use these financial assets for any other purposes. The most common transactions of this nature entered into by the Group are repurchase agreements, securities lending agreements and total return swaps, in which the Group retains substantially all of the associated credit, equity price, interest rate and foreign exchange risks and rewards associated with the assets as well as the associated income streams.

Information on asset types and associated transactions that did not qualify for derecognition

in € m.	Dec 31, 2019	Dec 31, 2018
Carrying amount of transferred assets		
Trading securities not derecognized due to the following transactions:		
Repurchase agreements	31,329	33,980
Securities lending agreements	13,001	41,621
Total return swaps	1,615	1,835
Other	2,341	6,589
Total trading securities	48,285	84,025
Other trading assets	90	69
Non-trading financial assets mandatory at fair value through profit or loss	439	1,289
Financial assets at fair value through other comprehensive income	2,537	4,286
Loans at amortized cost ¹	310	408
Others	236	0
Total	51,897	90,076
Carrying amount of associated liabilities	37,790	46,218

¹ Loans where the associated liability is recourse only to the transferred assets had NIL carrying value and fair value as at December 31, 2019 and December 31, 2018. The associated liabilities had the same carrying value and fair value which resulted in a net position of 0.

Carrying value of assets transferred in which the Group still accounts for the asset to the extent of its continuing involvement

in € m.	Dec 31, 2019	Dec 31, 2018
Carrying amount of the original assets transferred		
Trading securities	1,101	759
Financial assets designated at fair value through profit or loss	0	306
Non-trading financial assets mandatory at fair value through profit or loss	698	386
Carrying amount of the assets continued to be recognized		
Trading securities	109	35
Financial assets designated at fair value through profit or loss	0	15
Non-trading financial assets mandatory at fair value through profit or loss	23	43
Carrying amount of associated liabilities	185	117

The Group could retain some exposure to the future performance of a transferred asset either through new or existing contractual rights and obligations and still be eligible to derecognize the asset. This ongoing involvement will be recognized as a new instrument which may be different from the original financial asset that was transferred. Typical transactions include retaining senior notes of non-consolidated securitizations to which originated loans have been transferred; financing arrangements with structured entities to which the Group has sold a portfolio of assets; or sales of assets with credit-contingent swaps. The Group’s exposure to such transactions is not considered to be significant as any substantial retention of risks associated with the transferred asset will commonly result in an initial failure to derecognize. Transactions not considered to result in an ongoing involvement include normal warranties on fraudulent activities that could invalidate a transfer in the event of legal action, qualifying pass-through arrangements and standard trustee or administrative fees that are not linked to performance.

The impact on the Group's Balance Sheet of on-going involvement associated with transferred assets derecognized in full

in € m.	Dec 31, 2019			Dec 31, 2018		
	Carrying value	Fair value	Maximum Exposure to Loss ¹	Carrying value	Fair value	Maximum Exposure to Loss ¹
Loans at amortized cost						
Securitization notes	325	334	334	372	372	372
Other	10	10	10	14	14	14
Total loans at amortized cost	336	344	344	385	385	385
Financial assets held at fair value through profit or loss						
Securitization notes	36	36	36	22	22	22
Non-standard Interest Rate, cross-currency or inflation-linked swap	0	0	0	5	5	5
Total financial assets held at fair value through profit or loss	36	36	36	27	27	27
Financial assets at fair value through other comprehensive income:						
Securitization notes	457	465	465	112	112	112
Other	0	0	0	0	0	0
Total financial assets at fair value through other comprehensive income	457	465	465	112	112	112
Total financial assets representing on-going involvement	828	845	845	524	524	524
Financial liabilities held at fair value through profit or loss						
Non-standard Interest Rate, cross-currency or inflation-linked swap	11	11	0	61	61	0
Total financial liabilities representing on-going involvement	11	11	0	61	61	0

¹ The maximum exposure to loss is defined as the carrying value plus the notional value of any undrawn loan commitments not recognized as liabilities.

The impact on the Group's Statement of Income of on-going involvement associated with transferred assets derecognized in full

in € m.	Dec 31, 2019			Dec 31, 2018		
	Year-to-date P&L	Cumulative P&L	Gain/(loss) on disposal	Year-to-date P&L	Cumulative P&L	Gain/(loss) on disposal
Securitization notes	15	27	100	9	13	11
Non-standard Interest Rate, cross-currency or inflation-linked swap	(0)	(0)	0	21	268	0
Net gains/(losses) recognized from on-going involvement in derecognized assets	15	27	100	30	281	11

The Group pledges assets primarily as collateral against secured funding and for repurchase agreements, securities borrowing agreements as well as other borrowing arrangements and for margining purposes on OTC derivative liabilities. Pledges are generally conducted under terms that are usual and customary for standard securitized borrowing contracts and other transactions described.

Carrying value of the Group's assets pledged as collateral for liabilities or contingent liabilities¹

in € m.	Dec 31, 2019	Dec 31, 2018
Financial assets at fair value through profit or loss	36,686	41,816
Financial assets at fair value through other comprehensive income	2,943	4,274
Loans	70,323	75,641
Other	1,617	1,364
Total	111,570	123,095

¹ Excludes assets pledged as collateral from transactions that do not result in liabilities or contingent liabilities.

Total assets pledged to creditors available for sale or repledge¹

in € m.	Dec 31, 2019	Dec 31, 2018
Financial assets at fair value through profit or loss	34,503	45,640
Financial assets at fair value through other comprehensive income	1,303	3,201
Loans	132	11
Other	236	0
Total	36,174	48,851

¹ Includes assets pledged as collateral from transactions that do not result in liabilities or contingent liabilities.

The Group receives collateral primarily in reverse repurchase agreements, securities lending agreements, derivatives transactions, customer margin loans and other transactions. These transactions are generally conducted under terms that are usual and customary for standard secured lending activities and the other transactions described. The Group, as the secured party, has the right to sell or re-pledge such collateral, subject to the Group returning equivalent securities upon completion of the transaction. This right is used primarily to cover short sales, securities loaned and securities sold under repurchase agreements.

Fair Value of collateral received

in € m.	Dec 31, 2019	Dec 31, 2018
Securities and other financial assets accepted as collateral	251,757	292,474
Of which:		
Collateral sold or repledged	200,378	240,365

21 – Property and Equipment

in € m.	Owner occupied properties	Furniture and equipment	Leasehold improvements	Construction-in-progress	Property and equipment owned (IAS 16)	Right-of-use for leased assets (IFRS 16)	Total
Cost of acquisition:							
Balance as of January 1, 2018	1,387	2,473	2,743	139	6,743	N/A	6,743
Changes in the group of consolidated companies	0	141	(2)	0	139	N/A	139
Additions	11	150	155	150	465	N/A	465
Transfers	(8)	(4)	106	(147)	(53)	N/A	(53)
Reclassifications (to)/from "held for sale"	(478)	(30)	(27)	(2)	(538)	N/A	(538)
Disposals	134	291	144	0	569	N/A	569
Exchange rate changes	1	164	29	1	195	N/A	195
Balance as of December 31, 2018	778	2,602	2,860	142	6,382	N/A	6,382
Impact from the implementation of IFRS 16	N/A	N/A	N/A	N/A	N/A	3,185	3,185
Changes in the group of consolidated companies	0	(165)	0	(0)	(165)	0	(165)
Additions	8	111	49	160	327	413	740
Transfers	(56)	15	116	(147)	(72)	32	(40)
Reclassifications (to)/from "held for sale"	(0)	(11)	0	(0)	(11)	0	(11)
Disposals	75	190	82	0	347	115	462
Exchange rate changes	1	19	19	1	39	19	58
Balance as of December 31, 2019	656	2,380	2,961	155	6,153	3,533	9,686
Accumulated depreciation and impairment:							
Balance as of January 1, 2018	579	1,800	1,702	0	4,080	N/A	4,080
Changes in the group of consolidated companies	(0)	28	(1)	0	27	N/A	27
Depreciation	28	206	197	0	430	N/A	430
Impairment losses	3	3	3	0	9	N/A	9
Reversals of impairment losses	37	0	0	0	37	N/A	37
Transfers	(13)	48	(5)	0	30	N/A	30
Reclassifications (to)/from "held for sale"	(215)	(40)	(22)	0	(277)	N/A	(277)
Disposals	17	281	128	0	426	N/A	426
Exchange rate changes	1	99	24	0	125	N/A	125
Balance as of December 31, 2018	328	1,862	1,770	0	3,960	N/A	3,960
Impact from the implementation of IFRS 16	N/A	N/A	N/A	N/A	N/A	0	0
Changes in the group of consolidated companies	5	(49)	0	0	(44)	1	(43)
Depreciation	18	199	217	0	434	615	1,049
Impairment losses	20	2	5	0	27	85	112
Reversals of impairment losses	0	0	0	0	0	0	0
Transfers	(31)	(4)	(16)	0	(51)	41	(10)
Reclassifications (to)/from "held for sale"	(0)	(4)	0	0	(5)	0	(5)
Disposals	16	180	66	0	262	79	341
Exchange rate changes	0	15	16	0	32	0	32
Balance as of December 31, 2019	325	1,841	1,927	0	4,093	663	4,756
Carrying amount:							
Balance as of December 31, 2018	450	740	1,090	142	2,421	0	2,421
Balance as of December 31, 2019	331	540	1,034	155	2,060	2,870	4,930

Impairment losses on property and equipment are recorded within general and administrative expenses for the income statement.

The carrying value of items of property and equipment on which there is a restriction on sale was €24 million and €42 million as of December 31, 2019 and December 31, 2018, respectively.

Commitments for the acquisition of property and equipment were €46 million at year-end 2019 and €273 million at year-end 2018.

The Group leases many assets including land and buildings, vehicles and IT equipment. With the implementation of IFRS 16 and as of January 1, 2019, the Group as a lessee recorded an opening balance for the right-of-use for these leased assets of €3.2 billion, which mainly represented leased properties of €3.2 billion and vehicle leases of €23 million. Additions to right-of-use assets of €413 million capitalized during 2019 largely reflected new real estate leases. Depreciation charges of €615 million recognized in 2019 mainly resulted from planned consumption of right-of-use assets for property leases over their contractual terms. The carrying amount of right-of-use assets of €2.9 billion included in Total Property and equipment as of December 31, 2019 predominantly represented leased properties of €2.8 billion and vehicle leases of €19 million. For more information on the Group's leased properties and related disclosures required under IFRS 16, please refer to Note 02 "Recently Adopted Accounting Pronouncements" and Note 22 "Leases".

22 – Leases

The Group's disclosures are as a lessee under lease arrangements covering property and equipment. The Group has applied judgement in presenting related information together in a manner that it considers to be most relevant to an understanding of its financial performance and position.

Effective January 1, 2019, the Group has applied IFRS 16, "Leases" using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under predecessor standard IAS 17, "Leases". Accordingly, the structure of the Note contains separate sections for both current period information under IFRS 16 as well as prior period information under IAS 17. The cumulative effect on the Group's balance sheet of initially applying IFRS 16 at transition date (January 1, 2019) is presented in Note 2, "Recently Adopted Accounting Pronouncements".

Lessee Disclosures for the Fiscal Period ended December 31, 2019 pursuant to IFRS 16, "Leases"

The Group leases many assets including land and buildings, vehicles and IT equipment. The Group is a lessee for the majority of its offices and branches under long-term rental agreements. Most of the lease contracts are made under usual terms and conditions, which means they include options to extend the lease by a defined amount of time, price adjustment clauses and escalation clauses in line with general office rental market conditions. However, the lease agreements do not include any clauses that impose any restriction on the Group's ability to pay dividends, engage in debt financing transactions or enter into further lease agreements.

As of December 31, 2019, the Group recorded right-of-use assets on its balance sheet with a carrying amount of €2.9 billion, which are included in Property and equipment. The right-of-use assets predominantly represented leased properties of €2.8 billion and vehicles leases of €19 million. For more information on the year-to-date development of right-of-use assets, please refer to Note 21 "Property and Equipment".

Corresponding to the recognition of the right-of-use assets, as of December 31, 2019 the Group recorded lease liabilities on its balance sheet with a carrying amount of €3.3 billion, which are included in Other liabilities. As of December 31, 2019, the lease liabilities included the discounted value of future lease payments of €407 million for the Group headquarters in Frankfurt am Main that was sold and leased back on December 1, 2011. The Group entered into a 181 months leaseback arrangement for the entire facility in connection with the transaction, which also includes the option to extend the lease for an additional 5 year period up to 2031.

During 2019, interest expense recorded from the compounding of the lease liabilities amounted to €80 million. The contractual maturities for the undiscounted cash flows from these liabilities are shown in Note 31 "Maturity Analysis of the earliest contractual undiscounted cash flows of Financial Liabilities".

Expenses recognized in 2019 relating to short-term leases and leases of low-value assets, for which the Group decided to apply the recognition exemption under IFRS 16 (and thus not to record right-of-use assets and corresponding lease liabilities on the balance sheet), amounted to €44 million and €1 million, respectively.

Income recorded in 2019 from the subletting of right-of-use assets totaled €21 million.

The total cash outflow for leases was €738 million for 2019 and represented mainly expenditures made for real estate rentals (€724 million). Of the total cash outflow amount, payments of €659 million were made for the principal portion of lease liabilities, payments of €79 million were made for the interest portion.

Total future cash outflows to which the Group as a lessee is potentially exposed, that are not reflected in the measurement of the lease liabilities, mainly include exposures arising from extension options and future payments for leases not yet commenced, but to which the Group is committed. Their expected maturities are shown in the table below.

Future cash outflows to which the Group is potentially exposed that are not reflected in the measurement of lease liabilities

in € m.	Dec 31, 2019
Future cash outflows not reflected in lease liabilities:	
Not later than one year	17
Later than one year and not later than five years	816
Later than five years	4,797
Future cash outflows not reflected in lease liabilities	5,629

Lessee Disclosures for the Fiscal Period ended December 31, 2018 pursuant to IAS 17, "Leases"

Finance Lease Commitments

Most of the Group's finance lease arrangements are made under usual terms and conditions.

Net Carrying Value of Leasing Assets Held under finance leases

in € m.	Dec 31, 2019	Dec 31, 2018
Land and buildings	N/A	28
Furniture and equipment	N/A	0
Other	N/A	0
Net carrying value	N/A	28

Future Minimum Lease Payments Required under the Group's Finance Leases

in € m.	Dec 31, 2019	Dec 31, 2018
Future minimum lease payments:		
Not later than one year	N/A	19
Later than one year and not later than five years	N/A	34
Later than five years	N/A	65
Total future minimum lease payments	N/A	118
Less: Future interest charges	N/A	91
Present value of finance lease commitments	N/A	27
Future minimum lease payments to be received	N/A	5
Contingent rent recognized in the income statement ¹	N/A	0

¹ The contingent rent is based on market interest rates, such as three months EURIBOR; below a certain rate the Group receives a rebate.

Operating Lease Commitments

Future Minimum Lease Payments Required under the Group's Operating Leases

in € m.	Dec 31, 2019	Dec 31, 2018
Future minimum rental payments:		
Not later than one year	N/A	707
Later than one year and not later than five years	N/A	2,077
Later than five years	N/A	3,480
Total future minimum rental payments	N/A	6,264
Less: Future minimum rentals to be received	N/A	20
Net future minimum rental payments	N/A	6,244

As of December 31, 2018, the total future minimum rental payments included €441 million for the Group headquarters in Frankfurt am Main that was sold and leased back on December 1, 2011. The Group entered into a 181 months leaseback arrangement for the entire facility in connection with the transaction, which also includes the option to extend the lease for an additional 5 year period up to 2031.

In 2018, the rental payments for lease and sublease agreements amounted to €747 million. This included charges of €769 million for minimum lease payments and €20 million related to sublease rentals received.

23 – Goodwill and Other Intangible Assets

Goodwill

Changes in Goodwill

The changes in the carrying amount of goodwill, as well as gross amounts and accumulated impairment losses of goodwill, for the years ended December 31, 2019, and December 31, 2018, are shown below by cash-generating units (“CGU”).

In the third quarter of 2019 and in accordance with the strategy announcement made on July 7, 2019, the Group’s business operations were reorganized under a new divisional structure: the Core Bank, which includes the Corporate Bank (“CB”), Investment Bank (“IB”), Private Bank (“PB”) and Asset Management (“AM”) corporate divisions and the Capital Release Unit (“CRU”). The CB, IB and the AM corporate divisions as well as the CRU each are considered cash-generating units (CGUs). The PB corporate division is comprised of two separate CGUs – Wealth Management (“WM”) and Private Bank excluding Wealth Management (“PB excl. WM”). The PB excl. WM CGU is comprised of three subunits, Private Bank Germany, PCB International and Digital Ventures, which were part of the former CGUs Private and Commercial Clients (“PCC”) and Postbank. CB is comprised of the Global Transaction Bank (“GTB”, previously included in the former Global Transaction Banking & Corporate Finance (“GTB & CF”) CGU) and the German Commercial Banking business (formerly part of the PCC CGU). IB consists of Deutsche Bank’s financing, advisory, fixed income and currencies businesses which were previously included in the Sales & Trading and GTB & CF CGUs. WM and AM continue in their former CGU structure. The CRU CGU includes the Global Prime Finance businesses subject to transition to BNP Paribas S.A. (see Note 24 “Non-current assets and disposal groups held for sale”) as well as assets related to business activities which are being exited or reduced.

Please also refer to Note 4 “Business Segments and Related Information” for more information regarding changes in the presentation of segment disclosures.

Goodwill allocated to cash-generating units

in € m.	Investment Bank	Corporate Bank	Asset Management	Wealth Management	Private Bank (excl. WM)	Others	Total
Balance as of January 1, 2018	0	471	2,768	541	0	1	3,782
Goodwill acquired during the year	0	0	0	0	0	0	0
Purchase accounting adjustments	0	0	0	0	0	0	0
Transfers	0	0	0	0	0	0	0
Reclassification from (to) "held for sale"	0	0	0	(4)	0	0	(4)
Goodwill related to dispositions without being classified as "held for sale"	0	0	0	0	0	0	0
Impairment losses ¹	0	0	0	0	0	0	0
Exchange rate changes/other	0	18	74	5	0	0	98
Balance as of December 31, 2018	0	489	2,843	543	0	1	3,876
Gross amount of goodwill	3,833	595	3,314	543	3,162	1	11,449
Accumulated impairment losses	(3,833)	(106)	(471)	0	(3,162)	0	(7,573)
Balance as of January 1, 2019	0	489	2,843	543	0	1	3,876
Goodwill acquired during the year	0	0	0	0	0	0	0
Purchase accounting adjustments	0	0	0	0	0	0	0
Transfers	0	0	0	0	0	0	0
Reclassification from (to) "held for sale"	0	0	0	0	0	0	0
Goodwill related to dispositions without being classified as "held for sale"	0	0	0	0	0	(1)	(1)
Impairment losses ¹	0	(491)	0	(545)	0	0	(1,035)
Exchange rate changes/other	0	2	38	2	0	0	42
Balance as of December 31, 2019	0	0	2,881	0	0	0	2,881
Gross amount of goodwill	3,915	603	3,371	555	3,162	0	11,607
Accumulated impairment losses	(3,915)	(603)	(490)	(555)	(3,162)	0	(8,726)

¹ Impairment losses of goodwill are recorded as impairment of goodwill and other intangible assets in the income statement.

In addition to the primary CGUs, the IB segment had included goodwill resulting from the acquisition of a nonintegrated investment which is not allocated to the respective segment' primary CGU. Such goodwill is summarized as "Others" in the table above.

Changes in goodwill in 2019 were mainly driven by the before mentioned transformational measures relating to the Group's businesses and its reorganization. Triggered by the impact of a lowered outlook on business plans driven both by adjustments to macro-economic factors as well as by the impact of strategic decisions in preparation of the above mentioned transformation announcement, in the second quarter 2019 the Group reviewed the recoverable amounts of its CGUs in the then existing structure. This review resulted in a short-fall of the recoverable amounts against the respective CGUs carrying amounts for WM within the former Private & Commercial Bank ("PCB") corporate division and GTB & CF within the former Corporate & Investment Bank ("CIB") corporate division.

With a recoverable amount of approximately € 1.9 billion for WM, goodwill in WM (€ 545 million) was impaired and had to be fully written-off, mainly as a result of worsening macro-economic assumptions, including interest rate curves, as well as industry-specific market growth corrections for the WM business globally. For GTB & CF, the recoverable amount of approximately € 10.2 billion led to the full impairment of allocated goodwill (€ 491 million). This was mainly driven by adverse industry trends in Corporate Finance as well as by adjustments to macro-economic assumptions, including interest rate curves. The total impairment charges of € 1.0 billion were recorded in Impairment of goodwill and other intangible assets of the respective Private Bank (here: WM CGU; € 545 million) and Corporate Bank (€ 491 million) segment results of the second quarter of 2019.

The discount rates applied in the estimation of the recoverable amounts of the respective CGUs as of June 30, 2019 (and of December 31, 2018 for comparison) were as follows:

	Discount rate (post-tax)	
	2019	2018
Global Transaction Banking & Corporate Finance	8.6 %	8.8 %
Wealth Management	8.4 %	9.0 %

Changes in goodwill for both 2017 and 2018 mainly reflected exchange rate fluctuations, predominantly related to the translation of goodwill held in USD.

Goodwill Impairment Test

For the purposes of impairment testing, goodwill acquired in a business combination is allocated to CGUs. On the basis as described in Note 1 “Significant Accounting Policies and Critical Accounting Estimates”, the Group’s primary CGUs are as outlined above. “Other” goodwill is tested individually for impairment on the level of each of the nonintegrated investments. Goodwill is tested for impairment annually in the fourth quarter by comparing the recoverable amount of each goodwill-carrying CGU with its carrying amount. In addition, in accordance with IAS 36, the Group tests goodwill whenever a triggering event is identified. The recoverable amount is the higher of a CGU’s fair value less costs of disposal and its value in use.

Following the aforementioned write-off of goodwill in the former GTB & CF CGUs in the second quarter 2019 and the de-recognition of ring-fenced goodwill in a subsidiary disposal recorded in the third quarter 2019, the AM CGU was the only goodwill carrying CGU to be tested for impairment. The annual goodwill impairment tests conducted in 2019 and 2018 did not result in an impairment loss on the Group’s primary goodwill-carrying CGUs as the recoverable amounts of these CGUs were higher than the respective carrying amounts.

A review of the Group’s strategy or certain political or global risks for the banking industry, uncertainties regarding the implementation of already adopted regulation and the introduction of legislation that is already under discussion as well as a slowdown of GDP growth may negatively impact the performance forecasts of the AM CGU and, thus, could result in an impairment of goodwill in the future.

Carrying Amount

The carrying amount of a primary CGU is derived using a capital allocation model based on the Shareholders’ Equity Allocation Framework of the Group (please refer to Note 4, “Business Segments and Related Information” for more details). The allocation uses the Group’s total equity at the date of valuation, including Additional Tier 1 Notes (“AT1 Notes”), which constitute unsecured and subordinated notes of Deutsche Bank and which are classified as Additional equity components in accordance with IFRS. Total equity is adjusted for specific effects related to nonintegrated investments, which are tested separately for impairment as outlined above, and for an add-on adjustment for goodwill attributable to noncontrolling interests.

Recoverable Amount

The Group determines the recoverable amounts of its primary CGUs on the basis of the higher of value in use and fair value less costs of disposal (Level 3 of the fair value hierarchy). It employs a discounted cash flow (DCF) model, which reflects the specifics of the banking business and its regulatory environment. The model calculates the present value of the estimated future earnings that are distributable to shareholders after fulfilling the respective regulatory capital requirements. The recoverable amounts also include the fair value of the AT1 Notes, allocated to the primary CGUs consistent to their treatment in the carrying amount.

The DCF model uses earnings projections and respective capitalization assumptions based on five-year financial plans as well as longer term expectations on the impact of regulatory developments, which are discounted to their present value. Estimating future earnings and capital requirements involves judgment and the consideration of past and current performances as well as expected developments in the respective markets, and in the overall macroeconomic and regulatory environments. Earnings projections beyond the initial five-year period are, where applicable, adjusted to derive a sustainable level. In case of a going concern, the cash flow to equity is assumed to increase by or converge towards a constant long-term growth rate of up to 2.8 % (2018: 3.1 %). This is based on projected revenue forecasts of the CGU as well as expectations for the development of gross domestic product and inflation, and is captured in the terminal value. For AM, the rate was reduced to 1.2 % for 2019 and is comparably low compared to analysts’ views and reflects a conservative approach.

Key Assumptions and Sensitivities

Key Assumptions: The DCF value of a CGU is sensitive to the earnings projections, to the discount rate (cost of equity) applied and, to a much lesser extent, to the long-term growth rate. The discount rates applied have been determined based on the capital asset pricing model and comprise a risk-free interest rate, a market risk premium and a factor covering the systematic market risk (beta factor). The values for the risk-free interest rate, the market risk premium and the beta factors are determined using external sources of information. CGU-specific beta factors are determined based on a respective group of peer companies. Variations in all of these components might impact the discount rates. For the AM CGU, the discount rates (after tax) applied for 2019 and 2018 were 9.6 % and 9.7 %, respectively.

Management determined the values for the key assumptions in the following table based on a combination of internal and external analysis. Estimates for efficiency and the cost reduction program are based on progress made to date and scheduled future projects and initiatives.

Primary goodwill-carrying cash-generating unit	Description of key assumptions	Uncertainty associated with key assumptions and potential events/circumstances that could have a negative effect
Asset Management	—Deliver strong investment product performance	—Challenging market environment and volatility unfavourable to our investment strategies
	—Expand product suite in growth areas (e.g. alternatives, multi assets, passive, ESG investment schemes) while consolidating non-core strategies	—Unfavourable margin development and adverse competition levels in key markets and products beyond expected levels
	—Consistent net flows leveraging market share leadership in Germany and the rest of Europe, while expanding coverage in Asia Pacific and focused growth in the Americas	—Business/execution risks, e.g., underachievement of net flow targets from market uncertainty, loss of high quality client facing employees, unfavourable investment performance, lower than expected efficiency gains
	—Diversification of intermediary coverage towards high growth channels and deployment of digital solutions to serve new channels	—Uncertainty around regulation and its potential implications not yet anticipated
	—Further efficiency through improved core operating processes, platform optimization and product rationalization	
	—Anticipation of further headwinds in the asset management industry as a result of the changing regulatory environment	

Sensitivities: In order to test the resilience of the recoverable amount, key assumptions used in the DCF model (for example, the discount rate and the earnings projections) are sensitized. Management believes that reasonable possible changes in key assumptions could cause an impairment loss in AM. Currently, in AM the recoverable amount exceeds the carrying amount by 1 % / €0.1 billion.

Change in certain key assumptions to cause the recoverable amount to equal the carrying amount

Change in Key Assumptions	AM
Discount rate (post tax) increase	
from	9.6 %
to	9.7 %
Change in projected future earnings in each period by	(1.3) %
Long term growth rate	
from	1.2 %
to	1.0 %

Other Intangible Assets

Changes of other intangible assets by asset classes for the years ended December 31, 2019 and December 31, 2018

in € m.	Unamortized					Purchased intangible assets		Internally generated intangible assets	Total other intangible assets
	Retail investment management agreements	Other	Total unamortized purchased intangible assets	Customer-related intangible assets	Contract-based intangible assets	Amortized		Amortized	
						Software and other	Total amortized purchased intangible assets	Software	
Cost of acquisition/ manufacture:									
Balance as of January 1, 2018	963	440	1,402	1,364	70	901	2,335	7,024	10,761
Additions	0	0	0	12	0	44	56	1,242	1,298
Changes in the group of consolidated companies	0	0	0	0	0	(0)	(0)	(0)	(0)
Disposals	0	0	0	0	0	126	126	725	851
Reclassifications from (to) "held for sale"	0	0	0	0	0	(7)	(7)	(20)	(27)
Transfers	0	2	2	(3)	0	(213)	(215)	190	(24)
Exchange rate changes	48	0	48	10	0	5	15	102	165
Balance as of December 31, 2018	1,010	441	1,451	1,384	70	603	2,058	7,814	11,322
Additions	0	0	0	9	0	34	43	997	1,040
Changes in the group of consolidated companies	0	0	0	0	0	(0)	(0)	0	(0)
Disposals	0	0	0	0	0	40	40	1,295	1,335
Reclassifications from (to) "held for sale"	0	0	0	0	0	(0)	(0)	(21)	(22)
Transfers	0	0	0	(1)	0	28	27	(29)	(2)
Exchange rate changes	20	0	20	11	0	(0)	11	47	79
Balance as of December 31, 2019	1,030	441	1,472	1,403	70	625	2,098	7,512	11,082
Accumulated amortization and impairment:									
Balance as of January 1, 2018	243	439	682	1,321	69	718	2,108	2,914	5,704
Amortization for the year	0	0	0	21	1	40	61	1,034	1,095 ¹
Changes in the group of consolidated companies	0	0	0	0	0	(0)	(0)	0	(0)
Disposals	0	0	0	0	0	125	125	724	850
Reclassifications from (to) "held for sale"	0	0	0	0	0	(7)	(7)	(20)	(27)
Impairment losses	0	0	0	0	0	0	0	42	42 ²
Reversals of impairment losses	0	0	0	0	0	0	0	0	0
Transfers	0	0	0	6	0	(136)	(129)	139	10
Exchange rate changes	12	0	12	10	0	5	14	57	83
Balance as of December 31, 2018	255	439	694	1,358	70	494	1,922	3,442	6,057
Amortization for the year	0	0	0	13	0	38	51	1,205	1,256 ³
Changes in the group of consolidated companies	0	0	0	0	0	(0)	(0)	0	(0)
Disposals	0	0	0	0	0	40	40	1,291	1,330
Reclassifications from (to) "held for sale"	0	0	0	0	0	(0)	(0)	(15)	(16)
Impairment losses	0	0	0	2	0	6	8	931	939 ⁴
Reversals of impairment losses	0	0	0	0	0	0	0	0	0
Transfers	0	1	1	0	0	29	29	(38)	(8)
Exchange rate changes	5	(0)	5	11	0	1	12	20	37
Balance as of December 31, 2019	260	440	700	1,384	70	528	1,982	4,254	6,935
Carrying amount:									
As of December 31, 2018	755	2	757	26	0	109	136	4,372	5,265
As of December 31, 2019	770	1	772	20	0	97	116	3,259	4,147

¹ € 1.1 billion were included in general and administrative expenses.

² € 42 million were related to the impairment of self-developed software, recorded in general and administrative expenses.

³ € 1.3 billion were included in general and administrative expenses.

⁴ € 939 million were comprised of impairments of purchased (€ 6 million) and self-developed software (€ 931 million), both recorded in general and administrative expenses, and € 2 million referring to the impairment of an amortizing customer-related intangible asset which is included under impairment of goodwill and other intangible asset.

Amortizing Intangible Assets

In 2019, amortizing other intangible assets decreased by a net € 1.1 billion. This was mainly driven by amortization expenses of € 1.3 billion, mostly for the scheduled consumption of capitalized software (€ 1.2 billion) and the impairment of current platform software as well as software under construction (€ 937 million). More information in regards to the related impact from the transformation strategy is included in Note 42 “Impact of Deutsche Bank’s transformation”. Offsetting were additions to internally generated intangible assets of € 1.0 billion resulting from the capitalization of expenses incurred in conjunction with the Group’s development of own-used software. Furthermore, the weakening of the Euro against major currencies accounted for positive exchange rate changes of € 26 million.

In 2018, amortizing other intangible assets increased by a net € 171 million. This was in particular driven by additions to internally generated intangible assets of € 1.2 billion resulting from the capitalization of expenses incurred in conjunction with the Group’s development of own-used software. Offsetting were amortization expenses of € 1.1 billion, mostly for the scheduled consumption of capitalized software (€ 1.1 billion). The reassessment of current platform software as well as software under construction led to the impairment of self-developed software (€ 42 million). Furthermore, the weakening of the Euro against major currencies accounted for positive exchange rate changes of € 46 million increasing the net book value of amortizing intangible assets.

In 2017, amortizing other intangible assets increased by a net € 291 million. This was mainly driven by additions to internally generated intangible assets of € 1.4 billion, offset by amortization expenses of € 935 million, in particular for the scheduled consumption of capitalized software (€ 897 million). The reassessment of current platform software as well as software under construction led to the impairment of self-developed software (€ 42 million). Furthermore, the strengthening of the Euro accounted for negative exchange rate changes of € 113 million reducing the net book value of amortizing intangible assets.

Other intangible assets with finite useful lives are generally amortized over their useful lives based on the straight-line method.

Useful lives of other amortized intangible assets by asset class

	Useful lives in years
Internally generated intangible assets:	
Software	up to 10
Purchased intangible assets:	
Customer-related intangible assets	up to 20
Other	up to 80

Unamortized Intangible Assets

Within this asset class, the Group recognizes certain contract-based and marketing-related intangible assets, which are deemed to have an indefinite useful life.

In particular, the asset class comprises the below detailed investment management agreements related to retail mutual funds and certain trademarks. Due to the specific nature of these intangible assets, market prices are ordinarily not observable and, therefore, the Group values such assets based on the income approach, using a post-tax DCF-methodology.

Retail investment management agreements: These assets, amounting to € 770 million, relate to the Group’s U.S. retail mutual fund business and are allocated to the AM CGU. Retail investment management agreements are contracts that give DWS Group investments the exclusive right to manage a variety of mutual funds for a specified period. Since these contracts are easily renewable, the cost of renewal is minimal, and they have a long history of renewal, these agreements are not expected to have a foreseeable limit on the contract period. Therefore, the rights to manage the associated assets under management are expected to generate cash flows for an indefinite period of time. This intangible asset was recorded at fair value based upon a valuation provided by a third party at the date of acquisition of Zurich Scudder Investments, Inc. in 2002.

The recoverable amount was calculated as fair value less costs of disposal using the multi-period excess earnings method and the fair value measurement was categorized as Level 3 in the fair value hierarchy and is essentially flat compared to the carrying amount. The key assumptions in determining the fair value less costs of disposal include the asset mix, the flows forecast, the effective fee rate and discount rate as well as the terminal value growth rate. The discount rates (cost of equity) applied in the calculation were 9.8 % in 2019 and 10.2 % in 2018. The terminal value growth rate applied for 2019 is 4.1 % (for 2018 4.1 %). The reviews of the valuation for the years 2019 and 2018 neither resulted in any impairment nor a reversal of prior impairments.

Trademarks: The other unamortized intangible assets had included the Postbank (allocated to former Postbank CGU) and the Sal. Oppenheim (allocated to WM CGU) trademarks, which were both acquired in 2010. The Postbank trademark was initially recognized in 2010 at €382 million. In finalizing the purchase price allocation in 2011, the fair value of the Postbank trademark increased to €410 million. The Sal. Oppenheim trademark was recognized at €27 million. Since both trademarks were expected to generate cash flows for an indefinite period of time, they were classified as unamortized intangible assets. Both trademarks were recorded at fair value at the acquisition date, based on third party valuations. The recoverable amounts were calculated as the fair value less costs of disposal of the trademarks based on the income approach using the relief-from-royalty method. Reflecting the change in strategic intent and the expected deconsolidation of Postbank, the Postbank trademark (€410 million) was fully written off in the third quarter 2015. Following a review of the valuation model for the Sal. Oppenheim trademark, a write-down of €6 million was recorded in the fourth quarter 2015. The discontinuation of its use outside the German market led to a further write-down of €6 million recorded in the fourth quarter 2016. As the Group had announced on October 26, 2017 its intention to integrate the Sal. Oppenheim franchise into Deutsche Bank during 2018 and to no longer maintain the Sal. Oppenheim brand, the book value of the trademark (€15 million) was considered impaired and fully written off in the fourth quarter 2017.

24 – Non-Current Assets and Disposal Groups Held for Sale

Within the balance sheet, non-current assets and disposal groups held for sale are included in other assets and other liabilities.

in € m.	Dec 31, 2019	Dec 31, 2018
Cash and central bank balances	0	8
Financial assets at fair value through profit or loss	4,951	3
Loans	0	2,564
Property and equipment	15	62
Other assets	10	42
Total assets classified as held for sale	4,976	2,679
Deposits	0	874
Financial liabilities at fair value through profit or loss	2,671	4
Other liabilities	6,978	364
Total liabilities classified as held for sale	9,650	1,242

As of December 31, 2019 and December 31, 2018, no unrealized gains (losses) relating to non-current assets classified as held for sale were recognized directly in accumulated other comprehensive income (loss) (net of tax).

Transfer of Global Prime Finance and Electronic Equities platform to BNP Paribas S.A.

As part of the Group's strategic transformation and restructuring plans announced on July 7, 2019, the Management Board of Deutsche Bank AG ("Deutsche Bank") also announced the exit of the Equities Sales & Trading business, while retaining a focused equity capital markets operation. In this context, Deutsche Bank had entered into a preliminary agreement with BNP Paribas S.A. ("BNP Paribas") to provide continuity of service to its prime finance and electronic equities clients, with a view to transferring technology and staff to BNP Paribas in due course. Under the agreement, the Group would continue to operate the platform until clients are migrated to BNP Paribas, with revenues transferred to BNP Paribas and certain costs to be refunded to Deutsche Bank.

Following on from the preliminary agreement and as communicated on September 23, 2019, Deutsche Bank entered into a master transaction agreement with BNP Paribas pursuant to which certain clients of Deutsche Bank's Global Prime Finance business (except for Agency Securities Lending business) ("GPF") and Electronic Equities business ("EE") are referred to BNP Paribas. Where applicable, the referred clients would establish new accounts with BNP Paribas. Certain defined assets and liabilities relating to such referred clients would be transferred by the referred clients to their existing or, as the case may be, new accounts at BNP Paribas. Furthermore, the agreement includes certain IT applications, IP rights and IT assets (including hardware) used to handle transactions for the referred clients and other IP rights relating to the GPF and EE businesses to be licensed, sold or otherwise transferred to BNP Paribas.

On November 14, 2019, BNP Paribas and Deutsche Bank announced that the agreement to refer clients and to transfer technology and key staff from the GPF and EE businesses to BNP Paribas had received the necessary approvals and was therefore considered unconditional. The revenue transfer and cost reimbursement arrangement commenced on December 1, 2019. Accordingly, in the fourth quarter 2019, the assets (€5.0 billion) and liabilities (€9.6 billion) forming the transaction perimeter were classified as assets and liabilities held for sale of the Capital Release Unit (CRU). The assets and liabilities included in the disposal group are predominantly financial instruments which will either be novated to BNP Paribas, or the balances will be closed out between Deutsche Bank and the counterparties and simultaneously the clients would enter into the equivalent transactions with BNP Paribas. The measurement of the financial instruments is not impacted by their held for sale classification. In the third quarter 2019, the IT software and hardware assets were initially measured and recognized in accordance with applicable accounting rules. A comparison of the fair value less costs to sell and net assets of the disposal group resulted in an initial impairment loss of €28 million recorded in General and administrative expenses included in CRU. During the fourth quarter 2019 and following their reclassification to the held for sale category, the assets were measured at the lower of their carrying amount and fair value less cost to sell, resulting in a further impairment loss of €3 million recorded in CRU. It is expected that the transaction will unwind by end of 2021 with client transactions, IT hardware and software and employees transferred over the period.

Disposals in 2019

Division	Disposal	Financial impact ¹	Date of the disposal
Capital Release Unit	On June 9, 2019 and as planned, Deutsche Bank completed the sale of its Private & Commercial Bank ("PCB") business in Portugal to ABANCA Corporación Bancaria S.A. ("ABANCA"). The unit was previously classified as a disposal group held for sale in the first quarter 2018. Upon closing, the Group transferred assets under management of approximately €3 billion, deposits of €1 billion, and loans of €3 billion as well as approximately 330 FTE to ABANCA.	None.	Second quarter 2019.

¹ Impairment losses and reversals of impairment losses are included in Other income.

Non-Current Assets and Disposal Groups Held for Sale as of December 31, 2018

Division	Non-current assets and disposal groups held for sale	Financial impact ¹	Additional information
Capital Release Unit	On March 27, 2018, the Group announced that it had entered into an agreement to sell its local PCB business in Portugal to ABANCA. Accordingly and at the end of the first quarter 2018, the business was classified as a disposal group held for sale. With the transaction, Deutsche Bank continues to execute its strategy to sharpen its focus and reduce complexity. The transaction remained subject to regulatory approvals and other conditions.	The valuation of the unit resulted in the recognition of a pre-tax loss of €(53) million which was recorded in other income (€(40) million) and general and administrative expense (€(13) million) of PCB in the first quarter 2018.	Disposed of in second quarter 2019.

¹ Impairment losses and reversals of impairment losses are included in Other income.

Disposals in 2018

Division	Disposal	Financial impact ¹	Date of the disposal
Capital Release Unit	<p>Following the announcement made on December 14, 2017 that Deutsche Bank had entered into an agreement to sell its Polish PCB business from Deutsche Bank Polska S.A. ("DB Polska"), excluding its foreign currency denominated retail mortgage portfolio, together with DB Securities S.A., to Santander Bank Polska S.A. ("Santander Bank Polska", former Bank Zachodni WBK S.A.), the Group obtained all material outstanding regulatory approvals on July 17, 2018 to proceed with the designated transaction. Accordingly, in the third quarter 2018 the respective business was classified as a disposal group held for sale. The sale is in line with the Group's effort to continue to sharpen its focus and reduce complexity. Santander Bank Polska is part of the Santander Group, with Banco Santander S.A. being its parent company. The transaction was subject to approvals of the Polish FSA, other regulatory approvals, corporate consents and other conditions and closed in the fourth quarter 2018.</p> <p>At closing of the transaction, the declaration of backing issued by Deutsche Bank AG in favor of DB Polska was terminated with regard to the liabilities included in the divested business. The declaration of backing issued in favor of DB Polska continues for the remaining business.</p>	<p>Before its classification as a disposal group held for sale, the Group had revalued the designated disposal unit and recorded a pre-tax loss of € (157) million included in PCB's other income of the fourth quarter 2017. Updating the revaluation of the unit prior to its disposal in 2018 led to additional net year-to-date pre-tax charges of € (17) million recorded in PCB's net revenues for 2018.</p>	Fourth quarter 2018.

¹ Impairment losses and reversals of impairment losses are included in Other income.

25 – Other Assets and Other Liabilities

in € m.	Dec 31, 2019	Dec 31, 2018
Brokerage and securities related receivables		
Cash/margin receivables	49,147	42,827
Receivables from prime brokerage	15	3
Pending securities transactions past settlement date	1,687	3,654
Receivables from unsettled regular way trades	12,552	20,191
Total brokerage and securities related receivables	63,401	66,675
Debt Securities held to collect	24,292	5,184
Accrued interest receivable	2,614	2,536
Assets held for sale	4,976	2,679
Other	15,075	16,371
Total other assets	110,358	93,444

in € m.	Dec 31, 2019	Dec 31, 2018
Brokerage and securities related payables		
Cash/margin payables	59,291	55,475
Payables from prime brokerage	6	15,495
Pending securities transactions past settlement date	1,588	2,228
Payables from unsettled regular way trades	10,402	17,510
Total brokerage and securities related payables	71,287	90,708
Accrued interest payable	2,420	2,486
Liabilities held for sale	9,650	1,242
Other	24,607	23,078
Total other liabilities	107,964	117,513

For further details on the assets and liabilities held for sale, please refer to Note 24 "Non-Current Assets and Disposal Groups Held for Sale".

26 – Deposits

in € m.	Dec 31, 2019	Dec 31, 2018
Noninterest-bearing demand deposits	228,731	221,746
Interest-bearing deposits		
Demand deposits	135,276	126,280
Time deposits	121,120	130,039
Savings deposits	87,081	86,340
Total interest-bearing deposits	343,477	342,659
Total deposits	572,208	564,405

27 – Provisions

Movements by Class of Provisions

in € m.	Operational Risk	Civil Litigation	Regulatory Enforcement	Re-structuring	Other	Total ¹
Balance as of January 1, 2018	275	1,115	897	696	889	3,873
Changes in the group of consolidated companies	0	0	0	1	(2)	(2)
New provisions	27	334	125	427	765	1,677
Amounts used	54	673	364	344	862	2,296
Unused amounts reversed	41	160	206	185	364	956
Effects from exchange rate fluctuations/Unwind of discount	5	42	41	(1)	(1)	87
Transfers	2	25	6	(9)	9	33
Balance as of December 31, 2018	215	684	499	585	433	2,416
Changes in the group of consolidated companies	(0)	0	0	(0)	(2)	(2)
New provisions	43	533	74	603	593	1,846
Amounts used	22	591	34	395	546	1,589
Unused amounts reversed	116	128	3	125	87	459
Effects from exchange rate fluctuations/Unwind of discount	(0)	8	9	(10)	2	8
Transfers	(0)	39	(1)	27	(9)	56
Balance as of December 31, 2019	119	544	543	684	384	2,276

¹ For the remaining portion of provisions as disclosed on the consolidated balance sheet, please see Note 19 "Allowance for Credit Losses", in which allowances for credit related off-balance sheet positions are disclosed.

Classes of Provisions

Operational Risk provisions arise out of operational risk and exclude civil litigation and regulatory enforcement provisions, which are presented as separate classes of provisions. Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. The definition used for the purposes of determining operational provisions differs from the risk management definition, as it excludes risk of loss resulting from civil litigation and regulatory enforcement matters. For risk management purposes, operational risk includes legal risk, as payments to customers, counterparties and regulatory bodies in civil litigations or regulatory enforcement matters constitute loss events for operational shortcomings, but excludes business and reputational risk.

Civil Litigation provisions arise out of current or potential claims or proceedings alleging non-compliance with contractual or other legal or regulatory responsibilities, which have resulted or may result in demands from customers, counterparties or other parties in civil litigations.

Regulatory Enforcement provisions arise out of current or potential claims or proceedings alleging non-compliance with legal or regulatory responsibilities, which have resulted or may result in an assessment of fines or penalties by governmental regulatory agencies, self-regulatory organizations or other enforcement authorities.

Restructuring provisions arise out of restructuring activities. The Group aims to enhance its long-term competitiveness through major reductions in costs, duplication and complexity in the years ahead. For details see Note 10 “Restructuring”.

Other provisions include several specific items arising from a variety of different circumstances, including the provision for the reimbursement of loan processing fees, deferred sales commissions, provisions for bank levies and mortgage repurchase demands.

Provisions and Contingent Liabilities

The Group recognizes a provision for potential loss only when there is a present obligation arising from a past event that is probable to result in an economic outflow that can be reliably estimated. Where a reliable estimate cannot be made for such an obligation, no provision is recognized and the obligation is deemed a contingent liability. Contingent liabilities also include possible obligations for which the possibility of future economic outflow is more than remote but less than probable. Where a provision has been taken for a particular claim, no contingent liability is recorded; for matters or sets of matters consisting of more than one claim, however, provisions may be recorded for some claims, and contingent liabilities (or neither a provision nor a contingent liability) may be recorded for others.

The Group operates in a legal and regulatory environment that exposes it to significant litigation risks. As a result, the Group is involved in litigation, arbitration and regulatory proceedings and investigations in Germany and in a number of jurisdictions outside Germany, including the United States. In recent years, regulation and supervision in a number of areas have increased, and regulators, governmental bodies and others have sought to subject financial services providers to increasing oversight and scrutiny, which in turn has led to additional regulatory investigations and enforcement actions which are often followed by civil litigation. This trend has accelerated markedly as a result of the global financial crisis.

In determining for which of the claims the possibility of a loss is probable, or less than probable but more than remote, and then estimating the possible loss for those claims, the Group takes into consideration a number of factors, including but not limited to the nature of the claim and its underlying facts, the procedural posture and litigation history of each case, rulings by the courts or tribunals, the Group’s experience and the experience of others in similar cases (to the extent this is known to the Group), prior settlement discussions, settlements by others in similar cases (to the extent this is known to the Group), available indemnities and the opinions and views of legal counsel and other experts.

The provisions the Group has recognized for civil litigation and regulatory enforcement matters as of December 31, 2019 and December 31, 2018 are set forth in the table above. For some matters for which the Group believes an outflow of funds is probable, no provisions were recognized as the Group could not reliably estimate the amount of the potential outflow.

For the matters for which a reliable estimate can be made, the Group currently estimates that, as of December 31, 2019, the aggregate future loss of which the possibility is more than remote but less than probable is approximately € 1.8 billion for civil litigation matters (December 31, 2018: € 2.5 billion) and € 0.2 billion for regulatory enforcement matters (December 31, 2018: € 0.2 billion). These figures include matters where the Group's potential liability is joint and several and where the Group expects any such liability to be paid by a third party. For other significant civil litigation and regulatory enforcement matters, the Group believes the possibility of an outflow of funds is more than remote but less than probable but the amount is not reliably estimable, and accordingly such matters are not included in the contingent liability estimates. For still other significant civil litigation and regulatory enforcement matters, the Group believes the possibility of an outflow of funds is remote and therefore has neither recognized a provision nor included them in the contingent liability estimates.

This estimated possible loss, as well as any provisions taken, is based upon currently available information and is subject to significant judgment and a variety of assumptions, variables and known and unknown uncertainties. These uncertainties may include inaccuracies in or incompleteness of the information available to the Group, particularly at the preliminary stages of matters, and assumptions by the Group as to future rulings of courts or other tribunals or the likely actions or positions taken by regulators or adversaries may prove incorrect. Moreover, estimates of possible loss for these matters are often not amenable to the use of statistical or other quantitative analytical tools frequently used in making judgments and estimates, and are subject to even greater degrees of uncertainty than in many other areas where the Group must exercise judgment and make estimates. The estimated possible loss, as well as any provisions taken, can be and often are substantially less than the amount initially requested by regulators or adversaries or the maximum potential loss that could be incurred were the matters to result in a final adjudication adverse to the Group. Moreover, in several regions in which the Group operates, an adversary often is not required to set forth the amount it is seeking, and where it is, the amount may not be subject to the same requirements that generally apply to pleading factual allegations or legal claims.

The matters for which the Group determines that the possibility of a future loss is more than remote will change from time to time, as will the matters as to which a reliable estimate can be made and the estimated possible loss for such matters. Actual results may prove to be significantly higher or lower than the estimate of possible loss in those matters where such an estimate was made. In addition, loss may be incurred in matters with respect to which the Group believed the likelihood of loss was remote. In particular, the estimated aggregate possible loss does not represent the Group's potential maximum loss exposure for those matters.

The Group may settle litigation or regulatory proceedings or investigations prior to a final judgment or determination of liability. It may do so to avoid the cost, management efforts or negative business, regulatory or reputational consequences of continuing to contest liability, even when the Group believes it has valid defenses to liability. It may also do so when the potential consequences of failing to prevail would be disproportionate to the costs of settlement. Furthermore, the Group may, for similar reasons, reimburse counterparties for their losses even in situations where it does not believe that it is legally compelled to do so.

Current Individual Proceedings

Set forth below are descriptions of civil litigation and regulatory enforcement matters or groups of matters for which the Group has taken material provisions, or for which there are material contingent liabilities that are more than remote, or for which there is the possibility of material business or reputational risk; similar matters are grouped together and some matters consist of a number of proceedings or claims. The disclosed matters include matters for which the possibility of a loss is more than remote but for which the Group cannot reliably estimate the possible loss. Sets of matters are presented in English-language alphabetical order based on the titles the Group has used for them.

Cum-ex Investigations and Litigations. Deutsche Bank has received inquiries from law enforcement authorities, including requests for information and documents, in relation to cum-ex transactions of clients. "Cum-ex" refers to trading activities in German shares around dividend record dates (trade date before and settlement date after dividend record date) for the purpose of obtaining German tax credits or refunds in relation to withholding tax levied on dividend payments including, in particular, transaction structures that have resulted in more than one market participant claiming such credit or refund with respect to the same dividend payment. Deutsche Bank is cooperating with the law enforcement authorities in these matters.

The Public Prosecutor in Cologne (Staatsanwaltschaft Köln, "CPP") has been conducting a criminal investigation since August 2017 concerning two former employees of Deutsche Bank in relation to cum-ex transactions of certain former clients of the Bank. Deutsche Bank is a potential secondary participant pursuant to Section 30 of the German Law on Administrative Offences in this proceeding. This proceeding could result in a disgorgement of profits and fines. Deutsche Bank is cooperating with the CPP. At the end of May and beginning of June 2019, the CPP initiated criminal investigations against further current and former employees of Deutsche Bank and five former Management Board members. The investigation is still at an early stage and the scope of the investigation may be broadened.

Deutsche Bank acted as participant in and filed withholding tax refund claims through the electronic refund procedure (elektronisches Datenträgerverfahren) on behalf of, inter alia, two former custody clients in connection with their cum-ex transactions. In February 2018, Deutsche Bank received from the German Federal Tax Office (Bundeszentralamt für Steuern, "FTO") a demand of approximately €49 million for tax refunds paid to a former custody client. Deutsche Bank expects to receive a formal notice for the same amount. On December 20, 2019, Deutsche Bank received a liability notice from the FTO requesting payment of €2.1 million by January 20, 2020 in connection with tax refund claims Deutsche Bank had submitted on behalf of another former custody client. On January 20, 2020, Deutsche Bank made the requested payment and filed an objection against the liability notice. The FTO has set a deadline for submission by Deutsche Bank of the reasoning for the objection of March 31, 2020.

By letter dated February 26, 2018, The Bank of New York Mellon SA/NV ("BNY") informed Deutsche Bank of its intention to seek indemnification for potential cum-ex related tax liabilities incurred by BHF Asset Servicing GmbH ("BAS") and/or Frankfurter Service Kapitalanlage-GmbH ("Service KAG", now named BNY Mellon Service Kapitalanlage-Gesellschaft mbH). Deutsche Bank had acquired BAS and Service KAG as part of the acquisition of Sal. Oppenheim in 2010 and sold them to BNY in the same year. BNY estimates the potential tax liability to amount to up to €120 million (excluding interest of 6 per cent p.a.). On August 19, 2019, the Regional Court Bonn issued an order making Service KAG, as fund administrator to certain investment funds that were potentially involved in cum-ex transactions in 2009/2010, a third party subject to confiscation under the German Criminal Code in connection with a criminal trial against certain other individuals. Such confiscation in relation to Service KAG could relate to a significant portion of the aforementioned potential tax liability (plus interest of 6 per cent p.a.). The criminal trial commenced on September 4, 2019 and is still ongoing. On December 10, 2019, counsel to BNY forwarded to Deutsche Bank two hearing letters from the FTO that were addressed to BAS with respect to its function as depot bank to certain other investment funds. In these letters, the FTO stated that a potential liability of BAS exists and that BAS should expect a liability notice in this regard. BNY responded to the hearing letters on December 30, 2019.

On February 6, 2019, the Regional Court (Landgericht) Frankfurt am Main served Deutsche Bank with a claim by M.M.Warburg & CO Gruppe GmbH and M.M.Warburg & CO (AG & Co.) KGaA (together "Warburg") in connection with cum-ex transactions of Warburg with a custody client of Deutsche Bank during 2007 to 2011. Warburg claims from Deutsche Bank indemnification against German taxes in relation to transactions conducted in the years 2010 and 2011. Further, Warburg claims compensation of unspecified damages relating to these transactions and declaratory relief that Deutsche Bank will have to indemnify Warburg against any potential future tax assessments for cum-ex transactions conducted in the years 2007 to 2009. According to Warburg's claim, the Hamburg Tax Office has claimed from Warburg German taxes of approximately €42.7 million plus interest of approximately €14.6 million for 2010 and German taxes of approximately €4 million plus interest of approximately €1.6 million for 2011. According to the claim, neither taxes nor interest have yet been assessed against Warburg for the years 2007 to 2009. Deutsche Bank estimates that for the years 2007 to 2009 the aggregate amount of German taxes and interest could be as high as approximately €88.9 million and approximately €45.9 million, respectively. On May 15, 2019, Deutsche Bank filed its statement of defense with the Regional Court Frankfurt am Main rejecting any liability towards Warburg. On July 22, 2019, Deutsche Bank received Warburg's response statement. Deutsche Bank responded on October 21, 2019. On December 20, 2019, Deutsche Bank received the notice from the Regional Court Frankfurt am Main that the hearing date is scheduled for April 20, 2020.

The Group has not disclosed whether it has established a provision or contingent liability with respect to these matters because it has concluded that such disclosure can be expected to prejudice seriously their outcome.

Danske Bank Estonia Investigations. Deutsche Bank has received requests for information from regulatory and law enforcement agencies concerning the Bank's correspondent banking relationship with Danske Bank, including the Bank's historical processing of correspondent banking transactions on behalf of customers of Danske Bank's Estonia branch prior to cessation of the correspondent banking relationship with that branch in 2015. Deutsche Bank is providing information to and otherwise cooperating with the investigating agencies. The Bank has also completed an internal investigation into these matters, including of whether any violations of law, regulation or policy occurred and the effectiveness of the related internal control environment. Additionally, on September 23 and 24, 2019, based on a search warrant issued by the Local Court (Amtsgericht) in Frankfurt, the Frankfurt public prosecutor's office conducted investigations into Deutsche Bank. The investigations are in connection with suspicious activity reports relating to money laundering at Danske Bank. The Bank is cooperating in the investigation.

The Group has not established a provision or contingent liability with respect to this matter.

FX Investigations and Litigations. Deutsche Bank has received requests for information from certain regulatory and law enforcement agencies globally who investigated trading in, and various other aspects of, the foreign exchange market. Deutsche Bank cooperated with these investigations. Relatedly, Deutsche Bank has conducted its own internal global review of foreign exchange trading and other aspects of its foreign exchange business.

On October 19, 2016, the US Commodity Futures Trading Commission (CFTC), Division of Enforcement issued a letter (“CFTC Letter”) notifying Deutsche Bank that the CFTC Division of Enforcement “is not taking any further action at this time and has closed the investigation of Deutsche Bank” regarding foreign exchange. As is customary, the CFTC Letter states that the CFTC Division of Enforcement “maintains the discretion to decide to reopen the investigation at any time in the future.” The CFTC Letter has no binding impact on other regulatory and law enforcement agency investigations regarding Deutsche Bank’s foreign exchange trading and practices.

On December 7, 2016, it was announced that Deutsche Bank reached an agreement with CADE, the Brazilian antitrust enforcement agency, to settle an investigation into conduct by a former Brazil-based Deutsche Bank trader. As part of that settlement, Deutsche Bank paid a fine of BRL 51 million and agreed to continue to comply with the CADE’s administrative process until it is concluded. This resolves CADE’s administrative process as it relates to Deutsche Bank, subject to Deutsche Bank’s continued compliance with the settlement terms.

On February 13, 2017, the U.S. Department of Justice (DOJ), Criminal Division, Fraud Section, issued a letter (“DOJ Letter”) notifying Deutsche Bank that the DOJ has closed its criminal inquiry “concerning possible violations of federal criminal law in connection with the foreign exchange markets.” As is customary, the DOJ Letter states that the DOJ may reopen its inquiry if it obtains additional information or evidence regarding the inquiry. The DOJ Letter has no binding impact on other regulatory and law enforcement agency investigations regarding Deutsche Bank’s foreign exchange trading and practices.

On April 20, 2017, it was announced that Deutsche Bank AG, DB USA Corporation and Deutsche Bank AG New York Branch reached an agreement with the Board of Governors of the Federal Reserve System to settle an investigation into Deutsche Bank’s foreign exchange trading and practices. Under the terms of the settlement, Deutsche Bank entered into a cease-and-desist order, and agreed to pay a civil monetary penalty of US\$ 137 million. In addition, the Federal Reserve ordered Deutsche Bank to “continue to implement additional improvements in its oversight, internal controls, compliance, risk management and audit programs” for its foreign exchange business and other similar products, and to periodically report to the Federal Reserve on its progress.

On June 20, 2018, it was announced that Deutsche Bank AG and Deutsche Bank AG New York Branch reached an agreement with the New York State Department of Financial Services (DFS) to settle an investigation into Deutsche Bank’s foreign exchange trading and sales practices. Under the terms of the settlement, Deutsche Bank entered into a consent order, and agreed to pay a civil monetary penalty of US\$ 205 million. In addition, the DFS ordered Deutsche Bank to continue to implement improvements in its oversight, internal controls, compliance, risk management and audit programs for its foreign exchange business, and to periodically report to the DFS on its progress.

Investigations conducted by certain other regulatory agencies are ongoing, and Deutsche Bank has cooperated with these investigations.

There are currently two U.S. actions pending against Deutsche Bank. On February 25, 2020, plaintiffs in the “Indirect Purchasers” action pending in the U.S. District Court for the Southern District of New York (*Contant, et al. v. Bank of America Corp., et al.*) informed the court of a global settlement with all defendants remaining in that action, including Deutsche Bank. Pending preliminary and final settlement approval orders approving Deutsche Bank’s settlement, plaintiffs will dismiss with prejudice all claims alleged against Deutsche Bank in that action. Filed on November 7, 2018, *Allianz, et al. v. Bank of America Corporation, et al.*, was brought on an individual basis by a group of asset managers who opted out of the settlement in a consolidated action (*In re Foreign Exchange Benchmark Rates Antitrust Litigation*). Plaintiffs filed a second amended complaint on June 11, 2019. Defendants’ motion to dismiss the second amended complaint is pending. Discovery has commenced pending resolution of defendants’ motion to dismiss.

Deutsche Bank also has been named as a defendant in two Canadian class proceedings brought in the provinces of Ontario and Quebec. Filed on September 10, 2015, these class actions assert factual allegations similar to those made in the consolidated action in the United States and seek damages pursuant to the Canadian Competition Act as well as other causes of action. Plaintiffs in the Ontario action have moved for class certification. Deutsche Bank has opposed and a hearing on the class certification motion was held during the week of February 24, 2020.

Deutsche Bank has also been named as a defendant in an amended and consolidated class action filed in Israel. This action asserts factual allegations similar to those made in the consolidated action in the United States and seeks damages pursuant to Israeli antitrust law as well as other causes of action. This action is in preliminary stages and Deutsche Bank has not yet been formally served.

The Group has not disclosed whether it has established a provision or contingent liability with respect to these matters because it has concluded that such disclosure can be expected to prejudice seriously their outcome.

Interbank and Dealer Offered Rates Matters. *Regulatory and Law Enforcement Matters.* Deutsche Bank has responded to requests for information from, and cooperated with, various regulatory and law enforcement agencies, in connection with industry-wide investigations concerning the setting of the London Interbank Offered Rate (LIBOR), Euro Interbank Offered Rate (EURIBOR), Tokyo Interbank Offered Rate (TIBOR) and other interbank and/or dealer offered rates.

As previously reported, Deutsche Bank paid € 725 million to the European Commission pursuant to a settlement agreement dated December 4, 2013 in relation to anticompetitive conduct in the trading of interest rate derivatives.

Also as previously reported, on April 23, 2015, Deutsche Bank entered into separate settlements with the DOJ, the CFTC, the UK Financial Conduct Authority (FCA), and the New York State Department of Financial Services (DFS) to resolve investigations into misconduct concerning the setting of LIBOR, EURIBOR, and TIBOR. Under the terms of these agreements, Deutsche Bank paid penalties of US\$ 2.175 billion to the DOJ, CFTC and DFS and GBP 226.8 million to the FCA. As part of the resolution with the DOJ, DB Group Services (UK) Limited (an indirectly-held, wholly-owned subsidiary of Deutsche Bank) pled guilty to one count of wire fraud in the U.S. District Court for the District of Connecticut and Deutsche Bank entered into a Deferred Prosecution Agreement with a three year term pursuant to which it agreed (among other things) to the filing of an Information in the U.S. District Court for the District of Connecticut charging Deutsche Bank with one count of wire fraud and one count of price fixing in violation of the Sherman Act. On April 23, 2018, the Deferred Prosecution Agreement expired, and the U.S. District Court for the District of Connecticut subsequently dismissed the criminal Information against Deutsche Bank.

Also, as previously reported, on March 20, 2017, Deutsche Bank paid CHF 5.4 million to the Swiss Competition Commission (WEKO) pursuant to a settlement agreement in relation to Yen LIBOR.

On October 25, 2017, Deutsche Bank entered into a settlement with a working group of U.S. state attorneys general resolving their interbank offered rate investigation. Among other conditions, Deutsche Bank made a settlement payment of US\$ 220 million.

Other investigations of Deutsche Bank concerning the setting of various interbank and/or dealer offered rates remain ongoing.

The Group has not disclosed whether it has established a provision or contingent liability with respect to the remaining investigations because it has concluded that such disclosure can be expected to prejudice seriously their outcome.

Overview of Civil Litigations. Deutsche Bank is party to 42 U.S. civil actions concerning alleged manipulation relating to the setting of various interbank and/or dealer offered rates which are described in the following paragraphs, as well as single actions pending in each of the UK, Israel and Argentina. Most of the civil actions, including putative class actions, are pending in the U.S. District Court for the Southern District of New York (SDNY), against Deutsche Bank and numerous other defendants. All but three of the US civil actions were filed on behalf of parties who allege losses as a result of manipulation relating to the setting of US dollar LIBOR. The three civil actions pending against Deutsche Bank that do not relate to US dollar LIBOR were also filed in the SDNY, and include one consolidated action concerning Pound Sterling (GBP) LIBOR, one action concerning Swiss franc (CHF) LIBOR, and one action concerning two Singapore Dollar (SGD) benchmark rates, the Singapore Interbank Offered Rate (SIBOR) and the Swap Offer Rate (SOR).

Claims for damages for all 42 of the U.S. civil actions discussed have been asserted under various legal theories, including violations of the U.S. Commodity Exchange Act, federal and state antitrust laws, the US Racketeer Influenced and Corrupt Organizations Act, and other federal and state laws. The Group has not disclosed whether it has established a provision or contingent liability with respect to these matters because it has concluded that such disclosure can be expected to prejudice seriously their outcome.

US dollar LIBOR. With two exceptions, all of the U.S. civil actions concerning US dollar LIBOR are being coordinated as part of a multidistrict litigation (the "US dollar LIBOR MDL") in the SDNY. In light of the large number of individual cases pending against Deutsche Bank and their similarity, the civil actions included in the US dollar LIBOR MDL are now subsumed under the following general description of the litigation pertaining to all such actions, without disclosure of individual actions except when the circumstances or the resolution of an individual case is material to Deutsche Bank.

Following a series of decisions in the US dollar LIBOR MDL between March 2013 and March 2019 narrowing their claims, plaintiffs are currently asserting antitrust claims, claims under the U.S. Commodity Exchange Act and U.S. Securities Exchange Act and state law fraud, contract, unjust enrichment and other tort claims. The court has also issued decisions dismissing certain plaintiffs' claims for lack of personal jurisdiction and on statute of limitations grounds.

On December 20, 2016, the district court issued a ruling dismissing certain antitrust claims while allowing others to proceed. Multiple plaintiffs have filed appeals of the district court's December 20, 2016 ruling to the U.S. Court of Appeals for the Second Circuit, and those appeals are proceeding in parallel with the ongoing proceedings in the district court. Briefing of the appeals is complete, and oral argument was heard on May 24, 2019.

On July 13, 2017, Deutsche Bank executed a settlement agreement in the amount of US\$ 80 million with plaintiffs to resolve a putative class action pending as part of the US dollar LIBOR MDL asserting claims based on alleged transactions in Eurodollar futures and options traded on the Chicago Mercantile Exchange (*Metzler Investment GmbH v. Credit Suisse Group AG*). The settlement agreement was submitted to the court for preliminary approval on October 11, 2017, and the court granted preliminary approval on March 2, 2020. The settlement amount is already fully reflected in existing litigation provisions and no additional provisions have been taken for this settlement. The settlement agreement is subject to further review and approval by the court.

Plaintiff in one of the non-MDL cases proceeding in the SDNY moved to amend its complaint following a dismissal of its claims. On March 20, 2018, the court denied plaintiff's motion for leave to amend and entered judgment in the action, closing the case. Plaintiff appealed the court's decision, and on April 30, 2019, the U.S. Court of Appeals for the Second Circuit affirmed the district court's decision. On July 29, 2019, the plaintiff sought further review from the U.S. Supreme Court, which was denied on October 7, 2019. Accordingly, the action is not included in the total number of actions above.

In January and March 2019, plaintiffs filed three putative class action complaints in the SDNY against several financial institutions, alleging that the defendants, members of the panel of banks that provided US dollar LIBOR submissions, the organization that administers LIBOR, and their affiliates, conspired to suppress US dollar LIBOR submissions from February 1, 2014 through the present. These actions were subsequently consolidated under *In re ICE LIBOR Antitrust Litigation*, and on July 1, 2019, the plaintiffs filed a consolidated amended complaint. The consolidated action is the subject of fully briefed motions to dismiss, and oral argument was heard on January 30, 2020. This action is not part of the US dollar LIBOR MDL.

There is a further UK civil action regarding US dollar LIBOR brought by the U.S. Federal Deposit Insurance Corporation, in which a claim for damages has been asserted pursuant to Article 101 of The Treaty on the Functioning of the European Union, Section 2 of Chapter 1 of the UK Competition Act 1998 and U.S. state laws. Deutsche Bank is defending this action.

A further class action regarding LIBOR, EURIBOR and TIBOR has been filed in Israel seeking damages for losses incurred by Israeli individuals and entities. Deutsche Bank is contesting service and jurisdiction.

A further class action regarding LIBOR has been filed in Argentina seeking damages for losses allegedly suffered by holders of Argentine bonds that calculated interest rates based on LIBOR. Deutsche Bank is defending this action.

SIBOR and SOR. A putative class action alleging manipulation of the Singapore Interbank Offered Rate (SIBOR) and Swap Offer Rate (SOR) remains pending. On July 26, 2019, the SDNY granted the defendants' motion to dismiss the action, dismissing all claims against Deutsche Bank, and denied plaintiff's motion for leave to file a fourth amended complaint. Plaintiff appealed that decision to the US Court of Appeals for the Second Circuit.

GBP LIBOR. A putative class action alleging manipulation of the Pound Sterling (GBP) LIBOR remains pending. On December 21, 2018, the SDNY partially granted defendants' motions to dismiss the action, dismissing all claims against Deutsche Bank. On August 16, 2019, the court denied plaintiffs' motion for partial reconsideration of the court's December 21, 2018 decision. Plaintiffs have filed a notice of appeal; the US Court of Appeals for the Second Circuit has ordered that the appeal be held in abeyance pending that court's decision in the appeal of the SIBOR and SOR class action.

CHF LIBOR. A putative class action alleging manipulation of the Swiss Franc (CHF) LIBOR remains pending. On September 16, 2019, the SDNY granted defendants' motion to dismiss the action, dismissing all claims against Deutsche Bank. Plaintiffs have filed a notice of appeal; the U.S. Court of Appeals for the Second Circuit has ordered that the appeal be held in abeyance pending that court's decision in the appeal of the SIBOR and SOR class action.

CDOR. A putative class action alleging manipulation of the Canadian Dealer Offered Rate (CDOR) was filed in the SDNY. On March 14, 2019, the court granted defendants' motions to dismiss the amended complaint, dismissing all claims against Deutsche Bank. Plaintiff filed a notice of appeal. On July 25, 2019, the plaintiff stipulated to the withdrawal of its appeal. Accordingly, the action is not included in the total number of actions above.

Investigations Into Referral Hiring Practices and Certain Business Relationships. On August 22, 2019, Deutsche Bank reached a settlement with the U.S. Securities and Exchange Commission (SEC) to resolve its investigation into the Bank's hiring practices related to candidates referred by clients, potential clients and government officials. The Bank agreed to pay US \$ 16 million as part of the settlement. The U.S. Department of Justice (DOJ) has closed its investigation of the Bank regarding its hiring practices. Certain regulators and law enforcement authorities in various jurisdictions, including the SEC and the DOJ, are investigating, among other things, Deutsche Bank's compliance with the U.S. Foreign Corrupt Practices Act and other laws with respect to the Bank's engagement of finders and consultants. Deutsche Bank is responding to and continuing to cooperate with these investigations. Certain regulators in other jurisdictions have also been briefed on these investigations. The Group has recorded a provision with respect to certain of these regulatory investigations. The Group has not disclosed the amount of this provision because it has concluded that such disclosure can be expected to prejudice seriously the outcome of these regulatory investigations.

Kirch. The public prosecutor's office in Munich (*Staatsanwaltschaft München I*) has conducted and is currently conducting criminal investigations in connection with the Kirch case inter alia with regard to former Deutsche Bank Management Board members. The Kirch case involved several civil proceedings between Deutsche Bank AG and Dr. Leo Kirch as well as media companies controlled by him. The key issue was whether an interview given by Dr. Rolf Breuer, then Spokesman of Deutsche Bank's Management Board, in 2002 with Bloomberg television, during which Dr. Breuer commented on Dr. Kirch's (and his companies') inability to obtain financing, caused the insolvency of the Kirch companies. In February 2014, Deutsche Bank and the Kirch heirs reached a comprehensive settlement, which has ended all legal disputes between them.

The allegations of the public prosecutor are that the relevant former Management Board members failed to correct in a timely manner factual statements made by Deutsche Bank's litigation counsel in submissions filed in one of the civil cases between Kirch and Deutsche Bank AG before the Munich Higher Regional Court and the Federal Court of Justice, after allegedly having become aware that such statements were not correct, and/or made incorrect statements in such proceedings, respectively.

On April 25, 2016, following the trial before the Regional Court Munich regarding the main investigation involving Jürgen Fitschen and four other former Management Board members, the Regional Court acquitted all of the accused, as well as the Bank, which was a secondary participant in such proceedings. On April 26, 2016, the public prosecutor filed an appeal. An appeal is limited to a review of legal errors rather than facts. On October 18, 2016, a few weeks after the written judgment was served, the public prosecutor provided notice that it will uphold its appeal only with respect to former Management Board members Jürgen Fitschen, Dr. Rolf Breuer and Dr. Josef Ackermann and that it will withdraw its appeal with respect to former Management Board members Dr. Clemens Börsig and Dr. Tessen von Heydebreck for whom the acquittal thereby becomes binding. On January 24, 2018, the Attorney General's Office applied to convene an oral hearing before the Federal Supreme Court to decide about the Munich public prosecutor's appeal. This oral hearing was held on October 22, 2019. On October 31, 2019, the Federal Supreme Court confirmed the acquittals in the Kirch criminal proceedings.

After the Federal Supreme Court's judgement of October 31, 2019, the other investigations by the public prosecutor (which also deal with attempted litigation fraud in the Kirch civil proceedings) were terminated.

Mortgage-Related and Asset-Backed Securities Matters and Investigation. *Regulatory and Governmental Matters.* Deutsche Bank, along with certain affiliates (collectively referred in these paragraphs to as "Deutsche Bank"), received subpoenas and requests for information from certain regulators and government entities, including members of the Residential Mortgage-Backed Securities Working Group of the U.S. Financial Fraud Enforcement Task Force, concerning its activities regarding the origination, purchase, securitization, sale, valuation and/or trading of mortgage loans, residential mortgage-backed securities (RMBS), commercial mortgage-backed securities (CMBS), collateralized debt obligations (CDOs), other asset-backed securities and credit derivatives. Deutsche Bank fully cooperated in response to those subpoenas and requests for information.

On December 23, 2016, Deutsche Bank announced that it reached a settlement-in-principle with the DOJ to resolve potential claims related to its RMBS business conducted from 2005 to 2007. The settlement became final and was announced by the DOJ on January 17, 2017. Under the settlement, Deutsche Bank paid a civil monetary penalty of US\$ 3.1 billion and agreed to provide US\$ 4.1 billion in consumer relief.

In September 2016, Deutsche Bank received administrative subpoenas from the Maryland Attorney General seeking information concerning Deutsche Bank's RMBS and CDO businesses from 2002 to 2009. On June 1, 2017, Deutsche Bank and the Maryland Attorney General reached a settlement to resolve the matter for US\$ 15 million in cash and US\$ 80 million in consumer relief (to be allocated from the overall US\$ 4.1 billion consumer relief obligation agreed to as part of Deutsche Bank's settlement with the DOJ).

The Group has recorded provisions with respect to some of the outstanding regulatory investigations but not others, a portion of which relates to the consumer relief being provided under the DOJ settlement. The Group has not disclosed the amount of these provisions because it has concluded that such disclosure can be expected to prejudice seriously the resolution of these matters.

Issuer and Underwriter Civil Litigation. Deutsche Bank has been named as defendant in numerous civil litigations brought by private parties in connection with its various roles, including issuer or underwriter, in offerings of RMBS and other asset-backed securities. These cases, described below, allege that the offering documents contained material misrepresentations and omissions, including with regard to the underwriting standards pursuant to which the underlying mortgage loans were issued, or assert that various representations or warranties relating to the loans were breached at the time of origination. The Group has recorded provisions with respect to several of these civil cases, but has not recorded provisions with respect to all of these matters. The Group has not disclosed the amount of these provisions because it has concluded that such disclosure can be expected to prejudice seriously the resolution of these matters.

Deutsche Bank is a defendant in a class action relating to its role as one of the underwriters of six RMBS offerings issued by Novastar Mortgage Corporation. No specific damages are alleged in the complaint. The lawsuit was brought by plaintiffs representing a class of investors who purchased certificates in those offerings. The parties reached a settlement to resolve the matter for a total of US\$ 165 million, a portion of which was paid by the Bank. On August 30, 2017, FHFA/Freddie Mac filed an objection to the settlement and shortly thereafter appealed the district court's denial of their request to stay settlement approval proceedings, which appeal was resolved against FHFA/Freddie Mac. The court approved the settlement on March 7, 2019 over FHFA/Freddie Mac's objections. FHFA filed its appeal on June 28, 2019.

Deutsche Bank was or is a defendant in three actions related to RMBS offerings brought by the U.S. Federal Deposit Insurance Corporation (FDIC) as receiver for: (a) Colonial Bank (alleging no less than US\$ 213 million in damages against all defendants), (b) Guaranty Bank (alleging no less than US\$ 901 million in damages against all defendants), and (c) Citizens National Bank and Strategic Capital Bank (alleging an unspecified amount in damages against all defendants). In each of these actions, the appellate courts reinstated claims previously dismissed on statute of limitations grounds and petitions for rehearing and certiorari to the US Supreme Court were denied. In the case concerning Colonial Bank, on July 2, 2019, the parties executed a settlement agreement to resolve the claims relating to the one RMBS offering for which Deutsche Bank is an underwriter defendant. Deutsche Bank did not make a monetary contribution to the settlement. In the case concerning Guaranty Bank, on November 5, 2019, the parties executed a settlement agreement to resolve the claims against Deutsche Bank, and the court dismissed the action on November 21, 2019. In the case concerning Citizens National Bank and Strategic Capital Bank, on July 31, 2017, the FDIC filed a second amended complaint, which defendants moved to dismiss on September 14, 2017. On October 18, 2019, defendants' motion to dismiss was denied.

In June 2014, HSBC, as trustee, brought an action in New York state court against Deutsche Bank to revive a prior action, alleging that Deutsche Bank failed to repurchase mortgage loans in the ACE Securities Corp. 2006-SL2 RMBS offering. The revival action was stayed during the pendency of an appeal of the dismissal of a separate action wherein HSBC, as trustee, brought an action against Deutsche Bank alleging breaches of representations and warranties made by Deutsche Bank concerning the mortgage loans in the same offering. On March 29, 2016, the court dismissed the revival action, and on April 29, 2016, plaintiff filed a notice of appeal. On July 8, 2019, plaintiff filed its opening appellate brief. On November 19, 2019, the appellate court affirmed the dismissal. On December 19, 2019, plaintiff filed a motion to appeal to the New York Court of Appeals, which was denied on February 13, 2020.

Deutsche Bank is a defendant in cases concerning two RMBS trusts that were brought initially by RMBS investors and subsequently by HSBC, as trustee, in New York state court. The cases allege breaches of loan-level representations and warranties in the ACE Securities Corp. 2006-FM1 and ACE Securities Corp. 2007-ASAP1 RMBS offerings, respectively. Both cases were dismissed on statute of limitations grounds by the trial court on March 28, 2018. Plaintiff appealed the dismissals. On April 25, 2019, the First Department affirmed the dismissals on claims for breach of representations and warranties and for breach of the implied covenant of good faith and fair dealing, but reversed the denial of the motions for leave to file amended complaints alleging failure to notify the trustee of alleged representations and warranty breaches. HSBC filed amended complaints on April 30, 2019, and Deutsche Bank filed its answers on June 3, 2019. Discovery is ongoing. On October 25, 2019, plaintiffs filed two complaints seeking to revive, under Section 205(a) of the New York Civil Practice Law and Rules, the breach of representations and warranties claims as to which dismissal was affirmed in the case concerning ACE 2006-FM1. On December 16, 2019, Deutsche Bank moved to dismiss these actions.

In the actions against Deutsche Bank solely as an underwriter of other issuers' RMBS offerings, Deutsche Bank has contractual rights to indemnification from the issuers, but those indemnity rights may in whole or in part prove effectively unenforceable where the issuers are now or may in the future be in bankruptcy or otherwise defunct.

Trustee Civil Litigation. Deutsche Bank is a defendant in civil lawsuits brought by various groups of investors concerning its role as trustee of certain RMBS trusts. The actions generally allege claims for breach of contract, breach of fiduciary duty, breach of the duty to avoid conflicts of interest, negligence and/or violations of the U.S. Trust Indenture Act of 1939, based on the trustees' alleged failure to perform adequately certain obligations and/or duties as trustee for the trusts.

Two putative class actions brought by a group of investors, including funds managed by BlackRock Advisors, LLC, PIMCO-Advisors, L.P., and others, were settled. One of these putative class actions was pending in the Superior Court of California until the court dismissed the action with prejudice on January 11, 2019. The second putative class action was pending in the US District Court for the Southern District of New York and was dismissed with prejudice on December 6, 2018. Two other putative class actions, brought by Royal Park Investments SA/NV in the U.S. District Court for the Southern District of New York, have also been settled, and the court dismissed both actions with prejudice on June 10, 2019.

Deutsche Bank is currently a defendant in four separate civil lawsuits, all of which involve direct claims.

The four individual lawsuits include actions by (a) the National Credit Union Administration Board ("NCUA"), as an investor in 37 trusts, which allegedly suffered total realized collateral losses of US \$ 8.5 billion; (b) certain CDOs (collectively, "Phoenix Light") that hold RMBS certificates issued by 43 RMBS trusts, and seeking "hundreds of millions of dollars in damages"; (c) Commerzbank AG, as an investor in 50 RMBS trusts, seeking recovery for alleged "hundreds of millions of dollars in losses"; and (d) IKB International, S.A. in Liquidation and IKB Deutsche Industriebank AG (collectively, "IKB"), as an investor in 30 RMBS trusts, seeking more than US \$ 268 million of damages. In the NCUA case, NCUA notified the court on August 31, 2018 that it was dismissing claims relating to 60 out of the 97 trusts originally at issue; on October 15, 2019, NCUA's motion for leave to amend its complaint was granted, and Deutsche Bank's motion to dismiss the amended complaint was granted in part and denied in part, dismissing NCUA's tort claims but preserving its breach-of-contract claims. In the Phoenix Light case and Commerzbank case, on December 7, 2018 the parties filed motions for summary judgment, which have been fully briefed as of March 9, 2019. In the IKB case, the court heard oral argument on the trustee's motion to dismiss on May 3, 2017, but has not yet issued a decision. Discovery is ongoing.

The Group has established contingent liabilities with respect to certain of these matters but the Group has not disclosed the amounts because it has concluded that such disclosure can be expected to prejudice seriously the outcome of these matters.

Postbank Voluntary Public Takeover Offer. On September 12, 2010, Deutsche Bank announced the decision to make a voluntary takeover offer for the acquisition of all shares in Deutsche Postbank AG (Postbank). On October 7, 2010, the Bank published the official offer document. In its takeover offer, Deutsche Bank offered Postbank shareholders consideration of € 25 for each Postbank share. The takeover offer was accepted for a total of approximately 48.2 million Postbank shares.

In November 2010, a former shareholder of Postbank, Effecten-Spiegel AG, which had accepted the takeover offer, brought a claim against Deutsche Bank alleging that the offer price was too low and was not determined in accordance with the applicable law of the Federal Republic of Germany. The plaintiff alleges that Deutsche Bank had been obliged to make a mandatory takeover offer for all shares in Postbank, at the latest, in 2009. The plaintiff avers that, at the latest in 2009, the voting rights of Deutsche Post AG in Postbank had to be attributed to Deutsche Bank AG pursuant to Section 30 of the German Takeover Act. Based thereon, the plaintiff alleges that the consideration offered by Deutsche Bank AG for the shares in Postbank in the 2010 voluntary takeover offer needed to be raised to € 57.25 per share.

The Regional Court Cologne (*Landgericht*) dismissed the claim in 2011 and the Cologne appellate court dismissed the appeal in 2012. The Federal Court set aside the Cologne appellate court's judgment and referred the case back to the appellate court. In its judgment, the Federal Court stated that the appellate court had not sufficiently considered the plaintiff's allegation that Deutsche Bank AG and Deutsche Post AG "acted in concert" in 2009.

Starting in 2014, additional former shareholders of Postbank, who accepted the 2010 tender offer, brought similar claims as Effecten-Spiegel AG against Deutsche Bank which are pending with the Regional Court Cologne and the Higher Regional Court of Cologne, respectively. On October 20, 2017, the Regional Court Cologne handed down a decision granting the claims in a total of 14 cases which were combined in one proceeding. The Regional Court Cologne took the view that Deutsche Bank was obliged to make a mandatory takeover offer already in 2008 so that the appropriate consideration to be offered in the takeover offer should have been € 57.25 per share. Taking the consideration paid into account, the additional consideration per share owed to shareholders which have accepted the takeover offer would thus amount to € 32.25. Deutsche Bank appealed this decision and the appeal has been assigned to the 13th Senate of the Higher Regional Court of Cologne, which also is hearing the appeal of Effecten-Spiegel AG.

On November 8, 2017, a hearing took place before the Higher Regional Court of Cologne in the Effecten-Spiegel case. In that hearing, the Higher Regional Court indicated that it disagreed with the conclusions of the Regional Court Cologne and took the preliminary view that Deutsche Bank was not obliged to make a mandatory takeover offer in 2008 or 2009. Initially the Higher Regional Court resolved to announce a decision on December 13, 2017. However, this was postponed to February 2018 because the plaintiff challenged the three members of the 13th Senate of the Higher Regional Court of Cologne for alleged prejudice. The challenge was rejected by the Higher Regional Court of Cologne at the end of January 2018. In February 2018, the court granted a motion by Effecten-Spiegel AG to re-open the hearing.

The Higher Regional Court informed the parties by notice dated February 19, 2019 that it has doubts that an acting in concert can be based on the contractual clauses which the Regional Court Cologne found to be sufficient to assume an acting in concert (and to grant the plaintiffs' claims in October 2017). Against this background, the Higher Regional Court resolved to take further evidence and called a number of witnesses in both cases to be heard in several hearings from October 30, 2019 onwards until at least April 2020. The individuals to be heard include current and former board members of Deutsche Bank, Deutsche Post AG and Postbank as well as other persons involved in the Postbank transaction. In addition, the court had informed the parties that it was considering to request from Deutsche Bank the production of relevant transaction documents. Thereafter, on April 15, 2019, the Higher Regional Court Cologne issued non-appealable orders for the production of relevant transaction documents by May 6, 2019. The documents produced by Deutsche Bank in accordance with these orders include the original sale and purchase agreement related to the acquisition of Postbank shares between Deutsche Bank and Deutsche Post AG dated September 12, 2008, the related postponement agreement dated December 22, 2008 and the related amendment agreement dated January 14, 2009. In addition, Deutsche Bank produced the indenture for a mandatory exchangeable bond dated February 25, 2009 as well as a pledge agreement dated December 30, 2008. The court orders only relate to the main bodies of the respective contracts, but the court may extend its orders to exhibits of those contracts at a later point in time. By order dated September 17, 2019, the Higher Regional Court ordered that the transaction documents produced to the court in May 2019 shall also be provided to the court in the original by October 7, 2019. Deutsche Bank has therefore deposited the originals of the aforementioned transaction documents with the court on October 2, 2019.

Stefan Krause, a former Deutsche Bank Management Board member, (who is to testify on request of the plaintiffs) invoked the right to refuse to give testimony because in February 2018 a law firm representing some plaintiffs in the above-mentioned civil actions had filed a criminal complaint with the public prosecutor in Frankfurt am Main against certain Deutsche Bank personnel alleging that they engaged in fraudulent conduct in connection with the takeover offer. However, the competent public prosecutors rejected opening proceedings. On April 10, 2019, the Higher Regional Court Cologne issued a non-appealable decision acknowledging Mr. Krause's right to refuse to give testimony.

Former Deutsche Bank Management Board members Dr. Josef Ackermann, Rainer Neske and Frank Strauss also informed the Higher Regional Court Cologne, in August, September and October 2019, respectively, that they each invoke the right not to give testimony because of the aforementioned criminal complaint. In November 2019 and January 2020, respectively, the Higher Regional Court Cologne confirmed in separate interim proceedings (*Zwischenverfahren*) – in which Deutsche Bank was not a party – by a non-appealable decision the right to refuse to give testimony in each of these cases.

Deutsche Bank has been served with a large number of additional lawsuits filed against Deutsche Bank shortly before the end of 2017, almost all of which are now pending with the Regional Court Cologne. Some of the new plaintiffs allege that the consideration offered by Deutsche Bank AG for the shares in Postbank in the 2010 voluntary takeover should be raised to €64.25 per share.

The claims for payment against Deutsche Bank in relation to these matters total almost €700 million (excluding interest).

The Group has established a contingent liability with respect to these matters but the Group has not disclosed the amount of this contingent liability because it has concluded that such disclosure can be expected to prejudice seriously the outcome of these matters.

Further Proceedings Relating to the Postbank Takeover. In September 2015, former shareholders of Postbank filed in the Regional Court Cologne shareholder actions against Postbank to set aside the squeeze-out resolution taken in the shareholders meeting of Postbank in August 2015. Among other things, the plaintiffs allege that Deutsche Bank was subject to a suspension of voting rights with respect to its shares in Postbank based on the allegation that Deutsche Bank failed to make a mandatory takeover offer at a higher price in 2009. The squeeze out is final and the proceeding itself has no reversal effect, but may result in damage payments. The claimants in this proceeding refer to legal arguments similar to those asserted in the Effecten-Spiegel proceeding described above. In a decision on October 20, 2017, the Regional Court Cologne declared the squeeze-out resolution to be void. The court, however, did not rely on a suspension of voting rights due to an alleged failure of Deutsche Bank to make a mandatory takeover offer, but argued that Postbank violated information rights of Postbank shareholders in Postbank's shareholders meeting in August 2015. Postbank has appealed this decision. The Higher Regional Court Cologne scheduled an oral hearing for May 7, 2020.

The legal question of whether Deutsche Bank had been obliged to make a mandatory takeover offer for all Postbank shares prior to its 2010 voluntary takeover may also impact two pending appraisal proceedings (Spruchverfahren). These proceedings were initiated by former Postbank shareholders with the aim to increase the cash compensation offered in connection with the squeeze-out of Postbank shareholders in 2015 and the cash compensation offered and annual guaranteed dividend paid in connection with the execution of a domination and profit and loss transfer agreement (Beherrschungs- und Gewinnabführungsvertrag) between DB Finanz-Holding AG (now DB Beteiligungs-Holding GmbH) and Postbank in 2012.

The applicants in the appraisal proceedings claim that a potential obligation of Deutsche Bank to make a mandatory takeover offer for Postbank at an offer price of €57.25 should be decisive when determining the adequate cash compensation in the appraisal proceedings. The Regional Court Cologne had originally followed this legal opinion of the applicants in two resolutions. In a decision dated June 2019, the Regional Court of Cologne expressly deviated from this legal resolution in the appraisal proceedings in connection with execution of a domination and profit and loss transfer agreement. According to this decision, the question whether Deutsche Bank was obliged to make a mandatory offer for all Postbank shares prior to its voluntary takeover offer in 2010 shall not be relevant for determining the appropriate cash compensation. It is likely that the Regional Court Cologne will take the same legal position in the appraisal proceedings in connection with the squeeze-out.

The Group has not disclosed whether it has established a provision or contingent liability with respect to this matter because it has concluded that such disclosure can be expected to prejudice seriously its outcome.

Russia/UK Equities Trading Investigation. Deutsche Bank has investigated the circumstances around equity trades entered into by certain clients with Deutsche Bank in Moscow and London that offset one another. The total volume of transactions reviewed is significant. Deutsche Bank's internal investigation of potential violations of law, regulation and policy and into the related internal control environment has concluded, and Deutsche Bank has assessed the findings identified during the investigation; to date it has identified certain violations of Deutsche Bank's policies and deficiencies in Deutsche Bank's control environment. Deutsche Bank has advised regulators and law enforcement authorities in several jurisdictions (including Germany, Russia, the UK and the United States) of this investigation. Deutsche Bank has taken disciplinary measures with regards to certain individuals in this matter.

On January 30 and 31, 2017, the DFS and the FCA announced settlements with the Bank related to their investigations into this matter. The settlements conclude the DFS and the FCA's investigations into the Bank's anti-money laundering (AML) control function in its investment banking division, including in relation to the equity trading described above. Under the terms of the settlement agreement with the DFS, Deutsche Bank entered into a consent order, and agreed to pay civil monetary penalties of US\$ 425 million and to engage an independent monitor for a term of up to two years. Under the terms of the settlement agreement with the FCA, Deutsche Bank agreed to pay civil monetary penalties of approximately GBP 163 million. On May 30, 2017, the Federal Reserve announced its settlement with the Bank resolving this matter as well as additional AML issues identified by the Federal Reserve. Deutsche Bank paid a penalty of US\$ 41 million. Deutsche Bank also agreed to retain independent third parties to assess its Bank Secrecy Act/AML program and review certain foreign correspondent banking activity of its subsidiary Deutsche Bank Trust Company Americas. The Bank is also required to submit written remediation plans and programs.

Deutsche Bank continues to cooperate with regulators and law enforcement authorities, including the DOJ which has its own ongoing investigation into these securities trades. The Group has recorded a provision with respect to the remaining investigation. The Group has not disclosed the amount of this provision because it has concluded that such disclosure can be expected to prejudice seriously the outcome of this matter.

Sovereign, Supranational and Agency Bonds (SSA) Investigations and Litigations. Deutsche Bank has received inquiries from certain regulatory and law enforcement authorities, including requests for information and documents, pertaining to SSA bond trading. Deutsche Bank is cooperating with these investigations.

On December 20, 2018, the European Commission sent a Statement of Objections to Deutsche Bank regarding a potential breach of EU antitrust rules in relation to secondary market trading of SSA bonds denominated in US dollars. The sending of a Statement of Objections is a step in the European Commission's investigation and does not prejudice the outcome of the investigation. Deutsche Bank has proactively cooperated with the European Commission in this matter and as a result has been granted immunity. In accordance with the European Commission's guidelines, Deutsche Bank does not expect a financial penalty.

Deutsche Bank is a defendant in several putative class action complaints filed in the U.S. District Court for the Southern District of New York by alleged direct and indirect market participants claiming violations of antitrust law and common law related to alleged manipulation of the secondary trading market for SSA bonds. Deutsche Bank has reached an agreement to settle the actions by direct market participants for the amount of US\$ 48.5 million and has recorded a provision in the same amount. The settlement is subject to court approval. The action filed on behalf of alleged indirect market participants is in its early stages.

Deutsche Bank is also a defendant in putative class actions filed on November 7, 2017 and December 5, 2017 in the Ontario Superior Court of Justice and Federal Court of Canada, respectively, claiming violations of antitrust law and the common law relating to alleged manipulation of secondary trading of SSA bonds. The complaints rely on allegations similar to those in the US class actions involving SSA bond trading, and seek compensatory and punitive damages. The cases are in their early stages.

Deutsche Bank was named as a defendant in a consolidated putative class action filed in the U.S. District Court for the Southern District of New York alleging violations of US antitrust law and a claim for unjust enrichment relating to Mexican government bond trading. In October 2019, the court granted defendants' motion to dismiss plaintiffs' consolidated amended complaint without prejudice. In December 2019, plaintiffs filed a Second Amended Complaint, which defendants moved to dismiss on February 21, 2020.

Deutsche Bank was also named as a defendant in several putative class action complaints filed in the US District Court for the Southern District of New York alleging violations of antitrust law and common law related to alleged manipulation of the secondary trading market for U.S. Agency bonds; on September 3, 2019, the court denied a motion to dismiss the complaint. Deutsche Bank has reached an agreement to settle the class actions for the amount of US\$ 15 million, which amount was already fully reflected in existing litigation reserves and no additional provision was taken for this settlement amount. The court granted preliminary approval over the settlement on October 29, 2019, supported by an opinion issued November 8, 2019. The settlement remains subject to final court approval, and the court has scheduled a final fairness hearing for June 9, 2020. As of December 16, 2019, all other defendants also reached settlements with the class action plaintiffs, which if approved by the court will result in a total of US\$ 386.5 million paid to the settlement class. A separate action was filed in the U.S. District Court for the Middle District of Louisiana on September 23, 2019, which was dismissed with prejudice as to Deutsche Bank by stipulation of the parties on October 30, 2019.

Other than as noted above, the Group has not disclosed whether it has established provisions or contingent liabilities with respect to the matters referred to above because it has concluded that such disclosure can be expected to prejudice seriously their outcome.

Trust Preferred Securities Litigation. Deutsche Bank and certain of its affiliates and former officers are the subject of a consolidated putative class action, filed in the United States District Court for the Southern District of New York, asserting claims under the federal securities laws on behalf of persons who purchased certain trust preferred securities issued by Deutsche Bank and its affiliates between October 2006 and May 2008. In a series of opinions, the court dismissed all claims as to four of the six offerings at issue, but allowed certain alleged omissions claims relating to the November 2007 and February 2008 offerings to proceed. The district court limited claims relating to the two offerings remaining in the case to alleged failures (i) to disclose “any known trends or uncertainties that have had or that the registrant reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations” and (ii) to disclose “the most significant factors that make the offering speculative or risky” pursuant to Items 303 and 503 of Regulation S-K. Defendants have served Answers denying all wrongdoing. On October 2, 2018, the district court certified a plaintiff class as to both offerings. All discovery was completed and defendants moved for summary judgment. On September 24, 2019, plaintiffs informed the court that the parties have reached a settlement agreement in principle to resolve the litigation, subject to court approval and final documentation. As a result, the court stayed all proceedings pending settlement. On November 15, 2019, the settlement agreement was executed and plaintiffs moved for preliminary approval of the settlement. On February 27, 2020, the court granted preliminary approval of the settlement, and set the final approval hearing for June 11, 2020. The settlement amount is already fully reflected in existing litigation provisions.

US Treasury Securities Investigations and Litigations. Deutsche Bank has received inquiries from certain regulatory and law enforcement authorities, including requests for information and documents, pertaining to U.S. Treasuries auctions, trading, and related market activity. Deutsche Bank is cooperating with these investigations.

Deutsche Bank’s subsidiary Deutsche Bank Securities Inc. (DBSI) was a defendant in several putative class actions alleging violations of U.S. antitrust law, the U.S. Commodity Exchange Act and common law related to the alleged manipulation of the U.S. Treasury securities market. These cases have been consolidated in the Southern District of New York. On November 16, 2017, plaintiffs filed a consolidated amended complaint, which did not name DBSI as a defendant. On December 11, 2017, the court dismissed DBSI from the class action without prejudice.

The Group has not disclosed whether it has established a provision or contingent liability with respect to these matters because it has concluded that such disclosure can be expected to prejudice seriously their outcome.

28 – Credit related Commitments and Contingent Liabilities

Irrevocable lending commitments and lending related contingent liabilities

In the normal course of business the Group regularly enters into irrevocable lending commitments, including fronting commitments as well as contingent liabilities consisting of financial and performance guarantees, standby letters of credit and indemnity agreements on behalf of its customers. Under these contracts the Group is required to perform under an obligation agreement or to make payments to the beneficiary based on third party's failure to meet its obligations. For these instruments it is not known to the Group in detail if, when and to what extent claims will be made. In the event that the Group has to pay out cash in respect of its fronting commitments, the Group would immediately seek reimbursement from the other syndicate lenders. The Group considers all the above instruments in monitoring the credit exposure and may require collateral to mitigate inherent credit risk. If the credit risk monitoring provides sufficient perception about a loss from an expected claim, a provision is established and recorded on the balance sheet.

The following table shows the Group's revocable lending commitments, irrevocable lending commitments and lending related contingent liabilities without considering collateral or provisions. It shows the maximum potential utilization of the Group in case all these liabilities entered into must be fulfilled. The table therefore does not show the expected future cash flows from these liabilities as many of them will expire without being drawn and arising claims will be honoured by the customers or can be recovered from proceeds of arranged collateral.

Irrevocable lending commitments and lending related contingent liabilities

in € m.	Dec 31, 2019	Dec 31, 2018
Irrevocable lending commitments	167,788	167,722
Revocable lending commitments	43,652	44,327
Contingent liabilities	49,232	51,605
Total	260,672	263,654

Other commitments and other contingent liabilities

The following table shows the Group's other irrevocable commitments and other contingent liabilities without considering collateral or provisions. It shows the maximum potential utilization of the Group in case all these liabilities entered into must be fulfilled. The table therefore does not show the expected future cash flows from these liabilities as many of them will expire without being drawn and arising claims will be honoured by the customers or can be recovered from proceeds of arranged collateral.

Other commitments and other contingent liabilities

in € m.	Dec 31, 2019	Dec 31, 2018
Other commitments	143	130
Other contingent liabilities	78	74
Total	220	204

Government Assistance

In the course of its business, the Group regularly applies for and receives government support by means of Export Credit Agency ("ECA") guarantees covering transfer and default risks for the financing of exports and investments into Emerging Markets and to a lesser extent, developed markets for Structured Trade & Export Finance and short- and medium-term Trade Finance business. Almost all export-oriented states have established such ECAs to support their domestic exporters. The ECAs act in the name and on behalf of the government of their respective country and are either constituted directly as governmental departments or organized as private companies vested with the official mandate of the government to act on its behalf. Terms and conditions of such ECA guarantees are broadly similar due to the fact that most of the ECAs act within the scope of the Organization for Economic Cooperation and Development ("OECD") consensus rules. The OECD consensus rules, an intergovernmental agreement of the OECD member states, define benchmarks intended to ensure that a fair competition between different exporting nations will take place.

In some countries dedicated funding programs with governmental support are offered for ECA-covered financings. The Group makes use of such programs to assist its clients in the financing of exported goods and services. In certain financings, the Group also receives government guarantees from national and international governmental institutions as collateral to support financings in the interest of the respective governments. The majority of such ECA guarantees received by the Group were issued either by the Euler-Hermes Kreditversicherungs-AG acting on behalf of the Federal Republic of Germany, by the Korean Export Credit Agencies (Korea Trade Insurance Corporation and The Export-Import Bank of Korea) acting on behalf of the Republic of Korea or by Chinese Export Credit Agency (China Export & Insurance Corporation (Sinosure)) acting on behalf of the People's Republic of China.

Irrevocable payment commitments with regard to levies

Irrevocable payment commitments related to bank levy according to Bank Recovery and Resolution Directive (BRRD), the Single Resolution Fund (SRF) and the German statutory deposit protection amounted to €767.3 million as of December 31, 2019, and to €595.1 million as of December 31, 2018.

29 – Other Short-Term Borrowings

in € m.	Dec 31, 2019	Dec 31, 2018
Other short-term borrowings:		
Commercial paper	1,585	2,752
Other	3,633	11,406
Total other short-term borrowings	5,218	14,158

30 – Long-Term Debt and Trust Preferred Securities

Long-Term Debt by Earliest Contractual Maturity

in € m.	Due in 2020	Due in 2021	Due in 2022	Due in 2023	Due in 2024	Due after 2024	Total Dec 31, 2019	Total Dec 31, 2018
Senior debt:								
Bonds and notes:								
Fixed rate	14,317	19,966	9,885	7,896	7,954	17,224	77,243	77,894
Floating rate	4,429	7,212	3,421	1,704	1,356	5,823	23,944	30,495
Subordinated debt:								
Bonds and notes:								
Fixed rate	1,884	0	0	30	15	3,588	5,517	5,297
Floating rate	167	0	0	1,226	24	0	1,417	1,420
Other	17,291	1,546	773	1,213	1,732	5,797	28,352	36,977
Total long-term debt	38,088	28,724	14,079	12,069	11,080	32,433	136,473	152,083

The Group did not have any defaults of principal, interest or other breaches with respect to its liabilities in 2019 and 2018.

Trust Preferred Securities¹

in € m.	Dec 31, 2019	Dec 31, 2018
Fixed rate	976	2,194
Floating rate	1,037	975
Total trust preferred securities	2,013	3,168

¹ Perpetual instruments, redeemable at specific future dates at the Group's option.

31 – Maturity Analysis of the earliest contractual undiscounted cash flows of Financial Liabilities

Dec 31, 2019					
in € m.	On demand	Due within 3 months	Due between 3 and 12 months	Due between 1 and 5 years	Due after 5 years
Noninterest bearing deposits	228,731	0	0	0	0
Interest bearing deposits	135,330	113,449	68,955	16,258	10,468
Trading liabilities ¹	37,065	0	0	0	0
Negative market values from derivative financial instruments ¹	316,506	0	0	0	0
Financial liabilities designated at fair value through profit or loss	11,705	29,680	17,986	1,815	4,941
Investment contract liabilities ²	0	0	544	0	0
Negative market values from derivative financial instruments qualifying for hedge accounting ³	0	288	245	555	343
Central bank funds purchased	218	0	0	0	0
Securities sold under repurchase agreements	1,494	1,130	238	50	7
Securities loaned	258	0	0	0	0
Other short-term borrowings	1,893	2,435	1,368	0	0
Long-term debt	2	17,670	24,046	73,086	36,177
Trust preferred securities	0	12	2,073	0	0
Lease liabilities ⁴	53	144	533	1,922	957
Other financial liabilities	78,555	2,624	293	607	8
Off-balance sheet loan commitments	167,281	0	0	0	0
Financial guarantees	21,645	0	0	0	0
Total⁵	1,000,736	167,431	116,280	94,294	52,901

¹ Trading liabilities and derivatives not qualifying for hedge accounting balances are recorded at fair value. The Group believes that this best represents the cash flow that would have to be paid if these positions had to be closed out. Trading liabilities and derivatives not qualifying for hedge accounting balances are shown within "on demand" which Group's management believes most accurately reflects the short-term nature of trading activities. The contractual maturity of the instruments may however extend over significantly longer periods.

² These are investment contracts where the policy terms and conditions result in their redemption value equaling fair value.

³ Derivatives designated for hedge accounting are recorded at fair value and are shown in the time bucket at which the hedged relationship is expected to terminate.

⁴ Newly recognized liabilities along with the adoption of IFRS 16 in 2019, no comparatives available.

⁵ The balances in the table do not agree to the numbers in the Group's balance sheet as the cash flows included in the table are undiscounted. This analysis represents the worst case scenario for the Group if the Group was required to repay all liabilities earlier than expected. The Group believes that the likelihood of such an event occurring is remote.

Dec 31, 2018					
in € m.	On demand	Due within 3 months	Due between 3 and 12 months	Due between 1 and 5 years	Due after 5 years
Noninterest bearing deposits	221,746	0	0	0	0
Interest bearing deposits	126,416	137,089	47,258	21,683	12,059
Trading liabilities ¹	59,922	0	0	0	0
Negative market values from derivative financial instruments ¹	301,487	0	0	0	0
Financial liabilities designated at fair value through profit or loss	16,438	25,838	7,895	2,760	5,724
Investment contract liabilities ²	0	0	512	0	0
Negative market values from derivative financial instruments qualifying for hedge accounting ³	0	609	502	505	306
Central bank funds purchased	252	0	0	0	0
Securities sold under repurchase agreements	3,151	963	508	1	0
Securities loaned	3,358	3	0	0	0
Other short-term borrowings	11,067	2,258	1,622	0	0
Long-term debt	3	34,449	16,268	80,028	36,085
Trust preferred securities	0	36	3,306	0	0
Other financial liabilities	96,573	2,762	1,201	369	60
Off-balance sheet loan commitments	167,722	0	0	0	0
Financial guarantees	22,502	0	0	0	0
Total⁴	1,030,639	204,008	79,073	105,346	54,234

¹ Trading liabilities and derivatives not qualifying for hedge accounting balances are recorded at fair value. The Group believes that this best represents the cash flow that would have to be paid if these positions had to be closed out. Trading liabilities and derivatives not qualifying for hedge accounting balances are shown within "on demand" which Group's management believes most accurately reflects the short-term nature of trading activities. The contractual maturity of the instruments may however extend over significantly longer periods.

² These are investment contracts where the policy terms and conditions result in their redemption value equaling fair value.

³ Derivatives designated for hedge accounting are recorded at fair value and are shown in the time bucket at which the hedged relationship is expected to terminate.

⁴ The balances in the table do not agree to the numbers in the Group's balance sheet as the cash flows included in the table are undiscounted. This analysis represents the worst case scenario for the Group if the Group was required to repay all liabilities earlier than expected. The Group believes that the likelihood of such an event occurring is remote.

Additional Notes

32 – Common Shares

Common Shares

Deutsche Bank's share capital consists of common shares issued in registered form without par value. Under German law, each share represents an equal stake in the subscribed capital. Therefore, each share has a nominal value of € 2.56, derived by dividing the total amount of share capital by the number of shares.

Number of shares	Issued and fully paid	Treasury shares	Outstanding
Common shares, January 1, 2018	2,066,773,131	(371,090)	2,066,402,041
Shares issued under share-based compensation plans	0	0	0
Capital increase	0	0	0
Shares purchased for treasury	0	(372,179,750)	(372,179,750)
Shares sold or distributed from treasury	0	371,206,696	371,206,696
Common shares, December 31, 2018	2,066,773,131	(1,344,144)	2,065,428,987
Shares issued under share-based compensation plans	0	0	0
Capital increase	0	0	0
Shares purchased for treasury	0	(193,666,155)	(193,666,155)
Shares sold or distributed from treasury	0	194,338,942	194,338,942
Common shares, December 31, 2019	2,066,773,131	(671,357)	2,066,101,774

There are no issued ordinary shares that have not been fully paid.

Shares purchased for treasury mainly consist of shares purchased with the intention of being resold in the short-term as well as held by the Group for a period of time. In addition, the Group has bought back shares for equity compensation purposes. All such transactions were recorded in shareholders' equity and no revenues and expenses were recorded in connection with these activities. Treasury stock held as of year-end will mainly be used for future share-based compensation.

Capital Reserves

Capital reserves of the Group amount to € 40.5 billion (prior year: € 40.2 billion). Capital reserves presented in the financial statements of our parent company Deutsche Bank AG according to section 272 (2) HGB amount to € 22.7 billion (prior year: € 42 billion) according to German GAAP. The reduction is mainly due to a partial withdrawal to offset net losses according to German GAAP.

Authorized Capital

The Management Board is authorized to increase the share capital by issuing new shares for cash consideration. As of December 31, 2019, Deutsche Bank AG had authorized but unissued capital of € 2,560,000,000 which may be issued in whole or in part until April 30, 2022. Further details are governed by Section 4 of the Articles of Association.

Authorized capital	Consideration	Pre-emptive rights	Expiration date
€ 512,000,000	Cash	May be excluded pursuant to Section 186 (3) sentence 4 of the Stock Corporation Act and may be excluded in so far as it is necessary to grant pre-emptive rights to the holders of option rights, convertible bonds and convertible participatory rights	April 30, 2022
€ 2,048,000,000	Cash	May be excluded insofar as it is necessary to grant pre-emptive rights to the holders of option rights, convertible bonds and convertible participatory rights.	April 30, 2022

Conditional Capital

The Management Board is authorized to issue once or more than once, participatory notes that are linked with conversion rights or option rights and/or convertible bonds and/or bonds with warrants. The participatory notes, convertible bonds or bonds with warrants may also be issued by affiliated companies of Deutsche Bank AG. For this purpose share capital was increased conditionally upon exercise of these conversion and/or exchange rights or upon mandatory conversion.

Conditional capital	Purpose of conditional capital	Expiration date
€ 512,000,000	May be used if holders of conversion or option rights that are linked with participatory notes or convertible bonds or bonds with warrants make use of their conversion or option rights or holders with conversion obligations of convertible participatory notes or convertible bonds fulfill their obligation to convert.	April 30, 2022
€ 51,200,000	May be used to fulfill options that are awarded on or before the expiration date and will only be used to the extent that holders of issued options make use of their right to receive shares and shares are not delivered out of treasury shares	April 30, 2022

Dividends

The following table presents the amount of dividends proposed or declared for the years ended December 31, 2019, 2018 and 2017, respectively.

	2019 (proposed)	2018	2017
Cash dividends declared (in €)	0	227,000,000	227,000,000
Cash dividends declared per common share (in €)	0.00	0.11	0.11

No dividends have been declared since the balance sheet date.

33 – Employee Benefits

Share-Based Compensation Plans

The Group made grants of share-based compensation under the DB Equity Plan. This plan represents a contingent right to receive Deutsche Bank common shares after a specified period of time. The award recipient is not entitled to receive dividends during the vesting period of the award.

The share awards granted under the terms and conditions of the DB Equity Plan may be forfeited fully or partly if the recipient voluntarily terminates employment before the end of the relevant vesting period. Vesting usually continues after termination of employment in cases such as redundancy or retirement.

In countries where legal or other restrictions hinder the delivery of shares, a cash plan variant of the DB Equity Plan was used for granting awards.

The following table sets forth the basic terms of these share plans:

Grant year(s)	Deutsche Bank Equity Plan	Vesting schedule	Eligibility
2018-2019	Annual Award (CB/IB/CRU) ¹	1/4: 12 months ² 1/4: 24 months ² 1/4: 36 months ² 1/4: 48 months ²	Select employees as annual performance-based compensation
	Annual Award (non-CB/IB/CRU) ¹	1/3: 12 months ² 1/3: 24 months ² 1/3: 36 months ²	Select employees as annual performance-based compensation
	Annual Award (Senior Management) ¹	1/5: 12 months ² 1/5: 24 months ² 1/5: 36 months ² 1/5: 48 months ² 1/5: 60 months ²	Members of Management Board or of Senior Management
	Retention/New Hire	Individual specification	Select employees to attract and retain the best talent
	Annual Award – Upfront	Vesting immediately at grant ³	Regulated employees
2017	Annual Award ¹	1/4: 12 months ⁴ 1/4: 24 months ⁴ 1/4: 36 months ⁴ 1/4: 48 months ⁴ Or cliff vesting after 54 months ⁴	Select employees as annual performance-based compensation Members of Management Board or of Senior Leadership Cadre
	Retention/New Hire	Individual specification	Select employees to attract and retain the best talent
	Annual Award – Upfront	Vesting immediately at grant ³	Regulated employees
	Key Retention Plan (KRP) ⁵	1/2: 50 months ⁶ 1/2: 62 months ⁶ Cliff vesting after 43 months	Material Risk Takers (MRTs) Non-Material Risk Takers (non-MRTs)
	Annual Award	1/4: 12 months ⁴ 1/4: 24 months ⁴ 1/4: 36 months ⁴ 1/4: 48 months ⁴ Or cliff vesting after 54 months ⁴	Select employees as annual performance-based compensation Members of Management Board or of Senior Leadership Cadre
2016	Retention/New Hire	Individual specification	Select employees to attract and retain the best talent
	Annual Award – Upfront	Vesting immediately at grant ³	Regulated employees
	Key Position Award (KPA) ⁷	Cliff-vesting after 4 years ³	Select employees as annual retention

¹ For employees of certain legal entities, deferred equity is replaced with restricted shares due to local regulatory requirements. For grant year 2019 valid for divisions CB/IB/CRU; for grant year 2018 divisions were called CIB.

² For members of the Management Board or the Senior Management and all other InstVV-regulated employees a further retention period of twelve months applies (six months for awards granted in 2018).

³ For all regulated employees share delivery takes place after a further retention period of twelve months. For awards granted from 2018 this is only applicable to InstVV MRTs.

⁴ For members of the Management Board or of the Senior Leadership Cadre and all other regulated employees a further retention period of six months applies.

⁵ Equity-based awards granted under this plan in January 2017 are subject to an additional share price hurdle, meaning this award proportion only vests in the event that the Bank's share price reaches a certain share target price prior to vesting.

⁶ For Material Risk Takers (MRTs) share delivery takes place after a further retention period of twelve months.

⁷ A predefined proportion of the individual's KPA is subject to an additional share price hurdle, meaning this award proportion only vests in the event that the Bank's share price reaches a certain share target price prior to vesting.

Furthermore, the Group offers a broad-based employee share ownership plan entitled Global Share Purchase Plan ("GSPP"). The GSPP offers employees in specific countries the opportunity to purchase Deutsche Bank shares in monthly installments over one year. At the end of the purchase cycle, the bank matches the acquired stock in a ratio of one to one up to a maximum of ten free shares, provided that the employee remains at Deutsche Bank Group for another year. In total, about 11,180 staff from 18 countries enrolled in the eleventh cycle that began in November 2019.

The Group has other local share-based compensation plans, none of which, individually or in the aggregate, are material to the consolidated financial statements.

The following table shows the outstanding share award units as of the respective dates, which represent a contingent right to receive Deutsche Bank common shares after a specified period of time. It also includes the grants under the cash plan variant of the DB Equity Plan.

	Share units (in thousands)	Weighted- average grant date fair value per unit
Balance as of December 31, 2017	137,541	€ 14.78
Balance as of December 31, 2018	153,117	€ 11.15
Balance as of December 31, 2019	168,332	€ 8.96

Share-based payment transactions resulting in a cash payment give rise to a liability, which amounted to approximately € 6 million, € 12 million and € 23 million for the years ended December 31, 2019, 2018 and 2017, respectively.

As of December 31, 2019, the grant volume of outstanding share awards was approximately € 1.4 billion. Thereof, approximately € 1.2 billion had been recognized as compensation expense in the reporting year or prior to that. Hence, compensation expense for deferred share-based compensation not yet recognized amounted to approximately € 0.3 billion as of December 31, 2019.

Approximately 4.1 and 14.1 million shares were issued to plan participants in February and March 2020, resulting from the vesting of DB Equity Plan awards granted in prior years (thereof 0.1 million units for February and 0.2 million units for March 2020 vesting cycles under the cash plan variant of this DB Equity Plan).

DWS Share-Based Compensation Plans

There are two categories of share-based compensation plans, which are described below: DWS Share-Based Plans (cash-settled) and the DB Equity Plan (equity settled).

The DWS Group made grants of share-based compensation under the DWS Equity Plan. This plan represents a contingent right to receive a cash payment by referencing to the value of DWS shares during a specified time period.

In September 2018 one-off IPO related awards under the DWS Stock Appreciation Rights (SAR) Plan were granted to all DWS employees. A limited number of DWS senior managers were granted a one-off IPO-related Performance Share Unit (PSU) under the DWS Equity Plan instead. For members of the Executive Board, one-off IPO-related awards under the DWS Equity Plan were granted in January 2019.

The DWS SAR Plan represents a contingent right to receive a cash payment equal to any appreciation (or gain) in the value of a set number of notional DWS shares over a fixed period of time. This award does not provide any entitlement to receive DWS shares, voting rights or associated dividends.

The DWS Equity Plan is a phantom share plan representing a contingent right to receive a cash payment by referencing to the value of DWS shares during a specified period of time.

The award recipient for any share-based compensation plan is not entitled to receive dividends during the vesting period of the award.

The share awards granted under the terms and conditions of any share-based compensation plan are forfeited fully or partly if the recipient voluntarily terminates employment before the end of the relevant vesting period. Vesting usually continues after termination of employment in cases such as redundancy or retirement.

The following table sets forth the basic terms of the DWS share-based plans:

Grant year(s)	Award Type	Vesting schedule	Eligibility
2019 DWS Equity Plan	Annual Awards	1/3: 12 months ³ 1/3: 24 months ³ 1/3: 36 months ³	Select employees as annual performance-based compensation
	Annual Awards (Senior Management)	1/5: 12 months ³ 1/5: 24 months ³ 1/5: 36 months ³ 1/5: 48 months ³ 1/5: 60 months ³	Members of the Executive Board
	Annual Award - Upfront	Vesting immediately at grant ³	Regulated employees
	Retention/New Hire	Individual specification	Select employees to attract and retain the best talent
	Performance Share Unit (PSU) Award (one-off IPO related award) ¹	1/3: March 2022 ³ 1/3: March 2023 ³ 1/3: March 2024 ³	Members of the Executive Board
2018 DWS Equity Plan	Retention/New Hire	Individual specification	Select employees to attract and retain the best talent
	Performance Share Unit (PSU) Award (one-off IPO related award) ¹	1/3: March 2022 ³ 1/3: March 2023 ³ 1/3: March 2024 ³	Select Senior Managers
2018 DWS SAR Plan	SAR Award (one-off IPO related award) ²	For non-MRTs: June 1, 2021 ⁵ For MRTs: March 1, 2023 ³	all DWS employees ⁴

¹ The award and the number of units is subject to the achievement of pre-defined targets (Average Net flows (NNA)2019-2020 and FY 2020 Adjusted CIR (Cost Income Ratio) measured December 2020.

² The award is subject to a positive IBIT of the DWS Group December 2019.

³ Depending on their individual regulatory status, a 6 months retention period (AIFMD/UCITS MRTs) or a 12-months retention period (InstVV MRTs) applies after vesting.

⁴ Unless the employee received PSU Award.

⁵ Following vesting / retention period a 4-year exercise period applies.

As of December 31, 2019, the fair value of share-based awards made in 2018 and 2019 was approximately € 59 million (as of December 31, 2018: € 23 million for awards made in 2018). Of the awards granted in 2018 and 2019, approximately € 32 million has been recognised in 2019 or prior to that in the income statement (December 31, 2018: € 4 million recognised in 2018). Total unrecognised expense related to share-based plans is approximately € 27 million (December 31, 2018: € 19 million), dependent on future share price development.

The fair value of the awards have been measured using the Black-Scholes formula. The liabilities incurred are re-measured at the end of each reporting period until settlement. The principal inputs being the market value on reporting date, discounted for any dividends foregone over the holding periods of the award, and adjustment for expected and actual levels of vesting which includes estimating the number of eligible employees leaving the DWS Group and number of employees eligible for early retirement. The inputs used in the measurement of the fair values at grant date and measurement date of the awards were as follows:

	Measurement date Dec 31, 2019	Measurement date Dec 31, 2018	Measurement date Dec 31, 2019	Measurement date Dec 31, 2018
	PSU	PSU	SAR	SAR
Units (in thousands)	1,421	1,248	2,041	2,192
Fair value	€ 24.30	€ 14.18	€ 8.19	€ 3.35
Share price	€ 31.70	€ 23.37	€ 31.70	€ 23.37
Exercise price	N/A	N/A	€ 24.65	€ 24.65
Expected volatility (weighted-average)	34%	35%	34%	35%
Expected life (weighted-average) in years	4	5	6	6
Expected dividends (% of income)	65%	65%	65%	65%

Given the short timeframe since the IPO of the DWS Group, the expected volatility of the DWS share price has been based on an evaluation of the historical volatility for a comparable peer group over the preceding 5-year period. The expected dividend level is linked to the latest DWS Group communication.

In addition, the PSU Award has performance conditions which will determine the nominal amount which can ultimately vest under the award. These performance conditions are linked to the DWS Group strategy, specifically with regards to the target for net inflows and the adjusted cost income ratio, which will be tested prior to vesting in March 2021.

Post-employment Benefit Plans

Nature of Plans

The Group sponsors a number of post-employment benefit plans on behalf of its employees, both defined contribution plans and defined benefit plans. The Group's plans are accounted for based on the nature and substance of the plan. Generally, for defined benefit plans the value of a participant's accrued benefit is based on each employee's remuneration and length of service; contributions to defined contribution plans are typically based on a percentage of each employee's remuneration. The rest of this note focuses predominantly on the Group's defined benefit plans.

The Group's defined benefit plans are primarily described on a geographical basis, reflecting differences in the nature and risks of benefits, as well as in the respective regulatory environments. In particular, the requirements set by local regulators can vary significantly and determine the design and financing of the benefit plans to a certain extent. Key information is also shown based on participant status, which provides a broad indication of the maturity of the Group's obligations.

in € m.	Dec 31, 2019				
	Germany	UK	U.S.	Other	Total
Defined benefit obligation related to					
Active plan participants	5,031	680	282	650	6,643
Participants in deferred status	2,483	2,569	593	119	5,764
Participants in payment status	5,756	1,438	543	274	8,011
Total defined benefit obligation	13,270	4,687	1,418	1,043	20,418
Fair value of plan assets	11,915	5,615	1,143	982	19,655
Funding ratio (in %)	90 %	120 %	81 %¹	94 %	96 %

¹ US Total defined benefit obligation is inclusive of the unfunded US Medicare Plan (€181 million) in addition to defined benefit pension plans. The US defined benefit pension funding ratio excluding Medicare is 92 %.

in € m.	Dec 31, 2018				
	Germany	UK	U.S.	Other	Total
Defined benefit obligation related to					
Active plan participants	4,599	593	337	623	6,152
Participants in deferred status	2,210	2,286	500	97	5,093
Participants in payment status	5,144	989	500	242	6,875
Total defined benefit obligation	11,953	3,868	1,337	962	18,120
Fair value of plan assets	10,877	4,884	1,074	892	17,727
Funding ratio (in %)	91 %	126 %	80 %¹	93 %	98 %

¹ US Total defined benefit obligation is inclusive of the unfunded US Medicare Plan (€163 million) in addition to defined benefit pension plans. The US defined benefit pension funding ratio excluding Medicare is 92 %.

The majority of the Group's defined benefit plan obligations relate to Germany, the United Kingdom and the United States. Within the other countries, the largest obligation relates to Switzerland. In Germany and some continental European countries, post-employment benefits are usually agreed on a collective basis with respective employee workers councils, unions or their equivalent. The Group's main pension plans are governed by boards of trustees, fiduciaries or their equivalent.

Post-employment benefits can form an important part of an employee's total remuneration. The Group's approach is that their design shall be attractive to employees in the respective market, but sustainable for the Group to provide over the longer term. At the same time, the Group tries to limit its risks related to provision of such benefits. Consequently the Group has moved to offer defined contribution plans in many locations over recent years.

In the past the Group typically offered pension plans based on final pay prior to retirement. These types of benefits still form a significant part of the pension obligations for participants in deferred and payment status. Currently, in Germany and the United States, the main defined benefit pension plans for active staff are cash account type plans where the Group credits an annual amount to individual accounts based on an employee's current compensation. Dependent on the plan rules, the accounts increase either at a fixed interest rate or participate in market movements of certain underlying investments to limit the investment risk for the Group. Sometimes, in particular in Germany, there is a guaranteed benefit amount within the plan rules, e.g. payment of at least the amounts contributed. Upon retirement, beneficiaries may usually opt for a lump sum, a fixed number of annual instalments or for conversion of the accumulated account balance into a life annuity. This conversion is often based on market conditions and mortality assumptions at retirement. Recent changes to pension legislation and taxation in the UK continued to cause take-up of cash options and transfer values out of the defined benefit pension plans.

The Group also sponsors retirement and termination indemnity plans in several countries, as well as some post-employment medical plans for a number of current and retired employees, mainly in the United States. The post-employment medical plans typically pay fixed percentages of medical expenses of eligible retirees after a set deductible has been met. In the United States, once a retiree is eligible for Medicare, the Group contributes to a Health Reimbursement Account and the retiree is no longer eligible for the Group's medical program. The Group's total defined benefit obligation for post-employment medical plans was €220 million and €192 million at December 31, 2019 and December 31, 2018, respectively. In combination with the benefit structure, these plans represent limited risk for the Group, given the nature and size of the post-retirement medical plan liabilities of €220 million versus the size of the Group's balance sheet at year end 2019.

The following amounts of expected benefit payments from the Group's defined benefit plans include benefits attributable to employees' past and estimated future service, and include both amounts paid from the Group's external pension trusts and paid directly by the Group in respect of unfunded plans.

in € m.	Germany	UK	U.S.	Other	Total
Actual benefit payments 2019	446	154	109	73	782
Benefits expected to be paid 2020	453	129	76	62	720
Benefits expected to be paid 2021	456	101	78	60	695
Benefits expected to be paid 2022	473	109	79	60	721
Benefits expected to be paid 2023	486	122	82	60	750
Benefits expected to be paid 2024	498	131	82	64	775
Benefits expected to be paid 2025 – 2029	2,708	800	433	310	4,251
Weighted average duration of defined benefit obligation (in years)	14	21	11	13	15

Multi-employer Plans

In Germany, the Group is a member of the BVV Versicherungsverein des Bankgewerbes a.G. (BVV) together with other financial institutions. The BVV offers retirement benefits to eligible employees in Germany as a complement to post-employment benefit promises of the Group. Both employers and employees contribute on a regular basis to the BVV. The BVV provides annuities of a fixed amount to individuals on retirement and increases these fixed amounts if surplus assets arise within the plan. According to legislation in Germany, the employer is ultimately liable for providing the benefits to its employees. An increase in benefits may also arise due to additional obligations to retirees for the effects of inflation. BVV is a multi-employer defined benefit plan. However, in line with industry practice, the Group accounts for it as a defined contribution plan since insufficient information is available to identify assets and liabilities relating to the Group's current and former employees, primarily because the BVV does not fully allocate plan assets to beneficiaries nor to member companies. According to the BVV's disclosures, there is no current deficit in the plan that may affect the amount of future Group contributions. Furthermore, any plan surplus emerging in the future will be distributed to the plan members, hence it cannot reduce future Group contributions. Since 2017, the Group pays increased contributions to the BVV to make up for reduced benefits levels which were approved by the BVV's Annual General Meeting in 2016.

The Group's expenses for defined contribution plans also include annual contributions by DB Privat- und Firmenkundenbank AG to the pension fund for postal civil servants in Germany. Responsibility for these benefits lies with the German government.

Governance and Risk

The Group maintains a Pensions Risk Committee to oversee its pension and related risks on a global basis. This Committee meets quarterly, reports directly to the Senior Executive Compensation Committee and is supported by the Pensions Operating Committee.

Within this context, the Group develops and maintains guidelines for governance and risk management, including funding, asset allocation and actuarial assumption setting. In this regard, risk management means the management and control of risks for the Group related to market developments (e.g., interest rate, credit spread, price inflation), asset investment, regulatory or legislative requirements, as well as monitoring demographic changes (e.g., longevity). Especially during and after acquisitions or changes in the external environment (e.g., legislation, taxation), topics such as the general plan design or potential plan amendments are considered. Any plan changes follow a process requiring approval by Group Human Resources. To the extent that pension plans are funded, the assets held mitigate some of the liability risks, but introduce investment risk.

In the Group's key pension countries, the Group's largest post-employment benefit plan risk exposures relate to potential changes in credit spreads, interest rates, price inflation and longevity, although these have been partially mitigated through the investment strategy adopted.

Overall, the Group seeks to minimize the impact of pensions on the Group's financial position from market movements, subject to balancing the trade-offs involved in financing post-employment benefits, regulatory capital and constraints from local funding or accounting requirements. The Group measures its pension risk exposures on a regular basis using specific metrics developed by the Group for this purpose.

Funding

The Group maintains various external pension trusts to fund the majority of its defined benefit plan obligations. The Group's funding principle is to maintain funding of the defined benefit obligation by plan assets within a range of 90 % to 100 % of the obligation, subject to meeting any local statutory requirements. The Group has also determined that certain plans should remain unfunded, although their funding approach is subject to periodic review, e.g. when local regulations or practices change. Obligations for the Group's unfunded plans are accrued on the balance sheet.

For most of the externally funded defined benefit plans there are local minimum funding requirements. The Group can decide on any additional plan contributions, with reference to the Group's funding principle. There are some locations, e.g. the United Kingdom, where the trustees and the Bank jointly agree contribution levels. In most countries the Group expects to receive an economic benefit from any plan surpluses of plan assets compared to defined benefit obligations, typically by way of reduced future contributions. Given the relatively high funding level and the investment strategy adopted in the Group's key funded defined benefit plans, any minimum funding requirements that may apply are not expected to place the Group under any material adverse cash strain in the short term. With reference to the Group's funding principle, the Group considers not reclaiming benefits paid from the Group's assets as an equivalent to making cash contributions into the external pension trusts during the year.

For post-retirement medical plans, the Group accrues for obligations over the period of employment and pays the benefits from Group assets when the benefits become due.

Actuarial Methodology and Assumptions

December 31 is the measurement date for all plans. All plans are valued by independent qualified actuaries using the projected unit credit method. A Group policy provides guidance to ensure consistency globally on setting actuarial assumptions which are finally determined by the Group's Pensions Operating Committee. Senior management of the Group is regularly informed of movements and changes in key actuarial assumptions.

The key actuarial assumptions applied in determining the defined benefit obligations at December 31 are presented below in the form of weighted averages.

	Dec 31, 2019				Dec 31, 2018			
	Germany	UK	U.S. ¹	Other	Germany	UK	U.S. ¹	Other
Discount rate (in %)	0.93 %	1.91 %	3.16 %	1.92 %	1.70 %	2.70 %	4.20 %	2.60 %
Rate of price inflation (in %)	1.40 %	3.29 %	2.20 %	1.70 %	1.60 %	3.50 %	2.20 %	1.90 %
Rate of nominal increase in future compensation levels (in %)	1.90 %	3.79 %	2.30 %	2.71 %	2.10 %	4.00 %	2.30 %	2.90 %
Rate of nominal increase for pensions in payment (in %)	1.30 %	3.19 %	2.20 %	0.91 %	1.50 %	3.30 %	2.20 %	1.00 %
Assumed life expectancy at age 65								
For a male aged 65 at measurement date	21.1	23.4	22.0	21.9	20.0	23.5	22.2	21.8
For a female aged 65 at measurement date	23.4	24.9	23.4	24.1	23.6	25.4	23.7	24.1
For a male aged 45 at measurement date	22.5	24.4	23.5	23.3	22.8	24.8	23.7	23.3
For a female aged 45 at measurement date	24.5	26.2	24.9	25.5	25.8	26.8	25.2	25.6
Mortality tables applied	modified Richttafeln Heubeck 2018G	SAPS (S3) Very Light with CMI 2018 projections	PRI-2012 with MP-2019 projection	Country specific tables	Richttafeln Heubeck 2018G	SAPS (S2) Light with CMI 2017 projections	RP2014 White-collar with MP2018 projections	Country specific tables

¹ Cash balance interest crediting rate in line with the 30-year US government bond yield.

In 2019, the Group changed its rounding principles such that for all significant financial assumptions, the derived annual rate will be rounded up or down to the nearest 0.01 %.

For the Group's most significant plans in the key countries, the discount rate used at each measurement date is set based on a high quality corporate bond yield curve – derived based on bond universe information sourced from reputable third-party index data providers and rating agencies – reflecting the timing, amount and currency of the future expected benefit payments for the respective plan. For longer durations where limited bond information is available, reasonable yield curve extrapolation methods are applied. Consistent discount rates are used across all plans in each currency zone, based on the assumption applicable for the Group's largest plan(s) in that zone. For plans in the other countries, the discount rate is based on high quality corporate or government bond yields applicable in the respective currency, as appropriate at each measurement date with a duration broadly consistent with the respective plan's obligations.

The price inflation assumptions in the eurozone and the United Kingdom are set with reference to market measures of inflation based on inflation swap rates in those markets at each measurement date. For other countries, the price inflation assumptions are typically based on long term forecasts by Consensus Economics Inc.

The assumptions for the increases in future compensation levels and for increases to pensions in payment are developed separately for each plan, where relevant. Each is set based on the price inflation assumption and reflecting the Group's reward structure or policies in each market, as well as relevant local statutory and plan-specific requirements.

Among other assumptions, mortality assumptions can be significant in measuring the Group's obligations under its defined benefit plans. These assumptions have been set in accordance with current best estimate in the respective countries. Future potential improvements in longevity have been considered and included where appropriate.

In 2019 the Group decided to apply DB specific mortality assumptions used to determine the defined benefit obligation for its defined benefit pension plans in Germany. In this context - based on actuarial calculations for the DB specific population - the bank adjusted the mortality expectations from the so far used "Richttafeln Heubeck 2018G" to the DB specific mortality experience of employees and pensioners. This change in actuarial assumptions led to an actuarial loss of €125 million before taxes as of 31 December 2019 and is reported in the Consolidated Statement of Comprehensive Income in the line item re-measurement gains (losses).

Reconciliation in Movement of Liabilities and Assets – Impact on Financial Statements

in € m.	2019				
	Germany	UK	U.S.	Other	Total
Change in the present value of the defined benefit obligation:					
Balance, beginning of year	11,953	3,868	1,337	962	18,120
Defined benefit cost recognized in Profit & Loss					
Current service cost	192	26	14	44	276
Interest cost	201	106	56	26	389
Past service cost and gain or loss arising from settlements	19	3	0	(12)	10
Defined benefit cost recognized in Other Comprehensive Income					
Actuarial gain or loss arising from changes in financial assumptions	1,179	582	112	67	1,940
Actuarial gain or loss arising from changes in demographic assumptions	125 ¹	(105)	(11)	(1)	8
Actuarial gain or loss arising from experience	43	113	(8)	(5)	143
Cash flow and other changes					
Contributions by plan participants	4	0	0	17	21
Benefits paid	(446)	(154)	(109)	(73)	(782)
Payments in respect to settlements	0	0	0	(11)	(11)
Acquisitions/Divestitures	0	0	0	0	0
Exchange rate changes	0	248	27	24	299
Other	0	0	0	5	5
Balance, end of year	13,270	4,687	1,418	1,043	20,418
thereof:					
Unfunded	0	16	210	121	347
Funded	13,270	4,671	1,208	922	20,071
Change in fair value of plan assets:					
Balance, beginning of year	10,877	4,884	1,074	892	17,727
Defined benefit cost recognized in Profit & Loss					
Interest income	185	134	44	23	386
Defined benefit cost recognized in Other Comprehensive Income					
Return from plan assets less interest income	137	448	80	54	719
Cash flow and other changes					
Contributions by plan participants	4	0	0	18	22
Contributions by the employer	1,158	0	22	25	1,205
Benefits paid ²	(446)	(153)	(96)	(56)	(751)
Payments in respect to settlements	0	0	0	0	0
Acquisitions/Divestitures	0	0	0	0	0
Exchange rate changes	0	304	22	27	353
Other	0	0	0	0	0
Plan administration costs	0	(2)	(3)	(1)	(6)
Balance, end of year	11,915	5,615	1,143	982	19,655
Funded status, end of year	(1,355)	928	(275)	(61)	(763)
Change in irrecoverable surplus (asset ceiling)					
Balance, beginning of year	0	0	0	(25)	(25)
Interest cost	0	0	0	0	0
Changes in irrecoverable surplus	0	0	0	(14)	(14)
Exchange rate changes	0	0	0	(1)	(1)
Balance, end of year	0	0	0	(40)	(40)
Net asset (liability) recognized	(1,355)	928	(275)	(101)	(803)³

¹ Resulting predominantly from updated mortality assumptions (modified Heubeck 2018G instead of Heubeck 2018G).

² For funded plans only.

³ Thereof €1,011 million recognized in Other assets and €1,814 million in Other liabilities.

	2018				
in € m.	Germany	UK	U.S.	Other	Total
Change in the present value of the defined benefit obligation:					
Balance, beginning of year	12,090	4,176	1,401	979	18,646
Defined benefit cost recognized in Profit & Loss					
Current service cost	204	30	17	45	296
Interest cost	203	104	49	23	379
Past service cost and gain or loss arising from settlements	(33)	18	0	(1)	(16)
Defined benefit cost recognized in Other Comprehensive Income					
Actuarial gain or loss arising from changes in financial assumptions	(135)	(187)	(89)	(23)	(434)
Actuarial gain or loss arising from changes in demographic assumptions	98	(48)	(3)	(2)	45
Actuarial gain or loss arising from experience	(38)	(7)	11	4	(30)
Cash flow and other changes					
Contributions by plan participants	3	0	0	16	19
Benefits paid	(437)	(176)	(114)	(76)	(803)
Payments in respect to settlements	0	0	0	(11)	(11)
Acquisitions/Divestitures	(2)	0	0	0	(2)
Exchange rate changes	0	(42)	65	8	31
Other	0	0	0	0	0
Balance, end of year	11,953	3,868	1,337	962	18,120
thereof:					
Unfunded	0	10	193	112	315
Funded	11,953	3,858	1,144	850	17,805
Change in fair value of plan assets:					
Balance, beginning of year	11,003	5,202	1,091	915	18,211
Defined benefit cost recognized in Profit & Loss					
Interest income	187	130	38	20	375
Defined benefit cost recognized in Other Comprehensive Income					
Return from plan assets less interest income	(351)	(218)	(53)	(33)	(655)
Cash flow and other changes					
Contributions by plan participants	3	0	0	16	19
Contributions by the employer	473	0	52	33	558
Benefits paid ¹	(437)	(175)	(102)	(53)	(767)
Payments in respect to settlements	0	0	0	(12)	(12)
Acquisitions/Divestitures	(1)	0	0	(1)	(2)
Exchange rate changes	0	(53)	52	7	6
Other	0	0	0	0	0
Plan administration costs	0	(2)	(4)	0	(6)
Balance, end of year	10,877	4,884	1,074	892	17,727
Funded status, end of year	(1,076)	1,016	(263)	(70)	(393)
Change in irrecoverable surplus (asset ceiling)					
Balance, beginning of year	0	0	0	(44)	(44)
Interest cost	0	0	0	0	0
Changes in irrecoverable surplus	0	0	0	20	20
Exchange rate changes	0	0	0	(1)	(1)
Balance, end of year	0	0	0	(25)	(25)
Net asset (liability) recognized	(1,076)	1,016	(263)	(95)	(418)²

¹ For funded plans only.

² Thereof € 1,097 million recognized in Other assets and € 1,515 million in Other liabilities.

There are no reimbursement rights for the Group.

Investment Strategy

The Group's investment objective is to protect the Group from adverse impacts of its defined benefit pension plans on key financial metrics. In the past, the primary focus has been on protecting the plans' IFRS funded status in the case of adverse market scenarios. While there has been a shift in the investment strategy in selected markets to balance competing key financial metrics the Group reverted to the IFRS driven investment strategy in 2019. Investment managers manage pension assets in line with investment mandates or guidelines as agreed with the pension plans' trustees and investment committees.

For key defined benefit plans for which the Bank aims to protect the IFRS funded status, the Group applies a liability driven investment (LDI) approach. Risks from mismatches between fluctuations in the present value of the defined benefit obligations and plan assets due to capital market movements are minimized, subject to balancing relevant trade-offs. This is achieved by allocating plan assets closely to the market risk factor exposures of the pension liability to interest rates, credit spreads and inflation. Thereby, plan assets broadly reflect the underlying risk profile and currency of the pension obligations.

Where the desired hedging level for market risks cannot be achieved with physical instruments (i.e., corporate and government bonds), derivatives are employed. Derivative overlays mainly include interest rate, inflation swaps and credit default swaps. Other instruments are also used, such as interest rate futures and options. In practice, a completely hedged approach is impractical, for instance because of insufficient market depth for ultra-long-term corporate bonds, as well as liquidity and cost considerations. Therefore, plan assets contain further asset categories to create long-term return enhancement and diversification benefits such as equity, real estate, high yield bonds or emerging markets bonds.

Plan asset allocation to key asset classes

The following table shows the asset allocation of the Group's funded defined benefit plans to key asset classes, i.e. exposures include physical securities in discretely managed portfolios and underlying asset allocations of any commingled funds used to invest plan assets.

Asset amounts in the following table include both "quoted" (i.e., Level 1 assets in accordance with IFRS 13 – amounts invested in markets where the fair value can be determined directly from prices which are quoted in active, liquid markets) and "other" (i.e., Level 2 and 3 assets in accordance with IFRS 13) assets.

in € m.	Dec 31, 2019					Dec 31, 2018				
	Germany	UK	U.S.	Other	Total	Germany	UK	U.S.	Other	Total
Cash and cash equivalents	340	292	57	64	753	1,138	715	(12)	77	1,918
Equity instruments ¹	875	643	116	53	1,687	1,148	571	107	60	1,886
Investment-grade bonds ²										
Government	2,508	1,633	432	202	4,775	1,975	699	428	153	3,255
Non-government bonds	5,921	2,847	425	216	9,409	5,196	2,805	405	217	8,623
Non-investment-grade bonds										
Government	125	7	1	16	149	175	0	1	19	195
Non-government bonds	259	124	17	17	417	166	80	14	22	282
Securitized and other Debt Investments	1	157	67	1	226	39	6	52	16	113
Insurance	0	0	0	15	15	0	0	0	16	16
Alternatives										
Real estate	361	42	0	67	470	285	52	0	58	395
Commodities	0	0	0	0	0	53	0	0	0	53
Private equity	63	0	0	25	88	54	0	0	11	65
Other ³	1,579	0	0	284	1,863	1,419	22	0	243	1,684
Derivatives (Market Value)										
Interest rate	(263)	35	10	7	(211)	(192)	129	13	(6)	(56)
Credit	110	1	19	1	131	13	0	82	0	95
Inflation	26	(126)	0	11	(89)	(608)	(194)	0	5	(797)
Foreign exchange	6	4	0	3	13	14	(1)	0	1	14
Other	4	(44)	(1)	0	(41)	2	0	(16)	0	(14)
Total fair value of plan assets	11,915	5,615	1,143	982	19,655	10,877	4,884	1,074	892	17,727

¹ Allocation of equity exposure is broadly in line with the typical index in the respective market, e.g. the equity portfolio's benchmark of the UK retirement benefit plans is the MSCI All Countries World Index.

² Investment-grade means BBB and above. Average credit rating exposure for the Group's main plans is around A.

³ Amongst others this position contains commingled funds which could not be segregated into the other asset categories. In particular the increase from 2018 to 2019 is caused by such positions.

The following table sets out the Group's funded defined benefit plan assets only invested in "quoted" assets, i.e. Level 1 assets in accordance with IFRS 13.

in € m.	Dec 31, 2019					Dec 31, 2018				
	Germany	UK	U.S.	Other	Total	Germany	UK	U.S.	Other	Total
Cash and cash equivalents	339	292	54	30	715	1,162	30	(16)	40	1,216
Equity instruments ¹	758	643	116	42	1,559	1,015	571	107	49	1,742
Investment-grade bonds ²										
Government	1,115	1,618	426	36	3,195	1,013	695	423	52	2,183
Non-government bonds	0	0	0	0	0	0	0	0	0	0
Non-investment-grade bonds										
Government	0	0	0	3	3	0	0	0	2	2
Non-government bonds	0	0	0	0	0	0	0	0	0	0
Securitized and other Debt										
Investments	0	0	0	0	0	0	0	0	0	0
Insurance	0	0	0	0	0	0	0	0	0	0
Alternatives										
Real estate	0	0	0	0	0	0	0	0	0	0
Commodities	0	0	0	0	0	0	0	0	0	0
Private equity	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
Derivatives (Market Value)										
Interest rate	0	34	(19)	8	23	0	0	(17)	0	(17)
Credit	0	1	0	0	1	0	0	0	0	0
Inflation	0	(125)	0	10	(115)	0	0	0	0	0
Foreign exchange	0	4	0	0	4	0	(1)	0	0	(1)
Other	4	0	0	0	4	2	0	0	0	2
Total fair value of quoted plan assets	2,216	2,467	577	129	5,389	3,192	1,295	497	143	5,127

¹ Allocation of equity exposure is broadly in line with the typical index in the respective market, e.g. the equity portfolio's benchmark of the UK retirement benefit plans is the MSCI All Countries World Index.

² Investment-grade means BBB and above. Average credit rating exposure for the Group's main plans is around A.

The following tables show the asset allocation of the "quoted" and "other" defined benefit plan assets by key geography in which they are invested.

in € m.	Dec 31, 2019						
	Germany	United Kingdom	United States	Other Eurozone	Other developed countries	Emerging markets	Total
Cash and cash equivalents	5	224	122	342	27	33	753
Equity instruments	186	101	703	285	291	121	1,687
Government bonds (investment-grade and above)	868	1,477	550	1,003	329	548	4,775
Government bonds (non-investment-grade)	0	6	1	7	13	122	149
Non-government bonds (investment-grade and above)	738	2,110	2,662	3,201 ¹	612	86	9,409
Non-government bonds (non-investment-grade)	4	45	24	297	41	6	417
Securitized and other Debt Investments	1	98	104	14	6	3	226
Subtotal	1,802	4,061	4,166	5,149	1,319	919	17,416
Share (in %)	10%	23%	24%	30%	8%	5%	100%
Other asset categories							2,239
Fair value of plan assets							19,655

¹ Majority of this amount relates to bonds of French, Dutch and Italian corporates.

Dec 31, 2018

in € m.	Germany	United Kingdom	United States	Other Eurozone	Other developed countries	Emerging markets	Total
Cash and cash equivalents	141	701	65	953	29	29	1,918
Equity instruments	252	108	708	360	363	95	1,886
Government bonds (investment-grade and above)	870	574	474	650	249	438	3,255
Government bonds (non-investment-grade)	0	0	0	4	24	167	195
Non-government bonds (investment-grade and above)	718	2,129	2,023	2,984 ¹	657	112	8,623
Non-government bonds (non-investment-grade)	4	65	13	186	5	9	282
Securitized and other Debt Investments	38	21	52	2	0	0	113
Subtotal	2,023	3,598	3,335	5,139	1,327	850	16,272
Share (in %)	12%	22%	20%	32%	8%	5%	100%
Other asset categories							1,455
Fair value of plan assets							17,727

¹ Majority of this amount relates to bonds of French, Dutch and Italian corporate bonds.

Plan assets include derivative transactions with Group entities with a negative market value of around €252 million and €692 million at December 31, 2019 and December 31, 2018, respectively. There is neither a material amount of securities issued by the Group nor other claims on Group assets included in the fair value of plan assets. The plan assets do not include any real estate which is used by the Group.

In addition, the Group estimates and allows for uncertain income tax positions which may have an impact on the Group's plan assets. Significant judgment is required in making these estimates and the Group's final net liabilities may ultimately be materially different.

Key Risk Sensitivities

The Group's defined benefit obligations are sensitive to changes in capital market conditions and actuarial assumptions. Sensitivities to capital market movements and key assumption changes are presented in the following table. Each market risk factor or assumption is changed in isolation. Sensitivities of the defined benefit obligations are approximated using geometric extrapolation methods based on plan durations for the respective assumption. Duration is a risk measure that indicates the broad sensitivity of the obligations to a change in an underlying assumption and provides a reasonable approximation for small to moderate changes in those assumptions.

For example, the interest rate duration is derived from the change in the defined benefit obligation to a change in the interest rate based on information provided by the local actuaries of the respective plans. The resulting duration is used to estimate the remeasurement liability loss or gain from changes in the interest rate. For other assumptions, a similar approach is used to derive the respective sensitivity results.

For defined benefit pension plans, changes in capital market conditions will impact the plan obligations via actuarial assumptions – mainly interest rate and price inflation rate – as well as the plan assets. Where the Group applies a LDI approach, the Bank's overall exposure to changes is reduced. Consequently, to aid understanding of the Group's risk exposures related to key capital market movements, the net impact of the change in the defined benefit obligations and plan assets due to a change of the related market risk factor or underlying actuarial assumption is shown; for sensitivities to changes in actuarial assumptions that do not impact the plan assets, only the impact on the defined benefit obligations is shown.

Asset-related sensitivities are derived for the Group's major plans by using risk sensitivity factors determined by the Group's Market Risk Management function. These sensitivities are calculated based on information provided by the plans' investment managers and extrapolated linearly to reflect the approximate change of the plan assets' market value in case of a change in the underlying risk factor.

The sensitivities illustrate plausible variations over time in capital market movements and key actuarial assumptions. The Group is not in a position to provide a view on the likelihood of these capital market or assumption changes. While these sensitivities illustrate the overall impact on the funded status of the changes shown, the significance of the impact and the range of reasonable possible alternative assumptions may differ between the different plans that comprise the aggregated results. Even though plan assets and plan obligations are sensitive to similar risk factors, actual changes in plan assets and obligations may not fully offset each other due to imperfect correlations between market risk factors and actuarial assumptions. Caution should be used when extrapolating these sensitivities due to non-linear effects that changes in capital market conditions and key actuarial assumptions may have on the overall funded status. Any management actions that may be taken to mitigate the inherent risks in the post-employment defined benefit plans are not reflected in these sensitivities.

in € m.	Dec 31, 2019				Dec 31, 2018			
	Germany	UK	U.S.	Other	Germany	UK	U.S.	Other
Interest rate (–50 bp):								
(Increase) in DBO	(970)	(500)	(45)	(60)	(840)	(430)	(40)	(50)
Expected increase in plan assets ¹	875	530	30	25	235	435	35	20
Expected net impact on funded status (de-) increase	(95)	30	(15)	(35)	(605)	5	(5)	(30)
Interest rate (+50 bp):								
Decrease in DBO	905	450	30	55	785	385	25	50
Expected (decrease) in plan assets ¹	(875)	(530)	(30)	(25)	(235)	(435)	(35)	(20)
Expected net impact on funded status (de-) increase	30	(80)	0	30	550	(50)	(10)	30
Credit spread (–50 bp):								
(Increase) in DBO	(970)	(500)	(80)	(65)	(840)	(430)	(75)	(55)
Expected increase in plan assets ¹	620	145	15	10	220	125	20	10
Expected net impact on funded status (de-) increase	(350)	(355)	(65)	(55)	(620)	(305)	(55)	(45)
Credit spread (+50 bp):								
Decrease in DBO	905	450	75	60	785	385	70	50
Expected (decrease) in plan assets ¹	(620)	(145)	(15)	(10)	(220)	(125)	(20)	(10)
Expected net impact on funded status (de-) increase	285	305	60	50	565	260	50	40
Rate of price inflation (–50 bp):²								
Decrease in DBO	335	360	0	20	335	325	0	20
Expected (decrease) in plan assets ¹	(185)	(305)	0	(10)	(190)	(270)	0	(10)
Expected net impact on funded status (de-) increase	150	55	0	10	145	55	0	10
Rate of price inflation (+50 bp):²								
(Increase) in DBO	(345)	(385)	0	(20)	(345)	(360)	0	(20)
Expected increase in plan assets ¹	185	305	0	10	190	270	0	10
Expected net impact on funded status (de-) increase	(160)	(80)	0	(10)	(155)	(90)	0	(10)
Rate of real increase in future compensation levels (–50 bp):								
Decrease in DBO, net impact on funded status	60	15	0	10	60	10	0	10
Rate of real increase in future compensation levels (+50 bp):								
(Increase) in DBO, net impact on funded status	(60)	(15)	0	(15)	(60)	(10)	0	(15)
Longevity improvements by 10 %:³								
(Increase) in DBO, net impact on funded status	(320)	(145)	(30)	(15)	(295)	(110)	(25)	(10)

¹ Expected changes in the fair value of plan assets contain the simulated impact from the biggest plans in Germany, the UK, the U.S., Channel Islands, Switzerland and Belgium which cover over 99 % of the total fair value of plan assets. The fair value of plan assets for other plans is assumed to be unchanged for this presentation.

² Incorporates sensitivity to changes in pension benefits to the extent linked to the price inflation assumption.

³ Estimated to be equivalent to an increase of around 1 year in overall life expectancy.

Expected cash flows

The following table shows expected cash flows for post-employment benefits in 2020, including contributions to the Group's external pension trusts in respect of funded plans, direct payment to beneficiaries in respect of unfunded plans, as well as contributions to defined contribution plans.

in € m.	2020 Total
Expected contributions to	
Defined benefit plan assets	285
BVV	65
Pension fund for Postbank's postal civil servants	85
Other defined contribution plans	275
Expected benefit payments for unfunded defined benefit plans	30
Expected total cash flow related to post-employment benefits	740

Expense of employee benefits

The following table presents a breakdown of specific expenses according to the requirements of IAS 19 and IFRS 2.

in € m.	2019	2018	2017
Expenses for defined benefit plans:			
Service cost ¹	272	259	304
Net interest cost (income)	2	4	9
Total expenses defined benefit plans	274	263	311
Expenses for defined contribution plans:			
BVV	63	62	66
Pension fund for Postbank's postal civil servants	85	88	93
Other defined contribution plans	269	271	281
Total expenses for defined contribution plans	417	421	440
Total expenses for post-employment benefit plans	691	684	751
Employer contributions to mandatory German social security pension plan	231	236	243
Expenses for share-based payments, equity settled ²	549	560	535
Expenses for share-based payments, cash settled ²	39	1	22
Expenses for cash retention plans ²	516	481	363
Expenses for severance payments ³	108	158	137

¹ Severance related items under Service Costs were reclassified to Expenses for Severance payments. Therefore previous periods were adjusted as well.

² Including expenses for new hire awards and the acceleration of expenses not yet amortized due to the discontinuation of employment including those amounts which are recognized as part of the Group's restructuring expenses.

³ Excluding the acceleration of expenses for deferred compensation awards not yet amortized. Severance related items under Service Costs were reclassified to Expense for Severance payments. Therefore previous periods were adjusted as well.

34 – Income Taxes

in € m.	2019	2018	2017
Current tax expense (benefit):			
Tax expense (benefit) for current year	757	733	874
Adjustments for prior years	5	(20)	(145)
Total current tax expense (benefit)	762	713	729
Deferred tax expense (benefit):			
Origination and reversal of temporary difference, unused tax losses and tax credits	(71)	316	(113)
Effect of changes in tax law and/or tax rate	(9)	(6)	1,437
Adjustments for prior years	1,948	(34)	(90)
Total deferred tax expense (benefit)	1,868	276	1,234
Total income tax expense (benefit)	2,630	989	1,963

Total current tax expense includes benefits from previously unrecognized tax losses, tax credits and deductible temporary differences, which reduced the current tax expense by €5 million in 2017.

Total deferred tax expense includes expenses arising from write-downs of deferred tax assets, benefits from previously unrecognized tax losses (tax credits/deductible temporary differences) and the reversal of previous write-downs of deferred tax assets which in total increased the deferred tax expense by €2,785 million in 2019, by €253 million in 2018 and by €163 million in 2017.

Difference between applying German statutory (domestic) income tax rate and actual income tax expense/(benefit)

in € m.	2019	2018	2017
Expected tax expense (benefit) at domestic income tax rate of 31.3% (31.3% for 2018 and 31.3% for 2017)	(825)	416	384
Foreign rate differential	170	8	(37)
Tax-exempt gains on securities and other income	(191)	(209)	(431)
Loss (income) on equity method investments	(19)	(19)	(21)
Nondeductible expenses	326	340	540
Impairments of goodwill	269	0	0
Changes in recognition and measurement of deferred tax assets ¹	2,785	253	159
Effect of changes in tax law and/or tax rate	(9)	(6)	1,437
Effect related to share-based payments	54	133	14
Other ¹	70	73	(82)
Actual income tax expense (benefit)	2,630	989	1,963

¹ Current and deferred tax expense/(benefit) relating to prior years are mainly reflected in the line items "Changes in recognition and measurement of deferred tax assets" and "Other".

The Group is under continuous examinations by tax authorities in various jurisdictions. "Other" in the preceding table includes the effects of these examinations by the tax authorities.

The domestic income tax rate, including corporate tax, solidarity surcharge, and trade tax, used for calculating deferred tax assets and liabilities was 31.3 % for 2019, 2018 and 2017.

Income taxes charged or credited to equity (other comprehensive income/additional paid in capital)

in € m.	2019	2018	2017
Actuarial gains/losses related to defined benefit plans	402	18	(23)
Net fair value gains (losses) attributable to credit risk related to financial liabilities designated as at fair value through profit or loss	1	(8)	0
Financial assets available for sale:			
Unrealized net gains/losses arising during the period	0	0	4
Net gains/losses reclassified to profit or loss	0	0	99
Financial assets mandatory at fair value through other comprehensive income:			
Unrealized net gains/losses arising during the period	(42)	48	0
Realized net gains/losses arising during the period (reclassified to profit or loss)	71	86	0
Derivatives hedging variability of cash flows:			
Unrealized net gains/losses arising during the period	1	1	4
Net gains/losses reclassified to profit or loss	1	0	42
Other equity movement:			
Unrealized net gains/losses arising during the period	162	91	2
Net gains/losses reclassified to profit or loss	0	2	(5)
Income taxes (charged) credited to other comprehensive income	596	238	123
Other income taxes (charged) credited to equity	(11)	1	73

Major components of the Group's gross deferred tax assets and liabilities

in € m.	Dec 31, 2019 ¹	Dec 31, 2018 ¹
Deferred tax assets:		
Unused tax losses	1,307	2,934
Unused tax credits	1	160
Deductible temporary differences:		
Trading activities, including derivatives	4,321	2,986
Employee benefits, including equity settled share based payments	2,507	2,140
Accrued interest expense	1,148	1,133
Loans and borrowings, including allowance for loans	878	795
Leases	614	14
Intangible Assets	236	119
Fair value OCI (IFRS 9)	21	33
Other assets	879	886
Other provisions	126	180
Other liabilities	6	7
Total deferred tax assets pre offsetting	12,044	11,387
Deferred tax liabilities:		
Taxable temporary differences:		
Trading activities, including derivatives	3,937	3,038
Employee benefits, including equity settled share based payments	265	312
Loans and borrowings, including allowance for loans	785	345
Leases	537	0
Intangible Assets	554	453
Fair value OCI (IFRS 9)	51	52
Other assets	347	344
Other provisions	87	85
Other liabilities	40	40
Total deferred tax liabilities pre offsetting	6,603	4,669

¹ Following the introduction of IFRS 16 Leases an additional line item Leases was added. Comparatives were adjusted accordingly.

Deferred tax assets and liabilities, after offsetting

in € m.	Dec 31, 2019	Dec 31, 2018
Presented as deferred tax assets	5,986	7,230
Presented as deferred tax liabilities	545	512
Net deferred tax assets	5,441	6,718

The change in the balance of deferred tax assets and deferred tax liabilities does not equal the deferred tax expense/(benefit). This is due to (1) deferred taxes that are booked directly to equity, (2) the effects of exchange rate changes on tax assets and liabilities denominated in currencies other than euro, (3) the acquisition and disposal of entities as part of ordinary activities and (4) the reclassification of deferred tax assets and liabilities which are presented on the face of the balance sheet as components of other assets and liabilities.

Items for which no deferred tax assets were recognized

in € m.	Dec 31, 2019 ¹	Dec 31, 2018 ¹
Deductible temporary differences	(3,046)	(9)
Not expiring	(9,629)	(5,738)
Expiring in subsequent period	(192)	(52)
Expiring after subsequent period	(4,214)	(289)
Unused tax losses	(14,035)	(6,079)
Expiring after subsequent period	(95)	0
Unused tax credits	(96)	(1)

¹ Amounts in the table refer to deductible temporary differences, unused tax losses and tax credits for federal income tax purposes.

Deferred tax assets were not recognized on these items because it is not probable that future taxable profit will be available against which the unused tax losses, unused tax credits and deductible temporary differences can be utilized.

As of December 31, 2019 and December 31, 2018, the Group recognized deferred tax assets of € 3.2 billion and € 6.5 billion, respectively, that exceed deferred tax liabilities in entities which have suffered a loss in either the current or preceding period. This is based on management's assessment that it is probable that the respective entities will have taxable profits against which the unused tax losses, unused tax credits and deductible temporary differences can be utilized. Generally, in determining the amounts of deferred tax assets to be recognized, management uses historical profitability information and, if relevant, forecasted operating results, based upon approved business plans, including a review of the eligible carry-forward periods, tax planning opportunities and other relevant considerations.

As of December 31, 2019 and December 31, 2018, the Group had temporary differences associated with the Group's parent company's investments in subsidiaries, branches and associates and interests in joint ventures of € 20 million and € 27 million respectively, in respect of which no deferred tax liabilities were recognized.

35 – Derivatives

Derivative financial instruments and hedging activities

Derivative contracts used by the Group include swaps, futures, forwards, options and other similar types of contracts. In the normal course of business, the Group enters into a variety of derivative transactions for sales, market-making and risk management purposes. The Group's objectives in using derivative instruments are to meet customers' risk management needs and to manage the Group's exposure to risks.

In accordance with the Group's accounting policy relating to derivatives and hedge accounting as described in Note 1 "Significant Accounting Policies and Critical Accounting Estimates", all derivatives are carried at fair value in the balance sheet regardless of whether they are held for trading or non-trading purposes.

Derivatives held for sales and market-making purposes

Sales and market-making

The majority of the Group's derivatives transactions relate to sales and market-making activities. Sales activities include the structuring and marketing of derivative products to customers to enable them to take, transfer, modify or reduce current or expected risks. Market-making involves quoting bid and offer prices to other market participants, enabling revenue to be generated based on spreads and volume.

Risk management

The Group uses derivatives in order to reduce its exposure to market risks as part of its asset and liability management. This is achieved by entering into derivatives that hedge specific portfolios of fixed rate financial instruments and forecast transactions as well as strategic hedging against overall balance sheet exposures. The Group actively manages interest rate risk through, among other things, the use of derivative contracts. Utilization of derivative financial instruments is modified from time to time within prescribed limits in response to changing market conditions, as well as to changes in the characteristics and mix of the related assets and liabilities.

Derivatives qualifying for hedge accounting

The Group applies hedge accounting if derivatives meet the specific criteria described in Note 1 “Significant Accounting Policies and Critical Accounting Estimates”, including the early adoption of “Interest Rate Benchmark Reform: Amendments to IFRS 9, IAS 39 and IFRS 7”.

In fair value hedge relationship, the Group uses primarily interest rate swaps and options, in order to protect itself against movements in the fair value of fixed-rate financial instruments due to movements in market interest rates. In a cash flow hedge relationship, the Group uses interest rate swaps in order to protect itself against exposure to variability in interest rates. The Group enters into foreign exchange forwards and swaps for hedges of translation adjustments resulting from translating the financial statements of net investments in foreign operations into the reporting currency of the parent at period end spot rates.

The Group assesses and measures hedge effectiveness of a hedging relationship based on the change in the fair value or cash flows of the derivative hedging instrument relative to the change in the fair value or cash flows of the hedged item attributable to the hedged risk. Potential sources of ineffectiveness can be attributed to differences between hedging instruments and hedged items:

- Mismatches in the terms of hedged items and hedging instruments, for example the frequency and timing of when interest rates are reset, frequency of payment and callable features.
- Difference in the discounting rate applied to the hedged item and the hedging instrument, taking into consideration differences in the reset frequency of the hedged item and hedging instrument.
- Derivatives used as hedging instrument with a non-zero fair value at inception date of the hedging relationship, resulting in mismatch in terms with the hedged item.

Interest rate risk

The Group uses interest rate swaps and options to manage its exposure to interest rate risk by modifying the re-pricing characteristics of existing and/or forecasted assets and liabilities, including funding and investment activities. The interest rate swaps and options are designated in either a fair value hedge or a cash flow hedge. For fair value hedges, the Group uses interest rate swaps and options contracts to manage the fair value movements of fixed rate financial instruments due to changes in benchmark interest. For cash flow hedges, we use interest rate swaps to manage the exposure to cash flow variability of our variable rate instruments as a result of changes in benchmark interest rates.

The Group manages its interest rate risk exposure on a portfolio basis with frequent changes in the portfolio due to the origination of new loans and bonds, repayments of existing loans and bonds, issuance of new funding liabilities and repayment of existing funding liabilities. Accordingly, a dynamic hedging accounting approach is adopted for the portfolio, in which individual hedge relationships are designated and de-designated on a more frequent basis (e.g. on a monthly basis).

Foreign exchange risk

The Group manages its foreign currency risk (including U.S. dollar and British pound) from investments in foreign operation through net investment hedges using a combination of foreign exchange forwards and swaps as hedging instruments.

As the investments in foreign operations are only hedged to the extent of the notional amount of the hedging derivative instrument the Group generally does not expect to incur significant ineffectiveness on hedges of net investments in foreign operations.

Description of significant assumptions and judgements on the application of interest rate benchmark reform accounting

The main judgement to make regarding the application of IASB Phase 1 benchmark reform surrounded the development of Euribor. The Group expects that Euribor will continue to exist in its current form as a benchmark rate for the foreseeable future. For these reasons, the Group does not consider its hedge accounting, with Euribor as the hedged risk, to be directly affected by interest rate benchmark reform at December 31, 2019.

Hedge Accounting and Interest Rate Benchmarks

The table below shows the Group's hedge accounting relationships impacted by the IASB Benchmark Reform amendments, the significant interest rate benchmarks the Group is exposed to which are subject to expected future reform, and the nominal amounts of the derivative hedging instruments as at December 31, 2019. The derivative hedging instruments provide a close approximation to the extent of the risk exposure the Group manages through hedge accounting relationships.

in € m.	Dec 31, 2019
	Notional
Fair value hedge	
CHF LIBOR	1,202
GBP LIBOR	1,437
JPY LIBOR	1,189
USD LIBOR	31,992

Fair value hedge accounting

Derivatives held as fair value hedges

in € m.	Dec 31, 2019			2019	Dec 31, 2018 ¹			2018 ¹
	Assets	Liabilities	Nominal amount	Fair Value changes used for hedge effectiveness	Assets	Liabilities	Nominal amount	Fair Value changes used for hedge effectiveness
Derivatives held as fair value hedges	5,385	878	118,125	811	5,462	906	148,559	(424)

in € m.	2019	2018 ¹
	Hedge ineffectiveness	Hedge ineffectiveness
Result of fair value hedges	(343)	52

¹ Prior period results have been restated.

Financial instruments designated as fair value hedges

in € m.	Dec 31, 2019						2019
	Carrying amount of Financial instruments designated as fair value hedges		Accumulated amount of fair value hedge adjustments - Total		Accumulated amount of fair value hedge adjustments - Terminated hedge relationships		Fair Value changes used for hedge effectiveness
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	
Financial assets at fair value through other comprehensive income	11,496	0	327	0	58	0	481
Loans at amortized cost	3,185	0	82	0	(1)	0	100
Long-term debt	0	80,078	0	3,822	0	417	(1,734)
Other Assets/ Liabilities	0	0	0	0	0	0	0

in € m.	Dec 31, 2018 ¹						2018
	Carrying amount of Financial instruments designated as fair value hedges		Accumulated amount of fair value hedge adjustments - Total		Accumulated amount of fair value hedge adjustments - Terminated hedge relationships		Fair Value changes used for hedge effectiveness
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	
Financial assets at fair value through other comprehensive income	16,900	0	326	0	(35)	0	(31)
Loans at amortized cost	0	0	0	0	0	0	0
Long-term debt	0	87,356	0	2,292	0	369	506
Other Assets/ Liabilities	0	0	0	0	0	0	0

¹ Prior period results have been restated.

Cash flow hedge accounting

Derivatives held as cash flow hedges

in € m.	Dec 31, 2019				Dec 31, 2018			
	Assets	Liabilities	Nominal amount	Fair Value changes used for hedge effectiveness	Assets	Liabilities	Nominal amount	Fair Value changes used for hedge effectiveness
Derivatives held as cash flow hedges	25	0	2,714	(2)	29	1	3,689	0

Cash flow hedge balances

in € m.	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017
Reported in Equity ¹	21	25	28
thereof relates to terminated programs	0	0	0
Gains (losses) posted to equity for the year ended	(2)	(3)	(34)
Gains (losses) removed from equity for the year ended	(2)	0	136
thereof relates to terminated programs	0	0	0
Changes of hedged item's value used for hedge effectiveness	0	0	0
Ineffectiveness recorded within P&L	0	0	0

¹ Reported in equity refers to accumulated other comprehensive income as presented in the Consolidated Balance Sheet.

As of December 31, 2019 the longest term cash flow hedge matures in 2022.

The financial instruments designated as cash flow hedges are recognized as Loans at amortized cost in the Group's Consolidated Balance Sheet.

Net investment hedge accounting

Derivatives held as net investment hedges

in € m.	Dec 31, 2019				Dec 31, 2018			
	Assets	Liabilities	Nominal amount	Fair Value changes used for hedge effectiveness	Assets	Liabilities	Nominal amount	Fair Value changes used for hedge effectiveness
Derivatives held as net investment hedges	556	957	43,546	(413)	718	1,710	43,457	(1,379)

in € m.	2019		2018	
	Fair value changes recognised in Equity ¹	Hedge ineffectiveness	Fair value changes recognised in Equity ¹	Hedge ineffectiveness
Result of net investment hedges	795	(386)	1,742	(345)

¹ Reported in equity refers to accumulated other comprehensive income as presented in the Consolidated Balance Sheet.

Profile of derivatives held as net investment hedges

in € m.	Within 1 year	1–3 years	3–5 years	Over 5 years
As of December 31, 2019				
Nominal amount Foreign exchange forwards	32,702	78	0	0
Nominal amount Foreign exchange swaps	3,337	3,820	579	3,030
Total	36,039	3,898	579	3,030
As of December 31, 2018				
Nominal amount Foreign exchange forwards	28,808	110	13	0
Nominal amount Foreign exchange swaps	3,972	5,601	1,982	2,970
Total	32,780	5,711	1,995	2,970

The Group uses a combination of a rolling foreign exchange forward strategy and a static foreign currency swap hedging strategy. For the year ended December 31, 2019 the average foreign currency rate for the Group's foreign currency Euro/USD swap portfolio was 0.85 and 0.82 as of December 31, 2018.

36 – Related Party Transactions

Parties are considered to be related if one party has the ability to directly or indirectly control the other party or exercise significant influence over the other party in making financial or operational decisions. The Group's related parties include:

- key management personnel, close family members of key management personnel and entities which are controlled, significantly influenced by, or for which significant voting power is held by key management personnel or their close family members,
- subsidiaries, joint ventures and associates and their respective subsidiaries, and
- post-employment benefit plans for the benefit of Deutsche Bank employees.

Transactions with Key Management Personnel

Key management personnel are those persons having authority and responsibility for planning, directing and controlling the activities of Deutsche Bank, directly or indirectly. The Group considers the members of the Management Board and of the Supervisory Board of the parent company to constitute key management personnel for purposes of IAS 24.

Compensation expense of key management personnel

in € m.	2019	2018	2017
Short-term employee benefits	32	41	39
Post-employment benefits	6	10	10
Other long-term benefits	6	2	7
Termination benefits	34	32	3
Share-based payment	21	2	22
Total	99	87	81

The above table does not contain compensation that employee representatives and former board members on the Supervisory Board have received. The aggregated compensation paid to such members for their services as employees of Deutsche Bank or status as former employees (retirement, pension and deferred compensation) amounted to €1.0 million as of December 31, 2019, €1.1 million as of December 31, 2018 and €1.1 million as of December 31, 2017.

Among the Group's transactions with key management personnel as of December 31, 2019 were loans and commitments of €10 million and deposits of €38 million. As of December 31, 2018, the Group's transactions with key management personnel were loans and commitments of €45 million and deposits of €34 million.

In addition, the Group provides banking services, such as payment and account services as well as investment advice, to key management personnel and their close family members.

Transactions with Subsidiaries, Joint Ventures and Associates

Transactions between Deutsche Bank AG and its subsidiaries meet the definition of related party transactions. If these transactions are eliminated on consolidation, they are not disclosed as related party transactions. Transactions between the Group and its associated companies and joint ventures and their respective subsidiaries also qualify as related party transactions.

Transactions for subsidiaries, joint ventures and associates are presented combined in below table as these are not material individually.

Loans

in € m.	2019	2018
Loans outstanding, beginning of year	228	256
Movement in loans during the period ¹	(3)	(21)
Changes in the group of consolidated companies	0	0
Exchange rate changes/other	4	(7)
Loans outstanding, end of year²	228	228
Other credit risk related transactions:		
Allowance for loan losses	0	0
Provision for loan losses	0	0
Guarantees and commitments	7	3

¹ Net impact of loans issued and loans repayment during the year is shown as "Movement in loans during the period".

² Loans past due were €0 million as of December 31, 2019 and €0 million as of December 31, 2018. For the total loans the Group held collateral of €5 million and €14 million as of December 31, 2019 and December 31, 2018, respectively.

Deposits

in € m.	2019	2018
Deposits outstanding, beginning of year	68	67
Movement in deposits during the period ¹	(11)	2
Changes in the group of consolidated companies	0	0
Exchange rate changes/other	1	(0)
Deposits outstanding, end of year	58	68

¹ Net impact of deposits received and deposits repaid during the year is shown as "Movement in deposits during the period".

Other Transactions

Trading assets and positive market values from derivative financial transactions with associated companies amounted to €1 million as of December 31, 2019 and €2 million as of December 31, 2018. Trading liabilities and negative market values from derivative financial transactions with associated companies amounted to €0 million as of December 31, 2019 and €0 million as of December 31, 2018.

Transactions with Pension Plans

Under IFRS, certain post-employment benefit plans are considered related parties. The Group has business relationships with a number of its pension plans pursuant to which it provides financial services to these plans, including investment management services. The Group's pension funds may hold or trade Deutsche Bank shares or securities.

Transactions with related party pension plans

in € m.	2019	2018
Equity shares issued by the Group held in plan assets	1	1
Other assets	0	0
Fees paid from plan assets to asset managers of the Group	23	24
Market value of derivatives with a counterparty of the Group	(252)	(692)
Notional amount of derivatives with a counterparty of the Group	9,223	7,325

37 – Information on Subsidiaries

Composition of the Group

Deutsche Bank AG is the direct or indirect holding company for the Group's subsidiaries.

The Group consists of 666 (2018: 707) consolidated entities, thereof 249 (2018: 251) consolidated structured entities. 459 (2018: 506) of the entities controlled by the Group are directly or indirectly held by the Group at 100 % of the ownership interests (share of capital). Third parties also hold ownership interests in 207 (2018: 201) of the consolidated entities (non-controlling interests). As of December 31, 2018 and 2019, one subsidiary has material non-controlling interests. Non-controlling interests for all other subsidiaries are neither individually nor cumulatively material to the Group.

Subsidiaries with material non-controlling interests

	Dec 31, 2019	Dec 31, 2018
DWS Group GmbH & Co. KGaA		
Proportion of ownership interests and voting rights held by non-controlling interests	20.51 %	20.51 %
Place of business	Global	Global

in € m	Dec 31, 2019	Dec 31, 2018
Net income attributable to non-controlling interests	105	58
Accumulated non-controlling interests of the subsidiary	1,420	1,355
Dividends paid to non-controlling interests	56	0
Summarised financial information:		
Total assets	10,952	10,694
Total liabilities	4,100	4,155
Total net revenues	2,389	2,259
Net income (loss)	512	391
Total comprehensive income (loss), net of tax	583	589

Significant restrictions to access or use the Group's assets

Statutory, contractual or regulatory requirements as well as protective rights of noncontrolling interests might restrict the ability of the Group to access and transfer assets freely to or from other entities within the Group and to settle liabilities of the Group.

Since the Group did not have any material noncontrolling interests at the balance sheet date, any protective rights associated with these did not give rise to significant restrictions.

The following restrictions impact the Group's ability to use assets:

- The Group has pledged assets to collateralize its obligations under repurchase agreements, securities financing transactions, collateralized loan obligations and for margining purposes for OTC derivative liabilities.
- The assets of consolidated structured entities are held for the benefit of the parties that have bought the notes issued by these entities.
- Regulatory and central bank requirements or local corporate laws may restrict the Group's ability to transfer assets to or from other entities within the Group in certain jurisdictions.

Restricted assets

in € m.	Dec 31, 2019		Dec 31, 2018	
	Total assets	Restricted assets	Total assets	Restricted assets
Interest-earning deposits with banks	104,327	159	176,022	188
Financial assets at fair value through profit or loss	530,713	43,190	573,344	48,320
Financial assets at fair value through other comprehensive income	45,503	2,943	51,182	4,375
Loans at amortized cost	429,841	71,369	400,297	76,573
Other	187,290	3,017	147,293	1,991
Total	1,297,674	120,678	1,348,137	131,447

The table above excludes assets that are not encumbered at an individual entity level but which may be subject to restrictions in terms of their transferability within the Group. Such restrictions may be based on local connected lending requirements or similar regulatory restrictions. In this situation, it is not feasible to identify individual balance sheet items that cannot be transferred. This is also the case for regulatory minimum liquidity requirements. The Group identifies the volume of liquidity reserves in excess of local stress liquidity outflows. The aggregate amount of such liquidity reserves that are considered restricted for this purpose is €31.2 billion as of December 31, 2019 (as of December 31, 2018: €34.9 billion).

38 – Structured entities

Nature, purpose and extent of the Group's interests in structured entities

The Group engages in various business activities with structured entities which are designed to achieve a specific business purpose. A structured entity is one that has been set up so that any voting rights or similar rights are not the dominant factor in deciding who controls the entity. An example is when voting rights relate only to administrative tasks and the relevant activities are directed by contractual arrangements.

A structured entity often has some or all of the following features or attributes:

- Restricted activities;
- A narrow and well defined objective;
- Insufficient equity to permit the structured entity to finance its activities without subordinated financial support;
- Financing in the form of multiple contractually linked instruments to investors that create concentrations of credit or other risks (tranches).

The principal uses of structured entities are to provide clients with access to specific portfolios of assets and to provide market liquidity for clients through securitizing financial assets. Structured entities may be established as corporations, trusts or partnerships. Structured entities generally finance the purchase of assets by issuing debt and equity securities that are collateralized by and/or indexed to the assets held by the structured entities. The debt and equity securities issued by structured entities may include tranches with varying levels of subordination.

Structured entities are consolidated when the substance of the relationship between the Group and the structured entities indicate that the structured entities are controlled by the Group, as discussed in Note 1 “Significant Accounting Policies and Critical Accounting Estimates”.

Consolidated structured entities

The Group has contractual arrangements which may require it to provide financial support to the following types of consolidated structured entities.

Securitization vehicles

The Group uses securitization vehicles for funding purchase of diversified pool of assets. The Group provides financial support to these entities in the form of liquidity facility. As of December 31, 2019, and December 31, 2018, there were no outstanding loan commitments to these entities.

Funds

The Group may provide funding and liquidity facility or guarantees to funds consolidated by the group. As of December 31, 2019 and December 31, 2018, the notional value of the liquidity facilities and guarantees provided by the Group to such funds was € 1.8 billion and € 3.0 billion, respectively.

Unconsolidated structured entities

These are entities which are not consolidated because the Group does not control them through voting rights, contract, funding agreements, or other means. The extent of the Group’s interests to unconsolidated structured entities will vary depending on the type of structured entities.

Below is a description of the Group’s involvements in unconsolidated structured entities by type.

Repackaging and investment entities

Repackaging and investment entities are established to meet clients’ investment needs through the combination of securities and derivatives. These entities are not consolidated by the Group because the Group does not have power to influence the returns obtained from the entities. These entities are usually set up to provide a certain investment return pre-agreed with the investor, and the Group is not able to change the investment strategy or return during the life of the transaction.

Third party funding entities

The Group provides funding to structured entities that hold a variety of assets. These entities may take the form of funding entities, trusts and private investment companies. The funding is collateralized by the asset in the structured entities. The group’s involvement involves predominantly both lending and loan commitments.

The vehicles used in these transactions are controlled by the borrowers where the borrowers have the ability to decide whether to post additional margin or collateral in respect of the financing. In such cases, where borrowers can decide to continue or terminate the financing, the borrowers will consolidate the vehicle.

Securitization Vehicles

The Group establishes securitization vehicles which purchase diversified pools of assets, including fixed income securities, corporate loans, and asset-backed securities (predominantly commercial and residential mortgage-backed securities and credit card receivables). The vehicles fund these purchases by issuing multiple tranches of debt and equity securities, the repayment of which is linked to the performance of the assets in the vehicles.

The Group often transfers assets to these securitization vehicles and provides financial support to these entities in the form of liquidity facilities.

The Group also invests and provides liquidity facilities to third party sponsored securitization vehicles.

The securitization vehicles that are not consolidated into the Group are those where the Group does not hold the power or ability to unilaterally remove the servicer or special servicer who has been delegated power over the activities of the entity.

Funds

The Group establishes structured entities to accommodate client requirements to hold investments in specific assets. The Group also invests in funds that are sponsored by third parties. A group entity may act as fund manager, custodian or some other capacity and provide funding and liquidity facilities to both group sponsored and third party funds. The funding provided is collateralized by the underlying assets held by the fund.

The Group does not consolidate funds when Deutsche Bank is deemed agent or when another third party investor has the ability to direct the activities of the fund.

Other

These are Deutsche Bank sponsored or third party structured entities that do not fall into any criteria above. These entities are not consolidated by the Group when the Group does not hold power over the decision making of these entities.

Income derived from involvement with structured entities

The Group earns management fees and, occasionally, performance-based fees for its investment management service in relation to funds. Interest income is recognized on the funding provided to structured entities. Any trading revenue as a result of derivatives with structured entities and from the movements in the value of notes held in these entities is recognized in 'Net gains/losses on financial assets/liabilities held at fair value through profit and loss'.

Interests in unconsolidated structured entities

The Group's interests in unconsolidated structured entities refer to contractual and non-contractual involvement that exposes the Group to variability of returns from the performance of the structured entities. Examples of interests in unconsolidated structured entities include debt or equity investments, liquidity facilities, guarantees and certain derivative instruments in which the Group is absorbing variability of returns from the structured entities.

Interests in unconsolidated structured entities exclude instruments which introduce variability of returns into the structured entities. For example, when the Group purchases credit protection from an unconsolidated structured entity whose purpose and design is to pass through credit risk to investors, the Group is providing the variability of returns to the entity rather than absorbing variability. The purchased credit protection is therefore not considered as an interest for the purpose of the table below.

Maximum exposure to unconsolidated structured entities

The maximum exposure to loss is determined by considering the nature of the interest in the unconsolidated structured entity. The maximum exposure for loans and trading instruments is reflected by their carrying amounts in the consolidated balance sheet. The maximum exposure for derivatives and off balance sheet commitments such as guarantees, liquidity facilities and loan commitments under IFRS 12, as interpreted by the Group, is reflected by the notional amounts. Such amounts or their development do not reflect the economic risks faced by the Group because they do not take into account the effects of collateral or hedges nor the probability of such losses being incurred. At December 31, 2019, the notional related to the positive and negative replacement values of derivatives and off balance sheet commitments were €136 billion, €506 billion and €16 billion respectively. At December 31, 2018, the notional related to the positive and negative replacement values of derivatives and off balance sheet commitments were €372 billion, €1,311 billion and €17 billion respectively.

Size of structured entities

The Group provides a different measure for size of structured entities depending on their type. The following measures have been considered as appropriate indicators for evaluating the size of structured entities:

- Funds – Net asset value or assets under management where the Group holds fund units and notional of derivatives when the Group's interest comprises of derivatives.
- Securitizations – notional of notes in issue (taking into account interest only and excess notes) when the Group derives its interests through notes its holds and notional of derivatives when the Group's interests is in the form of derivatives.
- Third party funding entities – Total assets in entities
- Repackaging and investment entities – Fair value of notes in issue

For Third party funding entities, size information is not publicly available, therefore the Group has disclosed the greater of the collateral the Group has received/pledged or the notional of the exposure the Group has to the entity.

Based on the above definitions, the total size of structured entities is €2,091 billion, of which the majority of €1,617 billion is from Funds. In 2018, it was €3,318 billion and €2,971 billion respectively.

The following table shows, by type of structured entity, the carrying amounts of the Group's interests recognized in the consolidated statement of financial position as well as the maximum exposure to loss resulting from these interests. The carrying amounts presented below do not reflect the true variability of returns faced by the Group because they do not take into account the effects of collateral or hedges.

Carrying amounts and size relating to Deutsche Bank's interests

	Dec 31, 2019				
in € m.	Repackaging and Investment Entities	Third Party Funding Entities	Securiti-zations	Funds	Total
Assets					
Cash and central bank balances	0	0	0	0	0
Interbank balances (w/o central banks)	1	6	0	35	42
Central bank funds sold and securities purchased under resale agreements	0	603	8	2,613	3,224
Securities Borrowed	0	0	0	3	3
Total financial assets at fair value through profit or loss	262	6,035	6,257	54,853	67,408
Trading assets	199	4,033	4,371	5,361	13,964
Positive market values (derivative financial instruments)	63	176	32	2,777	3,049
Non-trading financial assets mandatory at fair value through profit or loss	0	1,820	1,854	46,715	50,389
Financial assets designated at fair value through profit or loss	0	6	0	0	6
Financial assets at fair value through other comprehensive income	0	221	491	106	818
Loans at amortized cost	151	44,284	36,183	9,842	90,460
Other assets	0	332	3,894	17,863	22,089
Total assets	414	51,481	46,834	85,316	184,044
Liabilities					
Total financial liabilities at fair value through profit or loss	44	27	5	8,865	8,941
Negative market values (derivative financial instruments)	44	27	5	8,865	8,941
Other short-term borrowings	0	0	0	0	0
Other liabilities	0	0	0	2,257	2,257
Total liabilities	44	27	5	11,122	11,197
Off-balance sheet exposure	1	4,793	9,358	2,245	16,396
Total	371	56,247	56,187	76,439	189,243

	Dec 31, 2018				
in € m.	Repackaging and Investment Entities	Third Party Funding Entities	Securiti-zations	Funds	Total
Assets					
Cash and central bank balances	0	0	0	0	0
Interbank balances (w/o central banks)	1	14	0	28	43
Central bank funds sold and securities purchased under resale agreements	0	508	8	1,397	1,913
Securities Borrowed	0	0	0	461	461
Total financial assets at fair value through profit or loss	342	4,578	5,956	77,166	88,041
Trading assets	244	3,480	4,567	9,297	17,587
Positive market values (derivative financial instruments)	98	571	122	6,516	7,308
Non-trading financial assets mandatory at fair value through profit or loss ¹	0	516	1,266	61,353	63,135
Financial assets designated at fair value through profit or loss ¹	0	10	0	0	10
Financial assets at fair value through other comprehensive income	0	286	240	832	1,358
Loans at amortized cost	220	40,552	27,322	8,370	76,464
Other assets	5	519	216	10,464	11,203
Total assets	568	46,456	33,741	98,719	179,483
Liabilities					
Total financial liabilities at fair value through profit or loss	102	56	3	15,482	15,644
Negative market values (derivative financial instruments)	102	56	3	15,482	15,644
Other short-term borrowings	0	0	0	6,596	6,596
Other liabilities	0	0	0	0	0
Total liabilities	102	56	3	22,078	22,240
Off-balance sheet exposure	0	4,363	9,524	3,028	16,915
Total	466	50,762	43,262	79,668	174,158

¹ Prior year numbers restated.

Trading assets – Total trading assets as of December 31, 2019 and December 31, 2018 of € 14.0 billion and € 17.6 billion are comprised primarily of € 4.4 billion and € 4.6 billion in Securitizations and € 5.4 billion and € 9.3 billion in Funds structured entities respectively. The Group's interests in securitizations are collateralized by the assets contained in these entities. Where the Group holds fund units these are typically in regards to market making in funds or otherwise serve as hedges for notes issued to clients. Moreover the credit risk arising from loans made to Third party funding structured entities is mitigated by the collateral received.

Non-trading financial assets mandatory at fair value through profit or loss – Reverse repurchase agreements to Funds comprise the majority of the interests in this category and are collateralized by the underlying securities.

Loans – Loans as of December 31, 2019 and December 31, 2018 consist of € 90.5 billion and € 76.5 billion investment in securitization tranches and financing to Third party funding entities. The Group's financing to Third party funding entities is collateralized by the assets in those structured entities.

Other assets – Other assets as of December 31, 2019 and December 31, 2018 of € 22.1 billion and € 11.2 billion, respectively, consist primarily of prime brokerage receivables and cash margin balances.

Pending Receivables – Pending Receivable balances are not included in this disclosure note due to the fact that these balances arise from typical customer supplier relationships out of e.g. brokerage type activities and their inherent volatility would not provide users of the financial statements with effective information about Deutsche Bank's exposures to structured entities.

Financial support

Deutsche Bank did not provide non-contractual support during the year to unconsolidated structured entities.

Sponsored unconsolidated structured entities where the Group has no interest as of December 31, 2019 and December 31, 2018.

As a sponsor, the Group is involved in the legal set up and marketing of the entity and supports the entity in different ways, namely:

- transferring assets to the entities
- providing seed capital to the entities
- providing operational support to ensure the entity's continued operation
- providing guarantees of performance to the structured entities.

The Group is also deemed a sponsor for a structured entity if market participants would reasonably associate the entity with the Group. Additionally, the use of the Deutsche Bank name for the structured entity indicates that the Group has acted as a sponsor.

The gross revenues from sponsored entities where the Group did not hold an interest as of December 31, 2019 and December 31, 2018 were € 145 million and € (220) million respectively. Instances where the Group does not hold an interest in an unconsolidated sponsored structured entity include cases where any seed capital or funding to the structured entity has already been repaid in full to the Group during the year. This amount does not take into account the impacts of hedges and is recognized in Net gains/losses on financial assets/liabilities at fair value through profit and loss. The aggregated carrying amounts of assets transferred to sponsored unconsolidated structured entities in 2019 were € 0.3 billion for securitization and € 2.2 billion for repackaging and investment entities. In 2018, they were € 4.1 billion for securitization and € 2.4 billion for repackaging and investment entities.

39 – Current and non-current assets and liabilities

Asset and liability line items by amounts recovered or settled within or after one year

Asset items as of December 31, 2019

in € m.	Amounts recovered or settled		Total
	within one year	after one year	Dec 31, 2019
Cash and central bank balances	137,370	222	137,592
Interbank balances (w/o central banks)	9,613	22	9,636
Central bank funds sold and securities purchased under resale agreements	9,591	4,210	13,801
Securities borrowed	428	0	428
Financial assets at fair value through profit or loss	517,138	13,576	530,713
Financial assets at fair value through other comprehensive income	12,183	33,320	45,503
Equity method investments	0	929	929
Loans at amortized cost	115,669	314,172	429,841
Property and equipment	0	4,930	4,930
Goodwill and other intangible assets	0	7,029	7,029
Other assets	82,355	28,004	110,359
Assets for current tax	405	521	926
Total assets before deferred tax assets	884,752	406,936	1,291,688
Deferred tax assets			5,986
Total assets			1,297,674

Liability items as of December 31, 2019

in € m.	Amounts recovered or settled		Total
	within one year	after one year	Dec 31, 2019
Deposits	546,077	26,131	572,208
Central bank funds purchased and securities sold under repurchase agreements	3,057	58	3,115
Securities loaned	259	0	259
Financial liabilities at fair value through profit or loss	399,943	4,505	404,448
Other short-term borrowings	5,218	0	5,218
Other liabilities	105,978	1,986	107,964
Provisions	2,622	0	2,622
Liabilities for current tax	502	149	651
Long-term debt	38,088	98,384	136,473
Trust preferred securities	2,013	0	2,013
Total liabilities before deferred tax liabilities	1,103,756	131,214	1,234,970
Deferred tax liabilities			545
Total liabilities			1,235,515

Asset items as of December 31, 2018

in € m.	Amounts recovered or settled		Total
	within one year	after one year	Dec 31, 2018
Cash and central bank balances	188,691	40	188,732
Interbank balances (w/o central banks)	8,282	599	8,881
Central bank funds sold and securities purchased under resale agreements	5,861	2,361	8,222
Securities borrowed	3,396	0	3,396
Financial assets at fair value through profit or loss	536,367	36,977	573,344
Financial assets at fair value through other comprehensive income	16,725	34,457	51,182
Equity method investments	0	879	879
Loans at amortized cost	110,828	289,468	400,297
Property and equipment	0	2,421	2,421
Goodwill and other intangible assets	0	9,141	9,141
Other assets	82,588	10,856	93,444
Assets for current tax	396	574	970
Total assets before deferred tax assets	953,134	387,774	1,340,907
Deferred tax assets			7,230
Total assets			1,348,137

Liability items as of December 31, 2018

in € m.	Amounts recovered or settled		Total
	within one year	after one year	Dec 31, 2018
Deposits	531,700	32,705	564,405
Central bank funds purchased and securities sold under repurchase agreements	4,866	1	4,867
Securities loaned	3,359	0	3,359
Financial liabilities at fair value through profit or loss	410,409	5,271	415,680
Other short-term borrowings	14,158	0	14,158
Other liabilities	115,511	2,002	117,513
Provisions	2,711	0	2,711
Liabilities for current tax	286	658	944
Long-term debt	47,317	104,766	152,083
Trust preferred securities	3,168	0	3,168
Total liabilities before deferred tax liabilities	1,133,485	145,403	1,278,887
Deferred tax liabilities			512
Total liabilities			1,279,400

40 – Events after the reporting period

Developments around the COVID 19 disease in 2020 so far suggest that, in the first half of 2020, global economic growth is expected to be negatively impacted by the spread of the disease and the resulting disruption of economic activity, which could impact our ability to generate revenues and negatively impact specific portfolios through negative rating migrations, higher than expected loan losses and potential impairments of assets. The current COVID 19 pandemic and its potential impact on the global economy may affect our ability to meet our financial targets. While it is too early for us to predict the impacts on our business or our financial targets that the expanding pandemic, and the governmental responses to it, may have, we may be materially adversely affected by a protracted downturn in local, regional or global economic conditions.

41 – Regulatory capital Information

General definitions

The calculation of our own funds incorporates the capital requirements following the “Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms” (Capital Requirements Regulation or “CRR”) and the “Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms” (Capital Requirements Directive or “CRD”) which have been further amended with subsequent Regulations and Directives. The CRD has been implemented into German law. The information in this section as well as in the section “Development of risk-weighted Assets” is based on the regulatory principles of consolidation.

This section refers to the capital adequacy of the group of entities consolidated for banking regulatory purposes pursuant to the CRR and the German Banking Act (“Kreditwesengesetz” or “KWG”). Therein not included are insurance companies or companies outside the finance sector.

The total own funds pursuant to the effective regulations as of year-end 2019 comprises Tier 1 and Tier 2 (T2) capital. Tier 1 capital is subdivided into Common Equity Tier 1 (CET 1) capital and Additional Tier 1 (AT1) capital.

Common Equity Tier 1 (CET 1) capital consists primarily of common share capital (reduced by own holdings) including related share premium accounts, retained earnings (including losses for the financial year, if any) and accumulated other comprehensive income, subject to regulatory adjustments (i.e. prudential filters and deductions), as well as minority interests qualifying for inclusion in consolidated CET1 capital. Prudential filters for CET 1 capital, according to Articles 32 to 35 CRR, include (i) securitization gains on sale, (ii) cash flow hedges and changes in the value of own liabilities, and (iii) additional value adjustments. CET 1 capital deductions for instance includes (i) intangible assets, (ii) deferred tax assets that rely on future profitability, (iii) negative amounts resulting from the calculation of expected loss amounts, (iv) net defined benefit pension fund assets, (v) reciprocal cross holdings in the capital of financial sector entities and, (vi) significant and non-significant investments in the capital (CET 1, AT1, T2) of financial sector entities above certain thresholds. All items not deducted (i.e., amounts below the threshold) are subject to risk-weighting.

Additional Tier 1 (AT1) capital consists of AT1 capital instruments and related share premium accounts as well as noncontrolling interests qualifying for inclusion in consolidated AT1 capital and during the transitional period grandfathered instruments. To qualify as AT1 capital under CRR/CRD, instruments must have principal loss absorption through a conversion to common shares or a write-down mechanism allocating losses at a trigger point and must also meet further requirements (perpetual with no incentive to redeem; institution must have full dividend/coupon discretion at all times, etc.).

Tier 2 (T2) capital comprises eligible capital instruments, the related share premium accounts and subordinated long-term debt, certain loan loss provisions and noncontrolling interests that qualify for inclusion in consolidated T2 capital. To qualify as T2 capital, capital instruments or subordinated debt must have an original maturity of at least five years. Moreover, eligible capital instruments may inter alia not contain an incentive to redeem, a right of investors to accelerate repayment, or a credit sensitive dividend feature. Capital instruments that no longer qualify as AT1 or T2 capital under the fully loaded CRR/CRD applicable until June 26, 2019 are subject to grandfathering rules during the transitional period and are being phased out from 2013 to 2022 with their recognition capped at 40 % in 2018, 30 % in 2019 and the cap decreasing by ten percentage points every year thereafter.

We present certain figures in this report based on our definition of own funds on a “fully loaded” basis. This relates to our Additional Tier 1 capital and Tier 2 capital and figures based thereon, including Tier 1 capital and Leverage Ratio. The term “fully loaded” is defined as excluding the transitional arrangements for own funds introduced by the CRR/CRD applicable until June 26, 2019. However, it reflects the latest transitional arrangements introduced by the amendments to the CRR/CRD applicable from June 27, 2019. We believe that these “fully loaded” calculations provide useful information to investors as they reflect our progress against the regulatory capital standards and as many of our competitors have been describing calculations on a “fully loaded” basis. As our competitors’ assumptions and estimates regarding “fully loaded” calculations may vary, however, our “fully loaded” measures may not be comparable with similarly labelled measures used by our competitors.

Capital instruments

Our Management Board received approval from the 2018 Annual General Meeting to buy back up to 206.7 million shares before the end of April 2023. Thereof 103.3 million shares can be purchased by using derivatives, this includes 41.3 million derivatives with a maturity exceeding 18 months. During the period from the 2018 Annual General Meeting until the 2019 Annual General Meeting (May 23, 2019), 24.3 million shares were purchased. The shares purchased were used for equity compensation purposes in the same period or are to be used in the upcoming period so that the number of shares held in Treasury from buybacks was 1.7 million as of the 2019 Annual General Meeting.

The 2019 Annual General Meeting granted our Management Board the approval to buy back up to 206.7 million shares before the end of April 2024. Thereof 103.3 million shares can be purchased by using derivatives, this includes 41.3 million derivatives with a maturity exceeding 18 months. These authorizations substitute the authorizations of the previous year. During the period from the 2019 Annual General Meeting until December 31, 2019, 8.3 million shares were purchased. The shares purchased are to be used in the upcoming period so that the number of shares held in Treasury from buybacks was 0.7 million as of December 31, 2019.

Since the 2017 Annual General Meeting, and as of December 31, 2019, authorized capital available to the Management Board is €2,560 million (1,000 million shares). As of December 31, 2019, the conditional capital against cash stands at €512 million (200 million shares). Additional conditional capital for equity compensation amounts to €51.2 million (20 million shares). Further, the 2018 Annual General Meeting authorized the issuance of participatory notes and other Hybrid Debt Securities that fulfill the regulatory requirements to qualify as Additional Tier 1 capital with an equivalent value of €8.0 billion.

Our legacy Hybrid Tier 1 capital instruments (substantially all noncumulative trust preferred securities) are not recognized under fully loaded CRR/CRD rules as Additional Tier 1 capital, mainly because they have no write-down or equity conversion feature. However, they are recognized as Additional Tier 1 capital under CRR/CRD transitional provisions and can still be recognized as Tier 2 capital under the fully loaded CRR/CRD rules. During the transitional phase-out period the maximum recognizable amount of Additional Tier 1 instruments from Basel 2.5 compliant issuances as of December 31, 2012 will be reduced at the beginning of each financial year by 10 % or €1.3 billion, through 2022. For December 31, 2019, this resulted in eligible Additional Tier 1 instruments of €6.4 billion (i.e. €4.6 billion newly issued AT1 Notes plus €1.8 billion of legacy Hybrid Tier 1 instruments recognizable during the transition period). €1.8 billion of the legacy Hybrid Tier 1 instruments can still be recognized as Tier 2 capital under the fully loaded CRR/CRD rules. Additional Tier 1 instruments recognized under fully loaded CRR/CRD rules amounted to €4.6 billion as of December 31, 2019. In 2019, the bank redeemed one legacy Hybrid Tier 1 instrument with a notional of U.S. \$ 1.4 billion and an eligible equivalent amount of €1.2 billion.

The total of our Tier 2 capital instruments as of December 31, 2019 recognized during the transition period under CRR/CRD was €6.0 billion. As of December 31, 2019, there were no legacy Hybrid Tier 1 instruments that are counted as Tier 2 capital under transitional rules. The gross notional value of the Tier 2 capital instruments was €7.4 billion. Tier 2 instruments recognized under fully loaded CRR/CRD rules amounted to €7.8 billion as of December 31, 2019 (including the €1.8 billion legacy Hybrid Tier 1 capital instruments only recognizable as Additional Tier 1 capital during the transitional period).

Minimum capital requirements

Failure to meet minimum capital requirements can result in supervisory measures such as restrictions of profit distributions or limitations on certain businesses such as lending. We complied with the regulatory capital adequacy requirements in 2019.

Details on regulatory capital

Own Funds Template (incl. RWA and capital ratios)

in € m.	Dec 31, 2019	Dec 31, 2018
	CRR/CRD	CRR/CRD
Common Equity Tier 1 (CET 1) capital: instruments and reserves		
Capital instruments, related share premium accounts and other reserves	45,780	45,515
Retained earnings	14,814	16,297
Accumulated other comprehensive income (loss), net of tax	537	382
Independently reviewed interim profits net of any foreseeable charge or dividend ¹	(5,390)	0
Other	837	846
Common Equity Tier 1 (CET 1) capital before regulatory adjustments	56,579	63,041
Common Equity Tier 1 (CET 1) capital: regulatory adjustments		
Additional value adjustments (negative amount)	(1,738)	(1,504)
Other prudential filters (other than additional value adjustments)	(150)	(329)
Goodwill and other intangible assets (net of related tax liabilities) (negative amount)	(6,515)	(8,566)
Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liabilities where the conditions in Art. 38 (3) CRR are met) (negative amount)	(1,126)	(2,758)
Negative amounts resulting from the calculation of expected loss amounts	(259)	(367)
Defined benefit pension fund assets (net of related tax liabilities) (negative amount)	(892)	(1,111)
Direct, indirect and synthetic holdings by an institution of own CET 1 instruments (negative amount)	(15)	(25)
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above the 10 % / 15 % thresholds and net of eligible short positions) (negative amount)	0	0
Deferred tax assets arising from temporary differences (net of related tax liabilities where the conditions in Art. 38 (3) CRR are met) (amount above the 10 % / 15 % thresholds) (negative amount)	(319)	0
Other regulatory adjustments ²	(1,417)	(895)
Total regulatory adjustments to Common Equity Tier 1 (CET 1) capital	(12,430)	(15,555)
Common Equity Tier 1 (CET 1) capital	44,148	47,486
Additional Tier 1 (AT1) capital: instruments		
Capital instruments and the related share premium accounts	4,676	4,676
Amount of qualifying items referred to in Art. 484 (4) CRR and the related share premium accounts subject to phase out from AT1	1,813	3,009
Additional Tier 1 (AT1) capital before regulatory adjustments	6,489	7,685
Additional Tier 1 (AT1) capital: regulatory adjustments		
Direct, indirect and synthetic holdings by an institution of own AT1 instruments (negative amount)	(91)	(80)
Residual amounts deducted from AT1 capital with regard to deduction from CET 1 capital during the transitional period pursuant to Art. 472 CRR	N/M	N/M
Other regulatory adjustments	0	0
Total regulatory adjustments to Additional Tier 1 (AT1) capital	(91)	(80)
Additional Tier 1 (AT1) capital	6,397	7,604
Tier 1 capital (T1 = CET 1 + AT1)	50,546	55,091
Tier 2 (T2) capital	5,957	6,202
Total capital (TC = T1 + T2)	56,503	61,292
Total risk-weighted assets	324,015	350,432
Capital ratios		
Common Equity Tier 1 capital ratio (as a percentage of risk-weighted assets)	13.6	13.6
Tier 1 capital ratio (as a percentage of risk-weighted assets)	15.6	15.7
Total capital ratio (as a percentage of risk-weighted assets)	17.4	17.5

N/M – Not meaningful

¹ No interim profits to be recognized as per ECB Decision (EU) 2015/656 in accordance with the Article 26(2) of Regulation (EU) No 575/2013 (ECB/2015/4).

² Includes €0.4 billion capital deduction effective from April 2019 and €0.3 billion effective from October 2016 based on regular ECB review and €0.8 billion capital deduction based on ECB guidance on irrevocable payment commitments related to the Single Resolution Fund and the Deposit Guarantee Scheme effective from January 2018 onwards.

Reconciliation of shareholders' equity to regulatory capital

in € m.	CRR/CRD	
	Dec 31, 2019	Dec 31, 2018
Total shareholders' equity per accounting balance sheet	55,857	62,495
Deconsolidation/Consolidation of entities	(116)	(33)
Of which:		
Additional paid-in capital	(12)	(12)
Retained earnings	(220)	(150)
Accumulated other comprehensive income (loss), net of tax	116	130
Total shareholders' equity per regulatory balance sheet	55,741	62,462
Minority Interests (amount allowed in consolidated CET 1)	837	846
Accrual for dividend and AT1 coupons ¹	0	(267)
Reversal of deconsolidation/consolidation of the position Accumulated other comprehensive income (loss), net of tax, during transitional period	0	0
Common Equity Tier 1 (CET 1) capital before regulatory adjustments	56,579	63,041
Additional value adjustments	(1,738)	(1,504)
Other prudential filters (other than additional value adjustments)	(150)	(329)
Regulatory adjustments relating to unrealized gains and losses pursuant to Art. 467 and 468 CRR	0	0
Goodwill and other intangible assets (net of related tax liabilities) (negative amount)	(6,515)	(8,566)
Deferred tax assets that rely on future profitability	(1,445)	(2,758)
Defined benefit pension fund assets (net of related tax liabilities) (negative amount)	(892)	(1,111)
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	0	0
Other regulatory adjustments ²	(1,692)	(1,287)
Common Equity Tier 1 capital	44,148	47,486

¹ No interim profits to be recognized as per ECB Decision (EU) 2015/656 in accordance with the Article 26(2) of Regulation (EU) No 575/2013 (ECB/2015/4).

² € 0.4 billion capital deduction effective from April 2019 and € 0.3 billion effective from October 2016 based on regular ECB review, € 0.8 billion capital deduction based on ECB guidance on irrevocable payment commitments related to the Single Resolution Fund and the Deposit Guarantee Scheme effective from January 2018 onwards, € 0.3 billion negative amounts resulting from the calculation of expected loss amounts and € 15 million from Direct, indirect and synthetic holdings by an institution of own CET 1 instruments.

Capital management

Our Treasury function manages solvency, capital adequacy, leverage and bail-in capacity ratios at Group level and locally in each region, as applicable. Treasury implements our capital strategy, which itself is developed by the Group Risk Committee and approved by the Management Board. Treasury, directly or through the Group Asset and Liability Committee, which was established in 2018, manages, among other things, issuance and repurchase of shares and capital instruments, hedging of capital ratios against foreign exchange swings, setting capacities for key financial resources, design of shareholders' equity allocation, and regional capital planning. We are fully committed to maintaining our sound capitalization both from an economic and regulatory perspective. We continuously monitor and adjust our overall capital demand and supply in an effort to achieve an appropriate balance of the economic and regulatory considerations at all times and from all perspectives. These perspectives include book equity based on IFRS accounting standards, regulatory and economic capital as well as specific capital requirements from rating agencies.

Treasury manages the issuance and repurchase of capital instruments, namely Common Equity Tier 1, Additional Tier 1 and Tier 2 capital instruments as well as TLAC/MREL eligible debt instruments. Treasury constantly monitors the market for liability management trades. Such trades represent a countercyclical opportunity to create Common Equity Tier 1 capital by buying back our issuances below par.

Our core currencies are Euro, US Dollar, Chinese Renminbi and Pound Sterling. Treasury manages the sensitivity of our capital ratios against swings in core currencies. The capital invested into our foreign subsidiaries and branches in the other non-core currencies is largely hedged against foreign exchange swings. Treasury determines which currencies are to be hedged, develops suitable hedging strategies in close cooperation with Risk Management and finally executes these hedges.

Resource limit setting

Usage of key financial resources is influenced through the following governance processes and incentives.

Target resource capacities are reviewed in our annual strategic plan in line with our CET 1 and Leverage Ratio ambitions. In a quarterly process, the Group Asset and Liability Committee, which insofar as it replaced the Group Risk Committee as decision body, approves divisional resource limits for Total Capital Demand and leverage exposure that are based on the strategic plan but adjusted for market conditions and the short-term outlook. Limits are enforced through a close monitoring process and an excess charging mechanism.

Overall regulatory capital requirements are principally driven by either our CET 1 ratio (solvency) or leverage ratio (leverage) requirements, whichever is the more binding constraint. For the internal capital allocation, the combined contribution of each segment to the Group's Common Equity Tier 1 ratio, the Group's Leverage ratio and the Group's Capital Loss under Stress are weighted to reflect their relative importance and level of constraint to the Group. Contributions to the Common Equity Tier 1 ratio and the Leverage ratio are measured through Risk-Weighted Assets (RWA) and Leverage Ratio Exposure (LRE) assuming full implementation of CRR/CRD 4 rules. The Group's Capital Loss under Stress is a measure of the Group's overall economic risk exposure under a defined stress scenario. Goodwill and other intangible assets are directly allocated to the respective segments, supporting the calculation of the allocated tangible shareholders equity and the respective rate of return. In our performance measurement, our methodology also applies different rates for the cost of equity for each of the business segments, reflecting in a more differentiated way the earnings volatility of the individual business models. This enables improved performance management and investment decisions.

Regional capital plans covering the capital needs of our branches and subsidiaries across the globe are prepared on an annual basis and presented to the Group Investment Committee. Most of our subsidiaries are subject to legal and regulatory capital requirements. In developing, implementing and testing our capital and liquidity, we fully take such legal and regulatory requirements into account.

Further, Treasury is represented on the Investment Committee of the largest Deutsche Bank pension fund which sets the investment guidelines for this fund. This representation is intended to ensure that pension assets are aligned with pension liabilities, thus protecting our capital base.

42 – Impact of Deutsche Bank's transformation

On July 7, 2019, Deutsche Bank announced a number of transformational measures relating to the Group's businesses and its organization. The immediate and secondary impacts that these measures had on the Group's operating results and financial position are disclosed below.

Impairment of Goodwill

The Group regularly assesses whether there is any indication that goodwill allocated to its cash-generating units (CGU) may be impaired in which event it would be required to estimate the recoverable amount of the respective CGU. Triggered by the impact of a lowered outlook on business plans driven both by adjustments to macro-economic factors as well as by the impact of strategic decisions in preparation of the above transformation announcement, in the second quarter 2019 the Group reviewed the recoverable amounts of its CGUs. This review resulted in a short-fall of the recoverable amounts against the respective CGUs carrying amounts for the CGUs Wealth Management (WM) within the former Private & Commercial Bank (PCB) corporate division and Global Transaction Banking & Corporate Finance (GTB & CF) within the former Corporate & Investment Bank corporate division.

With a recoverable amount of approximately €1.9 billion for WM, goodwill in WM (€545 million) was impaired and had to be fully written-off, mainly as a result of worsening macro-economic assumptions, including interest rate curves, as well as industry-specific market growth corrections for the WM business globally. For GTB & CF, the recoverable amount of approximately €10.2 billion led to the full impairment of allocated goodwill (€491 million). This was mainly driven by adverse industry trends in Corporate Finance as well as by adjustments to macro-economic assumptions, including interest rate curves. The total impairment charges of €1 billion were recorded in impairment of goodwill and other intangible assets of the respective Private Bank (PB, €545 million) and Corporate Bank (CB, €491 million) segment results in the second quarter of 2019.

The discount rates applied in the estimation of the recoverable amounts of the respective CGUs were as follows:

	Discount rate (post-tax)	
	2019	2018
Global Transaction Banking & Corporate Finance	8.6 %	8.8 %
Wealth Management	8.4 %	9.0 %

Impairment and amortization of Self-developed software

In line with the transformation announcement, the Group also reviewed current platform software and software under construction assigned to businesses subject to the transformation strategy. Accordingly, the reassessment of the respective recoverable amounts led to an impairment of self-developed software of €855 million for the financial year ended December 31, 2019, thereof in CB €148 million, in IB €201 million, in PB €149 million, and in CRU €358 million.

In addition, the Group included amortization on Equities software subject to the transformation strategy of €114 million for the financial year ended December 31, 2019, within CRU. The impairment write-down as well as the software amortization are included within the general and administrative expenses of the Group's results in 2019.

Impairment of Right of Use assets and other related impacts

As part of the strategy announcement on July 7, 2019 to further reduce costs, the Group recognized impairments, accelerated or higher depreciation of Right-of-Use (RoU) assets, asset write downs and accelerated depreciation on leasehold improvements and furniture, onerous contracts provisions for non-lease costs, depreciation of capitalized reinstatement costs and other one-time relocation costs of €137 million for the financial year ended December 31, 2019, thereof in CB €12 million, in IB €13 million, in PB €38 million, in AM €30 million, in CRU €5 million, and in Corporate & Other €38 million.

Service contracts

Expected changes to the scope of existing service contracts with external vendors resulted in provisions being established with a charge to expenses to the amount of €23 million for the financial year ended December 31, 2019 within CRU.

Deferred tax asset valuation adjustments

Each quarter, the Group re-evaluates its estimate related to deferred tax assets, including its assumptions about future profitability. In updating the strategic plan in connection with the transformation the Group adjusted the value of its deferred tax assets in affected jurisdictions. This resulted in total valuation adjustments of €2.8 billion for financial year ended December 31, 2019, that primarily relate to the U.S. and UK.

Restructuring charges

Starting with the announcement of the transformation of Deutsche Bank on July 7, 2019 we designated all restructuring expenses as related to the transformation announcement and the subsequent business re-organization and perimeter changes resulting in €611 million restructuring expenses for the Group as per December 31, 2019. These charges are comprised of termination benefits, additional expenses covering the acceleration of deferred compensation awards not yet amortized due to the discontinuation of employment and contract termination costs related to real estate. Approximately 1,600 full-time equivalent employees (FTE) were impacted by the re-organization and changes in the financial year 2019.

In addition to these restructuring expenses, €97 million of severance related to the transformation announcement were recorded as per December 31, 2019.

Financial instrument business model reclassification

The transformation strategy announcement on July 7, 2019 resulted in a reassessment of the business models for the financial assets transferred to the newly created segment Capital Release Unit (CRU). The CRU has its own objectives and management team and will accelerate the derisking of certain positions. The business model reassessment resulted in certain portfolios which were previously in Hold to Collect (HTC) business models being reclassified to Hold to Collect Sell (HTC&S) or Trading/Other business models. The reclassification date was October 1, 2019.

At reclassification date €128 million carrying value, net of loan loss provisions (LLP), financial assets in Hold to collect business models classified as Loans at amortized cost were reclassified to Hold to collect and sell business models and reclassified to Financial assets at fair value through other comprehensive income with a fair value of €126 million. The €2 million reduction in carrying value is recorded in Accumulated other comprehensive income.

At reclassification date €278 million carrying value, net of LLP, financial assets in Hold to collect business models classified as Loans at amortized cost were reclassified to Trading/Other models and reclassified to financial assets at fair value through profit or loss with a fair value of €266 million. The €12 million reduction in carrying value is recorded in Net gains (losses) on financial assets at fair value through profit or loss.

Other transformation related expenses

As a result of the strategic transformation the Group recognized other transformation related expenses including legal fees, consulting fees and IT consulting fees of €15 million for the financial year ended December 31, 2019, thereof in PB €5 million, and in CRU €11 million.

43 – Condensed Deutsche Bank AG (parent company only) financial information

Condensed statement of income

in € m.	2019	2018	2017
Interest income, excluding dividends from subsidiaries	17,402	16,326	15,339
Dividends received from subsidiaries:			
Bank subsidiaries	914	2,511	1,185
Nonbank subsidiaries	608	2,064	1,962
Interest expense	9,810	9,700	9,575
Net interest and dividend income	9,114	11,201	8,912
Provision for credit losses	3,118	102	675
Net interest and dividend income after provision for credit losses	5,996	11,099	8,237
Noninterest income:			
Commissions and fee income	2,957	3,223	3,721
Net gains (losses) on financial assets/liabilities at fair value through profit or loss	132	1,436	2,789
Other income (loss) ¹	(11,912)	(344)	(744)
Total noninterest income	(8,824)	4,315	5,766
Noninterest expenses:			
Compensation and benefits	4,760	4,921	5,123
General and administrative expenses	7,735	6,070	6,347
Services provided by (to) affiliates, net	1,328	1,670	1,426
Impairment of goodwill and other intangible assets	75	0	6
Total noninterest expenses	13,898	12,661	12,902
Income (loss) before income taxes	(16,725)	2,753	1,101
Income tax expense (benefit)	1,357	(122)	(90)
Net income (loss) attributable to Deutsche Bank shareholders and additional equity components	(18,083)	2,875	1,191

¹ Includes net gains (losses) on financial assets mandatory at fair value through other comprehensive income (in 2017 on financial assets available for sale) and impairments/write-ups on investments in subsidiaries.

Condensed statement of comprehensive income

in € m.	2019	2018	2017
Net income (loss) attributable to Deutsche Bank shareholders and additional equity components	(18,083)	2,875	1,191
Other comprehensive income (loss), net of tax	(440)	102	(2,486)
Total comprehensive income (loss), net of tax	(18,523)	2,977	(1,295)

Condensed balance sheet

in € m.	Dec 31, 2019	Dec 31, 2018
Assets:		
Cash and central bank balances:	88,912	140,841
Interbank balances (w/o central banks):		
Bank subsidiaries	13,979	19,543
Other	5,560	5,037
Central bank funds sold, securities purchased under resale agreements, securities borrowed:		
Bank subsidiaries	0	1,135
Nonbank subsidiaries	32,015	39,415
Other	8,927	8,454
Financial assets at fair value through profit or loss:		
Bank subsidiaries	6,950	5,573
Nonbank subsidiaries	1,869	3,973
Other	460,779	492,156
Financial assets at fair value through other comprehensive income	37,871	38,450
Investments in associates	283	288
Investment in subsidiaries:		
Bank subsidiaries	14,569	20,155
Nonbank subsidiaries	21,746	28,117
Loans:		
Bank subsidiaries	36,517	31,393
Nonbank subsidiaries	38,911	47,156
Other	166,871	150,153
Other assets:		
Bank subsidiaries	1,666	3,352
Nonbank subsidiaries	10,930	16,427
Other	101,608	77,570
Total assets	1,049,962	1,129,187
Liabilities and equity:		
Deposits:		
Bank subsidiaries	65,461	64,413
Nonbank subsidiaries	19,093	19,745
Other	271,960	287,444
Central bank funds purchased, securities sold under repurchase agreements and securities loaned:		
Bank subsidiaries	915	654
Nonbank subsidiaries	43,703	35,587
Other	3,142	7,491
Financial liabilities at fair value through profit or loss:		
Bank subsidiaries	6,653	5,078
Nonbank subsidiaries	804	2,461
Other	366,360	378,940
Other short-term borrowings:		
Bank subsidiaries	656	158
Nonbank subsidiaries	1,526	2,414
Other	4,958	13,672
Other liabilities:		
Bank subsidiaries	1,620	1,447
Nonbank subsidiaries	6,021	10,020
Other	92,549	100,413
Long-term debt	119,232	134,872
Total liabilities	1,004,653	1,064,808
Total shareholders' equity	40,644	59,704
Additional equity components	4,665	4,675
Total equity	45,309	64,379
Total liabilities and equity	1,049,962	1,129,187

Condensed statement of cash flows

in € m.	2019	2018	2017
Net cash provided by (used in) operating activities	(41,369)	(47,850)	40,931
Cash flows from investing activities:			
Proceeds from:			
Sale of financial assets at fair value through other comprehensive income	14,075	11,592	N/A
Maturities of financial assets at fair value through other comprehensive income	36,236	23,572	N/A
Sale of debt securities held to collect at amortized cost	350	93	N/A
Maturities of debt securities held to collect at amortized cost	195	58	N/A
Sale of financial assets available for sale	N/A	N/A	7,627
Maturities of financial assets available for sale	N/A	N/A	3,433
Maturities of securities held to maturity	N/A	N/A	0
Sale of equity method investments	0	5	65
Sale of property and equipment	12	13	39
Purchase of:			
Financial assets at fair value through other comprehensive income	(47,705)	(34,586)	N/A
Debt Securities held to collect at amortized cost	(19,320)	(129)	N/A
Financial assets available for sale	N/A	N/A	(9,741)
Securities held to maturity	N/A	N/A	0
Investments in associates	(1)	0	0
Property and equipment	(266)	(212)	(261)
Net change in investments in subsidiaries	1,149	289	(2,222)
Other, net	(861)	(1,024)	(1,129)
Net cash provided by (used in) investing activities	(16,136)	(329)	(2,189)
Cash flows from financing activities:			
Issuances of subordinated long-term debt	25	10	865
Repayments and extinguishments of subordinated long-term debt	(11)	(253)	(45)
Issuances of trust preferred securities	0	0	0
Repayments and extinguishments of trust preferred securities	0	0	0
Principal portion of lease payments	(362)	N/A	N/A
Common shares issued	0	0	8,037
Purchases of treasury shares	(1,359)	(4,119)	(7,912)
Sale of treasury shares	1,181	3,925	7,471
Additional Equity Components (AT1) issued	0	0	0
Purchases of Additional Equity Components (AT1)	(88)	(123)	(149)
Sale of Additional Equity Components (AT1)	77	120	160
Coupon on additional equity components, pre tax	(330)	(315)	(335)
Cash dividends paid	(227)	(227)	(392)
Net cash provided by (used in) financing activities	(1,094)	(982)	7,700
Net effect of exchange rate changes on cash and cash equivalents	1,163	1,243	(3,499)
Net increase (decrease) in cash and cash equivalents	(57,436)	(47,918)	42,943
Cash and cash equivalents at beginning of period	139,841	187,759	144,816
Cash and cash equivalents at end of period	82,405	139,841	187,759
Net cash provided by (used in) operating activities include			
Income taxes paid (received), net	280	(224)	258
Interest paid	10,054	9,793	9,563
Interest received	14,786	19,660	15,308
Dividends received	4,217	2,957	4,098
Cash and cash equivalents comprise			
Cash and central bank balances (not included Interest-earning time deposits with central banks)	75,180	127,871	175,463
Interbank balances (w/o central banks)	7,225	11,970	12,296
Total	82,405	139,841	187,759

Parent company's long-term debt by remaining maturities

By remaining maturities	Due in 2020	Due in 2021	Due in 2022	Due in 2023	Due in 2024	Due after 2024	Total Dec 31, 2019	Total Dec 31, 2018
in € m.								
Senior debt:								
Bonds and notes:								
Fixed rate	11,285	16,178	9,181	7,251	6,365	12,954	63,213	62,053
Floating rate	4,420	7,212	3,413	1,704	1,356	5,952	24,057	30,658
Subordinated debt								
Bonds and notes:								
Fixed rate	1,884	0	0	0	5	4,348	6,237	7,232
Floating rate	180	0	0	1,226	24	461	1,892	1,858
Other	13,421	1,558	701	1,089	827	6,238	23,833	33,072
Total long-term debt	31,191	24,947	13,295	11,270	8,576	29,953	119,232	134,872

44 – SEC registered trust preferred securities

Deutsche Bank AG has, via a subsidiary, issued “trust preferred” securities that are listed on the New York Stock Exchange. In this transaction, a Delaware statutory business trust (the “Trust”) issues trust preferred securities (the “Trust Preferred Securities”) in a public offering in the United States. All the proceeds from the sale of the Trust Preferred Securities are invested by the Trust in the Class B Preferred Securities (the “Class B Preferred Securities”) of a wholly-owned subsidiary of Deutsche Bank AG organized in the form of a limited liability company (the “LLC”). The LLC uses all the proceeds from the sale of the Class B Preferred Securities to the Trust to purchase a debt obligation from Deutsche Bank AG (the “Debt Obligation”). The distributions on the Class B Preferred Securities match those of the Trust Preferred Securities. The Trust Preferred Securities and the Class B Preferred Securities pay distributions quarterly in arrears and are redeemable only upon the occurrence of certain events specified in the documents governing the terms of those securities. Subject to limited exceptions, the Class B Preferred Securities generally could not be redeemed until at least ten years after their issuance. The Trust Preferred Securities and the Class B Preferred Securities are each subject to a full and unconditional subordinated guarantee of Deutsche Bank AG. These subordinated guarantees are general and unsecured obligations of Deutsche Bank AG and rank, both as to payment and in liquidation of Deutsche Bank AG, junior in priority of payment to all current and future indebtedness of Deutsche Bank AG and on parity in priority of payment with the most senior preference shares, if any, of Deutsche Bank AG.

Issuances of SEC registered trust preferred securities

Trust	LLC	Issuance Date	Next Redemption Date	Parent Long-term Debt ¹
Deutsche Bank Contingent Capital Trust II	Deutsche Bank Contingent Capital LLC II	May 23, 2007	May 23, 2020	€ 713 million

¹ Amount of long term-debt of the Parent Company represented by the Debt Obligations issued by Deutsche Bank AG to the applicable LLC and amount of Trust Preferred Securities of Deutsche Bank AG Consolidated represented by the Trust Preferred Securities issued by the respective Trust as of December 31, 2019.

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Report of Independent Registered Public Accounting Firm

To the Shareholders and Supervisory Board
Deutsche Bank Aktiengesellschaft:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Deutsche Bank Aktiengesellschaft and subsidiaries (the Company) as of December 31, 2019 and 2018, and the related consolidated statements of income, comprehensive income, changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes, and the specific disclosures described in Note 1 to the consolidated financial statements as being part of the financial statements (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 13, 2020 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

The Group changed its method of accounting for financial instruments in 2018 due to the adoption of International Financial Reporting Standard 9 *Financial Instruments*.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Assessment of the fair value measurement of financial instruments classified as level 3

As discussed in Notes 1 and 13 to the consolidated financial statements, the Company has established policies and procedures for determining the fair value of level 3 financial instruments. As of December 31, 2019, the Company reported Level 3 financial assets held at fair value in the amount of EUR 24.4 billion, representing 4.2% of the financial assets held at fair value and 1.9% of total assets. Level 3 financial liabilities amounted to EUR 8.6 billion, representing 2.1% of the financial liabilities at fair value and 0.7% of total liabilities. By definition, market prices are not observable for the valuation of these financial instruments. The fair values are therefore determined on the basis of specialized and sophisticated valuation methods. These valuation methods may consist of complex models and can include assumptions and unobservable inputs which require judgment.

We identified the assessment of the fair value measurement of financial instruments classified as level 3 as a critical audit matter. Due to the significant measurement uncertainty associated with the fair value of such financial instruments, there was a high degree of subjectivity and judgment in evaluating the valuation methods used and in evaluating the assumptions and unobservable inputs such as discounted cash flows, volatility levels, correlations, and credit spreads.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's process to measure the fair value of its financial instruments classified as level 3, including controls related to:

- independent price verification to evaluate key unobservable inputs;
- validation of valuation models including assessment of the impact of model limitations and assumptions; and
- methodologies and calculation of key fair value adjustments ("FVAs").

We utilized valuation professionals with specialized skills and knowledge who assisted in:

- assessing the Company's processes for developing the estimates, including significant models and methodologies used in calculating fair values and FVAs, evaluating the significant assumptions and unobservable inputs by comparing to evidence obtained from internal and external sources, and evaluating the assumptions in light of historical and market information; and
- developing an independent estimate of fair value for a sample of financial instruments and comparing it to the Company's fair value.

For a sample of recent and potential transactions we inspected third party pricing information and evaluated whether these data points indicated elements of fair value which required incorporation in the Company's valuation methodologies.

Assessment of the allowance for credit losses

As discussed in the Credit Risk Management section, and in Notes 1 and 19 to the consolidated financial statements, the Company used an expected credit loss (ECL) model to recognize EUR 4.1 billion in allowances for credit losses on its consolidated balance sheet as of December 31, 2019. The Company applies a three-stage approach to measure the allowance for credit losses, using an ECL model as required under the accounting standard IFRS 9 Financial Instruments. The allowance in stage 1 represents 12 month expected credit losses. The allowance in stage 2 is related to financial instruments with a significantly deteriorated credit quality since initial recognition and the allowance in stage 3 is related to defaulted financial assets. Stage 2 and stage 3 allowances represent lifetime expected credit losses.

We identified the assessment of the allowance for credit losses as a critical audit matter because it involved significant measurement uncertainty requiring complex auditor judgment, as well as industry knowledge and experience. Within the allowance for credit losses, significant auditor judgment was required to evaluate the internal risk ratings, probability of default (PD) model, loss given default (LGD) model, exposure at default (EAD) model, and the criteria for identifying a significant increase in credit risk (SICR), and the selection of macro-economic variables.

The primary procedures we performed to address this critical audit matter included the following. We tested certain controls over the Company's process for estimating the allowance for credit losses, including controls related to the:

- review of significant assumptions and judgments used by management to estimate the internal ratings,
- validation of the models that determine PD, LGD and EAD,
- the assessment of SICR criteria, and
- review of the macro-economic variables

With the involvement of financial risk management professionals with specialized skills, industry knowledge and experience, we performed the following procedures:

- assessed the Company's ECL methodologies for compliance with IFRS 9,
- recalculated, for a sample of portfolios, the PD, LGD, and EAD and the corresponding ECL
- evaluated, for a sample of significant models, the Company's validation of these models,
- tested, for a selection of counterparties, the assigned internal risk ratings, including the payment capacity of the counterparty, and assessed the criteria used to identify if there has been a significant increase in credit risk, and
- assessed key macro-economic variables by comparing the Company's historical forecasts to the actual results and compared to other publicly available data.

Assessment of the recognition and measurement of deferred tax assets

As discussed in Notes 1 and 34 to the consolidated financial statements, the net deferred tax asset balance was EUR 5.4 billion as of December 31, 2019. The utilization of these deferred tax assets depends on the realization of future taxable profit which is estimated based on the Company's business plan. The plan is subject to inherent uncertainties and the development of certain assumptions.

We identified the assessment of the recognition and measurement of deferred tax assets as a critical audit matter as the assessment involved complex auditor judgment and knowledge of relevant tax regulations. This assessment included evaluating the assumptions included in the Company's estimated future taxable profit, including pre-tax earnings, analysis of non-recurring items, and permanent effects. The estimated future taxable profit also considers the impacts of the current political and economic developments, jurisdiction specific tax considerations and tax planning strategies.

The following are the primary procedures we performed to address this critical audit matter. We tested certain internal controls over the Company's deferred tax asset recognition and measurement process, including controls related to the development of the assumptions listed above that were used in determining estimated future taxable profit.

We assessed the Company's methodology used for the recognition and measurement of deferred tax assets in accordance with IAS 12. Additionally, we involved valuation professionals with specialized skills and knowledge, who assisted in evaluating the key assumptions included in the estimated future taxable profit and performed sensitivity analyses over the Company's expectation of future taxable profit. Finally, we involved income tax professionals with knowledge and experience who assisted in assessing the interpretation of the various tax laws and regulations and the source and character of future taxable profit as well as the prudence and feasibility of the tax planning strategies.

KPMG AG
Wirtschaftsprüfungsgesellschaft

We or our predecessor firms have served as the Company's and its predecessor companies' auditor since 1952.

Frankfurt am Main, Germany
March 13, 2020

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Corporate Governance Statement according to Sections 289f and 315d of the German Commercial Code/Corporate Governance Report

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All information presented in this Corporate Governance Statement according to §§ 289f, 315d German Commercial Code / Corporate Governance Report is shown as of February 14, 2020.

On March 11, 2020 Sigmar Gabriel became with immediate effect a member of the Supervisory Board by way of appointment by the Frankfurt district court. At the same time he succeeded Katherine Garrett-Cox as member of the Integrity Committee.

Management Board and Supervisory Board

Management Board

The Management Board of Deutsche Bank AG is responsible for the management of the company in accordance with the law, the Articles of Association of Deutsche Bank AG and the Terms of Reference for the Management Board with the objective of creating sustainable value in the interests of the company. It considers the interests of shareholders, employees and other company-related stakeholders. The members of the Management Board are collectively responsible for managing the bank's business. The Management Board, as the Group Management Board, manages Deutsche Bank Group in accordance with uniform guidelines; it exercises general control over all Group companies.

The Management Board decides on all matters prescribed by law and the Articles of Association and ensures compliance with the legal requirements and internal guidelines (compliance). It also takes the necessary measures to ensure that adequate internal guidelines are developed and implemented. The Management Board's responsibilities include, in particular, the bank's strategic management and direction, the allocation of resources, financial accounting and reporting, control and risk management, as well as a properly functioning business organization and corporate control. The Management Board decides on the appointments to the senior management level below the Management Board and, in particular, on the appointment of Global Key Function Holders. In appointing people to management functions in the Group, the Management Board takes diversity into account and strives, in particular, to achieve an appropriate representation of women (more detailed information in section "Targets for the proportion of women in management positions/gender quota" in this Corporate Governance Statement / Corporate Governance Report).

The Management Board works closely together with the Supervisory Board in a cooperative relationship of trust and for the benefit of the company. The Management Board reports to the Supervisory Board at a minimum within the scope prescribed by law or administrative guidelines, in particular on all issues with relevance for the Group concerning strategy, the intended business policy, planning, business development, risk situation, risk management, staff development, reputation and compliance.

A comprehensive presentation of the duties, responsibilities and procedures of our Management Board are specified in its Terms of Reference, the current version of which is available on our website (www.db.com/ir/en/documents.htm).

Personnel changes to the Management Board and the current members of the Management Board

The following members of the Management Board were appointed for a three-year period:

- Frank Kuhnke with effect from January 1, 2019
- Fabrizio Campelli with effect from November 1, 2019
- Christiana Riley and Bernd Leukert with effect from January 1, 2020
- Professor Dr. Stefan Simon with effect from August 1, 2020.

In the 2019 financial year, the following members of the Management Board left the Management Board:

- As of July 31, 2019: Sylvie Matherat, Garth Ritchie and Frank Strauß.

In the following, information is provided on the current members of the Management Board. The information includes the year in which they were born, year in which they were first appointed and year in which their term expires as well as their current positions and area of responsibility according to the current Business Allocation Plan for the Management Board. Also specified are their other board mandates or directorships outside of Deutsche Bank Group as well as all memberships in legally prescribed supervisory boards or other comparable domestic or foreign supervisory bodies of commercial enterprises. The members of our Management Board have generally undertaken not to assume chairmanships of supervisory boards of companies outside Deutsche Bank Group.

Christian Sewing

Year of birth: 1970
First appointed: 2015
Term expires: 2022

Christian Sewing became a member of our Management Board on January 1, 2015, and he was appointed Chairman of the Management Board with effect from April 8, 2018. He is responsible on the Management Board according to its Business Allocation Plan for Communications & Corporate Social Responsibility (CSR), Research and Group Audit. Since July 2019 he is responsible for the newly created Corporate Bank and Investment Bank. Until July 2019 he was responsible for Asset Management (AM) and the bank's Europe, Middle East, Africa (EMEA) Region and the bank's business in the Americas Region until December 2019.

Prior to assuming his role on the Management Board, Mr. Sewing was Global Head of Group Audit and held a number of positions before that in Risk, including Deputy Chief Risk Officer (from 2012 to 2013) and Chief Credit Officer (from 2010 to 2012) of Deutsche Bank.

From 2005 until 2007, Mr. Sewing was a member of the Management Board of Deutsche Genossenschafts-Hypothekenbank.

Before graduating with a diploma from the Bankakademie Bielefeld and Hamburg, Mr. Sewing completed a bank apprenticeship at Deutsche Bank in 1989.

Mr. Sewing does not have any external directorships subject to disclosure.

Until July 31, 2019 he was Chairman of the Supervisory Board of DB Privat- und Firmenkundenbank AG.

Karl von Rohr

Year of birth: 1965
First appointed: 2015
Term expires: 2023

Karl von Rohr became a member of our Management Board on November 1, 2015, and was appointed President as of April 8, 2018. In July 2019, he took responsibility for the Private Bank and Asset Management (AM) on the Management Board. He is also responsible for the Chief Administrative Office (CAO) for Legal, Group Governance and Government & Regulatory Affairs on the Management Board. He is also Regional CEO for Germany. Until October 2019 he was Labor Relations Director (Arbeitsdirektor) of Deutsche Bank AG.

Mr. von Rohr joined Deutsche Bank in 1997. From 2013 to 2015 he was Global Chief Operating Officer, Regional Management. Prior to this, he was Head of Human Resources for Deutsche Bank in Germany and member of the Management Board of Deutsche Bank Privat- und Geschäftskunden AG. During his time at Deutsche Bank, he has held various senior management positions in other divisions in Germany and Belgium.

He studied law at the universities of Bonn (Germany), Kiel (Germany), Lausanne (Switzerland) and at Cornell University (U.S.A.).

Mr. von Rohr does not have any external directorships subject to disclosure.

Mr. von Rohr is Chairman of the Supervisory Board of DWS Group GmbH & Co. KGaA and since August 1, 2019 Chairman of the Supervisory Board of DB Privat- und Firmenkundenbank AG.

Fabrizio Campelli

Year of birth: 1973
First appointed: 2019
Term expires: 2022

Fabrizio Campelli became a member of our Management Board on November 1, 2019. He is our Chief Transformation Officer and responsible for Transformation and Human Resources.

He previously spent four years as the Global Head of Deutsche Bank Wealth Management. Before that he was Head of Strategy & Organisational Development as well as Deputy Chief Operating Officer for Deutsche Bank Group.

He joined Deutsche Bank in 2004 after working at McKinsey & Company in the firm's London and Milan offices, focusing on strategic assignments mainly for global financial institutions.

He holds an MBA from MIT Sloan School of Management and a Business Administration degree from Bocconi University in Milan.

Mr. Campelli does not have any external directorships subject to disclosure.

He is Chairman of the Board of Directors of Deutsche Bank (Suisse) SA.

Frank Kuhnke

Year of birth: 1967
First appointed: 2019
Term expires: 2021

Frank Kuhnke became a member of our Management Board on January 1, 2019. He is our Chief Operating Officer and is responsible for Corporate Services and for Corporate Bank/Investment Bank/Capital Release Unit (CB/IB/CRU) Operations (excluding Settlement Operations) and CB/IB/CRU Know-Your-Customer (KYC) Operations (formerly CIB Operations including Client Lifecycle Management). In July 2019, Frank Kuhnke also assumed responsibility for the Capital Release Unit and the Europe, Middle East, Africa (EMEA) Region. Until December 2019 he was responsible for the Information Security, Data Management and Digital Strategy & Innovation.

He joined Deutsche Bank in 1986 and was appointed as Deutsche Bank's Chief Operating Officer (COO) in April 2018. From January 2016 until April 2018 he was Divisional Control Officer, Chief Administrative Officer and Head of Operations of the Private & Commercial Bank. Prior to that Mr. Kuhnke was Divisional Control Officer for Deutsche Asset & Wealth Management. From 2012 until 2015 he worked in Deutsche Bank's Non-Core Operations Unit, at first as Chief Risk Officer, later as Chief Operating Officer (COO). Between 2008 and 2012 he held management positions in Risk, based in London. During his career, he has worked across several business divisions and infrastructure functions in Tokyo, New York and Germany and has run global organizations within Deutsche Bank Group.

Before graduating with a diploma from Bank Akademie Lüneburg, Mr. Kuhnke completed a bank apprenticeship at Deutsche Bank.

Mr. Kuhnke does not have any external directorships subject to disclosure.

He is Member of the Supervisory Board of Deutsche Bank Società per Azioni.

Bernd Leukert

Year of birth: 1967
First appointed: 2020
Term expires: 2022

Bernd Leukert became a member of our Management Board on January 1, 2020. He is our Chief Technology, Data and Innovation Officer and is responsible for the Chief Information Office, the Chief Technology Office, Chief Data Office, Chief Security Office as well as CB/IB/CRU Settlement Operations.

He joined Deutsche Bank on September 1, 2019. He previously worked for many years at SAP SE, the global software company. From 2014 to 2019, he was responsible for product development and innovations as well as the Digital Business Services division on the Executive Board. He joined SAP in 1994 and held various management positions.

Mr. Leukert studied Industrial Engineering and Management at the University of Karlsruhe and at Trinity College Dublin, graduating in 1994 with a Masters Degree in Business Administration.

He is Member in the following Supervisory Boards: Bertelsmann SE & Co. KGaA and TomTom N.V..

Stuart Lewis

Year of birth: 1965
First appointed: 2012
Term expires: 2023

Stuart Lewis became a member of our Management Board on June 1, 2012. He is our Chief Risk Officer responsible for the functions managing Credit Risk, Non-Financial Risk, Market Risk and Liquidity Risk as well as for further Risk-Infrastructure units. In addition since July 2019, he has been taken over responsibility for Compliance, Anti-Financial Crime (AFC) and the Business Selection and Conflicts Office as well as the United Kingdom & Ireland region.

He joined Deutsche Bank in 1996. Prior to assuming his current role, Mr. Lewis was Deputy Chief Risk Officer and subsequently Chief Risk Officer of the Corporate & Investment Bank from 2010 to 2012. Between 2006 and 2010 he was Chief Credit Officer.

Before joining Deutsche Bank in 1996, he worked at Credit Suisse and Continental Illinois National Bank in London.

He studied at the University of Dundee, where he obtained an LLB (Hons), and he holds an LLM from the London School of Economics. He also attended the College of Law, Guildford.

Mr. Lewis does not have any external directorships subject to disclosure.

He is Chairman of the Advisory Council of DEUKONA Versicherungs-Vermittlungs-GmbH and Chairman of the Supervisory Board of Deutsche Bank Società per Azioni.

James von Moltke

Year of birth: 1969
First appointed: 2017
Term expires: 2023

James von Moltke became a member of our Management Board on July 1, 2017. He is our Chief Financial Officer and in this function he is responsible for, among other things, Finance, Group Tax, Treasury, Investor Relations, as well as Corporate M&A & Corporate Investments.

Before Mr. von Moltke joined Deutsche Bank he served as Treasurer of Citigroup. He started his career at Credit Suisse First Boston in London in 1992. In 1995, he joined J.P. Morgan, working at the bank for 10 years in New York and Hong Kong. After next working at Morgan Stanley in New York for four years, where he led the Financial Technology advisory team globally, Mr. von Moltke joined Citigroup as Head of Corporate M&A in 2009. Three years later he became the US-bank's Global Head of Financial Planning.

He holds a Bachelor of Arts degree from New College, University of Oxford.

Mr. von Moltke is a member of the following Supervisory Boards: BVV Versicherungsverein des Bankgewerbes a.G. and BVV Versorgungskasse des Bankgewerbes e.V.

Christiana Riley

Year of birth: 1978
First appointed: 2020
Term expires: 2022

Christiana Riley became a member of our Management Board on January 1, 2020. She is our Regional CEO Americas.

Mrs. Riley joined Deutsche Bank in 2006 where she was most recently Chief Financial Officer of the Corporate & Investment Bank. She previously spent nine years in Group Strategy & Planning, which she ran from 2011 to 2015. Prior to this Ms. Riley worked at the management consultancy McKinsey & Company and at the investment bank Greenhill & Co.

She graduated in 2000 from Princeton University in America where she studied Romance Languages, Literature and Linguistics. She also studied at London Business School in the UK, where she gained a Master of Business Administration in 2005.

Mrs. Riley is a member of the Supervisory Board of The Clearing House Payments Company LLC.

Mrs. Riley is Chief Executive Officer of DB USA Corporation.

Werner Steinmüller

Year of birth: 1954
First appointed: 2016
Term expires: 2020

Werner Steinmüller became a member of our Management Board on August 1, 2016. He is our Regional CEO Asia Pacific.

Mr. Steinmüller joined Deutsche Bank in 1991. He was Head of Global Transaction Banking from 2004 to 2016, Chief Operating Officer (COO) of Global Transaction Banking from 2003 to 2004, Head of the Global Banking Division Europe from 1998 to 2003, and Co-Head of Corporate Finance Germany from 1996 to 1998.

Prior to joining Deutsche Bank, he worked at Citibank from 1979 to 1990.

He holds a Diploma in Business Administration and Mechanical Engineering from TU Darmstadt.

Mr. Steinmüller does not have any external directorships subject to disclosure.

He is member of the Supervisory Board of DB Privat- und Firmenkundenbank AG.

Supervisory Board

The Supervisory Board of Deutsche Bank AG appoints, supervises and advises the Management Board and is directly involved in decisions of fundamental importance to the bank. It works together closely with the Management Board in a cooperative relationship of trust and for the benefit of the company. The Supervisory Board decides on the appointment and dismissal of members of the Management Board including long-term succession planning for the Management Board based on proposals of the Chairman's Committee while taking into account recommendations of the Nomination Committee. Based on proposals of the Compensation Control Committee, the Supervisory Board determines the total compensation of the individual members of the Management Board resolves on the compensation system for the Management Board and reviews it regularly.

In accordance with Section 9 (1) of the Articles of Association, the members of the Supervisory Board are elected for the period until the conclusion of the General Meeting which adopts the resolutions concerning the ratification of the acts of management for the fourth financial year following the beginning of the term of office. Here, the financial year in which the term of office begins is not taken into account. For the election of shareholder representatives, the General Meeting may establish that the terms of office of individual members may begin or end on differing dates.

The internal organization of the Supervisory Board and its committees as well as the tasks and profiles of the individual members are subject to specific statutory and regulatory requirements that further specify and supplement the corporate-law regulations concerning corporate governance. Such requirements are founded on, among other things, the German Banking Act (Kreditwesengesetz), the Remuneration Ordinance for Institutions (Institutsvergütungsverordnung), the guidelines of the European Banking Authority and the administrative practices of the European Central Bank as our supervisory authority. In individual cases, these are in contradiction to the recommendations of the German Corporate Governance Code ("Code") and, in such case, this may lead to a statement of exceptions in our Declaration of Conformity.

The Supervisory Board receives reports from the Management Board at least within the scope prescribed by law or administrative guidelines, in particular on all issues of relevance for the Group concerning strategy, intended business policy, planning, business development, risk situation, risk management, staff development, reputation and compliance. Furthermore, Group Audit informs the Audit Committee regularly, and in the case of severe deficiencies without undue delay, of any serious deficiencies identified and of any deficiencies that have not yet been remediated. The Chairman of the Supervisory Board is informed accordingly of any serious findings against the members of the Management Board. The Supervisory Board and Management Board adopted an Information Regime, which specifies not only the reporting to the Supervisory Board but also rules relating to the Supervisory Board's enquiries and requests for information from employees of the company, as well as the exchange of information in connection with preparations for the meetings and between the meetings.

The Chairman of the Supervisory Board plays a crucial role in the proper functioning of the Supervisory Board and has a leadership role in this. He can issue internal guidelines and principles concerning the Supervisory Board's internal organization and communications, the coordination of the work within the Supervisory Board and the Supervisory Board's interaction with the Management Board. Between meetings, the Chairman of the Supervisory Board, and, if expedient, the chairpersons of the Supervisory Board committees, maintain regular contact with the Management Board, especially with the Chairman of the Management Board, and deliberate with him on issues of Deutsche Bank Group's strategy, planning, the development of its business, risk situation, risk management, risk controlling, governance, compliance, compensation systems, IT, data and digitalization as well as material litigation cases. The Chairman of the Supervisory Board and – within their respective functional responsibility – the chairpersons of the Supervisory Board committees are informed without delay by the Chairman of the Management Board or by the respectively responsible Management Board member about important events of material significance for the assessment of the situation, development and management of Deutsche Bank Group. The Chairman of the Supervisory Board engages in discussions with investors on Supervisory Board-related topics when necessary and regularly informs the Supervisory Board of the substance of such discussions.

The types of business that require the approval of the Supervisory Board to be transacted are specified in Section 13 of the Articles of Association of Deutsche Bank AG. The Supervisory Board meets regularly without the Management Board. After due consideration and insofar as materially appropriate, the Supervisory Board, or any of its committees, may, in order to perform their tasks, consult auditors, legal advisors and other internal or external advisors. In performing their tasks, the Chairman of the Supervisory Board, the chairpersons of the standing committees and the Supervisory Board members are supported by the Office of the Supervisory Board, which is independent of the Management Board.

In 2019, a total of 56 meetings of the Supervisory Board and its committees took place. In addition, there was joint attendance and participation to address agenda items with a cross-committee relevance.

The duties, procedures and committees of the Supervisory Board are specified in its Terms of Reference. The current version is available on the Deutsche Bank website (www.db.com/ir/en/documents.htm).

Members of the Supervisory Board

The Supervisory Board of Deutsche Bank AG has 20 members. In accordance with the German Co-Determination Act (Mitbestimmungsgesetz), it comprises an equal number of shareholder representatives and employee representatives.

The suitability of each individual member to perform their mandate is assessed both internally and externally by the regulatory authorities, determined and monitored continuously. The suitability assessment covers the expertise, reliability and time availability of the individual members. In addition, there is an assessment of the knowledge, skills and experience of the Supervisory Board as a whole that are necessary for it to perform its control function. Passing the suitability assessment and the continual suitability of the Supervisory Board member during the entire mandate with Deutsche Bank AG are mandatory regulatory prerequisites for the performance of their work.

The members representing our shareholders were elected at the General Meeting on May 24, 2018. In departure from this, Dr. Paul Achleitner was first elected at the General Meeting on May 31, 2012, Dr. Gerhard Eschelbeck was elected at the General Meeting on May 18, 2017 and Katherine Garrett-Cox was elected at the General Meeting on May 19, 2016. The election of employee representatives took place on April 26, 2018.

Among the members representing shareholders, Professor Dr. Stefan Simon and Richard Meddings left the Supervisory Board effective July 31, 2019. Dr. Dagmar Valcárcel became a member of the Supervisory Board by way of court appointment on August 1, 2019, until the end of the Ordinary General Meeting. The Nomination Committee nominated Sigmar Gabriel to become a new member of the Supervisory Board. The application for the court appointment was submitted; however, the court appointment was not yet carried out as of the date of this statement. Jürg Zeltner had been appointed as member of the Supervisory Board by the court on August 20, 2019. He resigned from the Supervisory Board on December 15, 2019.

The following table shows information on the current members of our Supervisory Board. The information includes the years in which the members were born, the years in which they were first elected or appointed, the years when their terms expire, their principal occupations as well as their memberships on other companies' supervisory boards, other non-executive directorships and other positions. Representatives of the employees are indicated with an asterisk (*).

Member	Principal occupation	Supervisory board memberships and other directorships
Dr. Paul Achleitner Year of birth: 1956 First elected: 2012 Term expires: 2022	Chairman of the Supervisory Board, Deutsche Bank AG	Bayer AG; Daimler AG; Henkel AG & Co. KGaA (member of the Shareholders' Committee)
Ludwig Blomeyer-Bartenstein* Year of birth: 1957 First elected: 2018 Term expires: 2023	Spokesman of the Management and Head of the Market Region Bremen, Deutsche Bank AG	Frowein & Co. Beteiligungs AG; Bürgschaftsbank Bremen GmbH (member of the Board of Directors)
Frank Bsirske* Year of birth: 1952 First elected: 2013 Term expires: 2023		RWE AG (Deputy Chairman); DB Privat- und Firmenkundenbank AG; innogy SE (Deputy Chairman)
Mayree Carroll Clark Year of birth: 1957 First elected: 2018 Term expires: 2023	Managing Partner, Eachwin Capital LP	Ally Financial, Inc.; Regulatory Data Corp., Inc. (until February 2020); Taubman Centers, Inc.
Jan Duscheck* Year of birth: 1984 Appointed by the court: 2016 Term expires: 2023	Head of national working group Banking, trade union ver.di (Vereinte Dienstleistungsgewerkschaft)	No memberships or directorships subject to disclosure
Dr. Gerhard Eschelbeck Year of birth: 1965 First elected: 2017 Term expires: 2022		Onapsis Inc. (Member of the Board of Directors); WootCloud Inc. (Member of the Board of Directors) (since February 2020)
Katherine Garrett-Cox Year of birth: 1967 First elected: 2011 Term expires: 2021	Managing Director and Chief Executive Officer, Gulf International Bank (UK) Ltd.	No memberships or directorships subject to disclosure

Timo Heider* Year of birth: 1975 First elected: 2013 Term expires: 2023	Chairman of the General Staff Council of BHW Bausparkasse AG / Postbank Finanzberatung AG, Chairman of the General Staff Council of PCC Services GmbH of Deutsche Bank; Deputy Chairman of the Group Staff Council of Deutsche Bank AG	BHW Bausparkasse AG (Deputy Chairman); PCC Services GmbH der Deutschen Bank (Deputy Chairman) (since December 2019); Pensionskasse der BHW Bausparkasse AG VVaG (Deputy Chairman)
Martina Klee* Year of birth: 1962 First elected: 2008 Term expires: 2023	Deputy Chairperson of the Staff Council PWCC Center Frankfurt, Deutsche Bank AG	Sterbekasse für die Angestellten der Deutsche Bank-Gruppe VVaG
Henriette Mark* Year of birth: 1957 First elected: 2003 Term expires: 2023	Chairperson of the Combined Staff Council Southern Bavaria; Member of the General Staff Council and member of the Group Staff Council of Deutsche Bank	No memberships or directorships subject to disclosure
Gabriele Platscher* Year of birth: 1957 First elected: 2003 Term expires: 2023	Chairperson of the Staff Council Niedersachsen Ost, Deutsche Bank	BVV Versicherungsverein des Bankgewerbes a.G. (Deputy Chairperson); BVV Versorgungskasse des Bankgewerbes e.V. (Deputy Chairperson); BVV Pensionsfonds des Bankgewerbes AG (Deputy Chairperson)
Detlef Polaschek* Year of birth: 1960 First elected: 2018 Term expires: 2023	Deputy Chairman of the Supervisory Board; Member of the General Staff Council of Deutsche Bank AG and DB Privat- und Firmenkundenbank AG;	No memberships of directorships subject to disclosure
Bernd Rose* Year of birth: 1967 First elected: 2013 Term expires: 2023	Chairman of the General Staff Council of Postbank Filialvertrieb AG; Member of the Group Staff Council and European Staff Council of Deutsche Bank	DB Privat- und Firmenkunden AG; Postbank Filialvertrieb AG; ver.di Vermögensverwaltungsgesellschaft m.b.H. (Deputy Chairman)
Gerd Alexander Schütz Year of birth: 1967 First elected: 2017 Term expires: 2023	Member of the Management Board, C-QUADRAT Investment AG	No memberships of directorships subject to disclosure
Stephan Szukalski* Year of birth: 1967 First elected: 2013** Re-elected: 2018 Term expires: 2023	Federal Chairman German Association of Bank Employees (Deutscher Bankangestellten-Verband e.V. (DBV))	No memberships or directorships subject to disclosure
John Alexander Thain Year of birth: 1955 First elected: 2018 Term expires: 2023		Uber Technologies, Inc. (Member of the Board of Directors); Enjoy Technology Inc. (Member of the Board of Directors) (until May 2019); Aperture Investors LLC (Member of the Board of Directors) (since April 2019)
Michele Trogni Year of birth: 1965 First elected: 2018 Term expires: 2023	Operating Partner Eldridge Industries LLC	Morneau Shepell Inc. (Member of the Board of Directors); Capital Markets Gateway Inc. (Chairperson of the Board of Directors); Global Atlantic Financial Group Ltd. (Non-Executive Director) (until February 2020; SE2 LLC (Chair of the Board) (since January 2020)
Dr. Dagmar Valcárcel Year of birth: 1966 Appointed by the court: 2019 Term expires: 2020		amedes Holding GmbH
Professor Dr. Norbert Winkeljohann Year of birth: 1957 First elected: 2018 Term expires: 2023	Self-employed corporate consultant, Norbert Winkeljohann Advisory & Investments	Bayer AG; Heristo AG (Chairman); Georgsmarienhütte Holding GmbH; Sievert AG (Chairman)

* Employees representatives.

** Mr. Szukalski was a member of the Supervisory Board from May 23, 2013 to November 30, 2015.

Objectives for the composition of the Supervisory Board, Profile of Requirements and status of implementation

The Supervisory Board established objectives for its composition in October 2010 and last amended them as specified in the following in February 2018. Furthermore the Supervisory Board adopted a Profile of Requirements at its meeting on October 26, 2017 and confirmed it at its meeting on July 26, 2018.

The Supervisory Board shall be composed in such a way that its members as a whole possess the knowledge, abilities and expert experience to properly complete its tasks and the members in their entirety of the Supervisory Board and the Audit Committee must be familiar with the banking sector. In particular, the Supervisory Board members should have sufficient time to perform their mandates. The composition of the Supervisory Board should ensure the Supervisory Board's qualified control of and advice for the Management Board of an internationally operating, broadly positioned bank and should preserve the reputation of Deutsche Bank Group among the public. In this regard, in particular, attention should be placed on the integrity, personality, willingness to perform, professionalism and independence of the individuals proposed for election. The objective is for the Supervisory Board as a whole to have all of the knowledge and experience considered to be essential while taking into account the activities of Deutsche Bank Group.

The Supervisory Board, as a whole, must possess the expertise required to effectively monitor and advise the Management Board in its management of Deutsche Bank AG and Deutsche Bank Group – also with regard to the observance of the relevant bank supervisory regulations.

As set out in the Profile of Requirements each Supervisory Board member must have an understanding of the fields of expertise specified below that is appropriate for the size and complexity of Deutsche Bank AG. Experts shall have profound expertise in the individual fields.

The fields of expertise include, in particular, the fields listed below:

- Knowledge in the areas of banking, financial services, financial markets and the financial industry, including the home market and the bank's key markets outside Europe
- Knowledge of the relevant clients for the bank, the market expectations and the operational environment
- Risk management (investigation, assessment, mitigation, management and control of financial and non-financial risks, capital and liquidity management, shareholdings)
- Accounting (according to International Financial Reporting Standards (IFRS) and the German Commercial Code (HGB)) and audits of annual financial statements (financial experts: these members of the Supervisory Board must fulfill the requirements as "financial experts" as such term is defined by the implementation rules of the U.S. Securities and Exchange Commission (SEC) issued pursuant to Section 407 of the Sarbanes-Oxley Act of 2002 and by Section 100 of the German Stock Corporation Act)
- Corporate and social responsibility, including reporting
- Taxation
- Internal audit
- Compliance and internal controls
- Strategic planning, business and risk strategies as well as their implementation
- Digitalization
- Information technology (IT), IT systems and IT security
- Regulatory framework and legal requirements, in particular, knowledge of the legal systems relevant for the bank
- Knowledge of the social, political and regulatory expectations in the home market
- Selection procedure for management body members and assessment of their suitability
- Governance and corporate culture
- Human resources and staff management
- Compensation and compensation systems (compensation expert)
- Management of a large, international regulated company
- Internal organization of the bank

Furthermore, consideration is to be given to the amendments to the current version of the Business Allocation Plan for the Management Board of Deutsche Bank AG as well as to the requirements and expectations of the regulatory authorities.

In addition the Supervisory Board shall have an adequate number of independent members and shall not have more than two former members of the Management Board of Deutsche Bank AG. Under the premise that the performance of the Supervisory Board mandate in itself by the representatives of the employees cannot be reason to doubt fulfillment of the independence criteria; the Supervisory Board shall have a total of at least sixteen members that are independent. In any event, the Supervisory Board shall be composed such that the number of independent members among the shareholder representatives will be at least six. The members of the Supervisory Board may not exercise functions on a management body of, or perform advisory duties, at major competitors. Important and not just temporary conflicts of interest with respect to a member of the Supervisory Board should lead to a termination of the mandate. Members of the Supervisory Board may not hold more than the allowed number of supervisory board mandates according to Section 25d of the German Banking Act (KWG) or mandates in supervisory bodies of companies which have similar requirements.

There is a regular maximum age limit of 70. In well-founded, individual cases, a Supervisory Board member may be elected or appointed for a period that extends at the latest until the end of the fourth Annual General Meeting that takes place after he or she has reached the age of 70. This age limit was taken into account in the election proposals to the recent General Meetings and shall also be taken into account for the next Supervisory Board elections or subsequent appointments for Supervisory Board positions that become vacant. In October 2015, the Supervisory Board resolved that for members of the Supervisory Board to be elected or appointed in future, the length of each individual Supervisory Board membership shall not, as a rule, exceed 15 years. Otherwise, the respective Supervisory Board member shall not be considered independent.

The Supervisory Board respects diversity when proposing members for appointment to the Supervisory Board. In light of the international operations of Deutsche Bank, care should be taken that the Supervisory Board has an appropriate number of members with long-term international experience. Currently, the professional careers or private lives of eight members of the Supervisory Board are centered outside Germany. Furthermore, all of the shareholder representatives on the Supervisory Board have several years of international experience from their current or former activities as management board members or CEOs or a comparable executive function of corporations or organizations with international operations. In these two ways, the Supervisory Board believes the international activities of the company are sufficiently taken into account. The objective is to retain the currently existing international profile. The resumes of the members of the Supervisory Board are published on Deutsche Bank's website (www.db.com/ir/en/supervisory-board.htm).

For the election proposals to the General Meeting, the Supervisory Board takes into account the recommendations of the Nomination Committee and the legal requirements according to which the Supervisory Board shall be composed of at least 30 % women and at least 30 % men. Special importance has already been attached to an appropriate consideration of women in the selection process since the Supervisory Board elections in 2008. In reviewing potential candidates for a new election or subsequent appointments to Supervisory Board positions that have become vacant, qualified women shall be included in the selection process and shall be appropriately considered in the election proposals. For many years now, at least 30 % of the Supervisory Board members have been women and, since 2013, 30 % of the shareholder representatives have been women. Currently, seven Supervisory Board members are women, i.e. 35 % of all members. The Supervisory Board strives to maintain this number. It should be taken into account that the Supervisory Board can only influence the composition of the Supervisory Board through its election proposals to the General Meeting.

The Supervisory Board believes that it complies with the specified concrete objectives regarding its composition and the Profile of Requirements. The members of the Supervisory Board as a whole possess the knowledge, ability and expert experience to properly complete their tasks. Diversity is appropriately taken into account. Further details in this context are given in the "Diversity Concept", which is also part of this Corporate Governance Statement / Corporate Governance Report.

The Supervisory Board determined that it has what it considers to be an adequate number of independent members among the shareholder representatives. These are namely: Dr. Paul Achleitner, Mayree Carroll Clark, Dr. Gerhard Eschelbeck, Katherine Garrett-Cox, Gerd Alexander Schütz, John Alexander Thain, Michele Trogni, Dr. Dagmar Valcárcel and Professor Dr. Norbert Winkeljohann. The Supervisory Board considers all of its members representing employees independent within the meaning of the Code, except for Henriette Mark and Gabriele Platscher, as their length of Supervisory Board membership in each case exceeds the regular limit of 15 years.

Some members of the Supervisory Board are, or were last year, in high-ranking positions at other companies that Deutsche Bank has business relations with. Business transactions with these companies are conducted under the same conditions as those between unrelated third parties. These transactions, in our opinion, do not affect the independence of the Supervisory Board members involved.

Standing Committees

The Supervisory Board has established the following eight standing committees. To the extent required, the committees coordinate their work and consult each other on an ad hoc basis. The committee chairpersons report regularly to the Supervisory Board on the work of the committees. The Report of the Supervisory Board in the Annual Report 2019 provides information on the concrete work of the committees over the preceding year.

Chairman's Committee: It is responsible for, in particular: preparing the meetings of the Supervisory Board and handling current business between meetings of the Supervisory Board; preparing for decisions by the Supervisory Board on the appointment and dismissal of members of the Management Board, including long-term succession planning for the Management Board, while taking into account the recommendations of the Nomination Committee; concluding, amending and terminating employment and pension contracts in consideration of the plenary Supervisory Board's sole authority to decide on the compensation of the members of the Management Board and in consideration of the recommendations of the Compensation Control Committee taking note of and, where necessary, expressing an opinion on contracts and/or amendments to contracts for a General Manager (Generalbevollmächtigter) of Deutsche Bank AG who is designated as an intended member of the Management Board; handling other contractual business with active and former members of the Management Board pursuant to Section 112 of the German Stock Corporation Act; and approving Management Board members' mandates, honorary offices or special tasks outside of Deutsche Bank Group, while taking the recommendations of the Nomination Committee into account. The Chairman's Committee is also responsible for: approving the hand-over of confidential internal data concerning a Management Board member in consultation with the Chairman of the Management Board and/or the Chief Risk Officer, unless they have a conflict of interests; approving contracts with Supervisory Board members pursuant to Section 114 of the German Stock Corporation Act; preparing for decisions of the Supervisory Board in the field of corporate governance, deciding in the Supervisory Board's stead on an adjustment of the annual Declaration of Conformity to changed actual circumstances and verifying compliance with the Declaration of Conformity. Its tasks also include: taking note of and, where necessary, expressing an opinion on the Supervisory Board's and its committees' costs for consultations with auditors, experts, legal advisors and other external advisors; as well as preparing recommendations for decisions of the Supervisory Board on pursuing claims for damages or taking other measures against incumbent or former members of the Management Board. As and when necessary, the Chairman's Committee draws on the expertise of the Chair of the Integrity Committee.

The Chairman's Committee held eight meetings in 2019.

The current members of the Chairman's Committee are Dr. Paul Achleitner (Chairman), Frank Bsirske, Detlef Polaschek and Professor Dr. Norbert Winkeljohann.

Nomination Committee: It is responsible for, in particular, supporting the Supervisory Board in identifying candidates to fill a position on the bank's Management Board. In doing so, the Nomination Committee takes into account the balance and diversity of the knowledge, skills and experience of all members of the Management Board, prepares a position description with a candidate profile, and states the time commitment. The Nomination Committee and/or the Supervisory Board regularly receive reports from the Management Board on the internal planning and the process from the Management Board's perspective. Furthermore, the Nomination Committee is responsible in particular for drawing up an objective to promote the representation of the under-represented gender on the Supervisory Board as well as a strategy for achieving this and the regular assessment, to be performed at least once a year, of the structure, size, composition and performance of the Management Board and of the Supervisory Board and making recommendations regarding this to the Supervisory Board. At several meetings of the Nomination Committee and of the Supervisory Board in plenary session, the Nomination Committee and the Supervisory Board addressed the assessment of the Management Board and the Supervisory Board, which is required by the German Banking Act.. The results were discussed and finalized on January 29, 2020, and recorded in a final report. The Nomination Committee supports the Supervisory Board in drawing up guidelines for the individual and collective assessment of the professional qualifications, personal reliability and time availability of the members of the Management Board and Supervisory Board ("Suitability Guideline") as well as in monitoring the effectiveness of the Suitability Guideline. Furthermore, the Nomination Committee also supports the Supervisory Board in the regular assessment, to be performed at least once a year, of the knowledge, skills and experience of the individual members of the Management Board and Supervisory Board as well as of the respective body collectively in the assessment of the members of the Management Board and Supervisory Board in all other cases pursuant to the requirements of the Suitability Guideline; and in the review of the Management Board's principles for selecting and appointing persons to the upper management levels as well as the recommendations made to the Management Board in this respect. The shareholder representatives on the Nomination Committee prepare the Supervisory Board's proposals for the election or appointment of new shareholder representatives to the Supervisory Board. In this context, they take into account the Profile of Requirements for the Supervisory Board, the criteria specified by the Supervisory Board for its composition as well as the balance and diversity of the knowledge, skills and experience of all members of the Supervisory Board, prepare a position description with a candidate profile, and state the time commitment.

The Nomination Committee held eight meetings in 2019.

The current members of the Nomination Committee are Dr. Paul Achleitner (Chairman), Frank Bsirske, Mayree Carroll Clark, Detlef Polaschek and Gerd Alexander Schütz.

Audit Committee: It supports the Supervisory Board in particular in monitoring the financial reporting process, and it can submit recommendations or suggestions to the Supervisory Board on ensuring the integrity of the financial reporting process. Furthermore, the Audit Committee supports the Supervisory Board in monitoring the effectiveness of the risk management system, particularly of the internal control system and the internal audit system, the auditing of the financial statements, especially with regard to the auditor's independence and the additional services provided by the auditor, and the Management Board's prompt remediation – through suitable measures – of the deficiencies identified by the auditor and bank-internal control functions based on internal and external audits, in particular relating to weaknesses in risk controls, as well as non-compliance with policies, laws and regulatory requirements. The Committee is entitled to inspect all business documentation of the bank, including the business information stored on data carriers. The Audit Committee pre-reviews the annual and consolidated financial statements and management reports as well as the separate non-financial report and the separate consolidated non-financial report, if they were prepared. It discusses the audit reports with the auditor and prepares the decisions of the Supervisory Board on establishing the annual financial statements and the approval of the consolidated financial statements as well as the resolution proposal on the appropriation of distributable profit. The Audit Committee submits corresponding recommendations to the Supervisory Board. It also provides support to the Supervisory Board with regard to engaging any external assurances for the non-financial statement and the consolidated non-financial statement or for the separate non-financial report and separate consolidated non-financial report. It discusses important changes to the audit and accounting methods. The Audit Committee also discusses the quarterly financial statements and the report on the limited review of the quarterly financial statements with the Management Board and the auditor prior to their publication. Furthermore, the Audit Committee submits proposals to the Supervisory Board for the appointment of the auditor and prepares the proposal of the Supervisory Board to the General Meeting for the election of the auditor. The Audit Committee advises the Supervisory Board on issuing the audit mandate to the auditor elected by the General Meeting, submits proposals to the Supervisory Board for the auditor's remuneration and can specify areas of focus for the audit. It supports the Supervisory Board in monitoring the independence, qualifications and efficiency of the auditor as well as the rotation of the members of the audit team. It regularly assesses the quality of the auditing of the financial statements. Mandates for non-audit-related services given to the auditor or to companies to which the auditor is related in legal, economic or personnel terms need the prior consent of the Audit Committee (in this context, see also the Principal Accountant Fees and Services section in this Corporate Governance Statement / Corporate Governance Report). The Audit Committee issues guidelines for the employment of staff – including former staff – of the auditor by the company. It arranges to be informed regularly about the work done by Group Audit, the effectiveness of the internal audit system and in particular about its annual audit plan the focal areas of its auditing activity and on the results of its audits. The Audit Committee is responsible, in particular, for receiving and handling the quarterly, annual and ad hoc reports of Group Audit. The Management Board informs the Audit Committee about special audits, substantial complaints and other exceptional measures on the part of German and foreign bank regulatory authorities. The Committee regularly obtains reports on the receipt and handling of complaints from employees of the bank and its subsidiaries, from shareholders of Deutsche Bank AG and from third parties. In particular complaints concerning accounting, internal accounting controls, auditing and other financial reporting matters must be submitted to the Committee without undue delay. Reports concerning compliance matters and the prevention of money laundering are presented at the meetings of the Committee on a regular basis. The Chairman of the Audit Committee is entitled, in addition to the Chairman of the Supervisory Board, to obtain information directly from the Head of Compliance and the Anti-Money Laundering Officer. The Audit Committee is responsible for acknowledging communications about significant reductions in the budgets of Group Audit as well as the Compliance and Anti-Financial Crime infrastructure areas and for taking receipt of and handling the Compliance Report by the Head of Compliance as well as the Anti-Money Laundering Officer's Report, which are issued at least once a year. Furthermore, the Committee is entitled to obtain, through its Chairman, information in connection with its tasks from the auditor, the Management Board, the Head of Group Audit and – with the prior consent of the Management Board – senior managers of the bank reporting directly to the Management Board.

The Audit Committee held eight meetings in 2019.

The current members of the Audit Committee are Professor Dr. Norbert Winkeljohann (Chairman), Dr. Paul Achleitner, Katherine Garrett-Cox, Henriette Mark, Gabriele Platscher, Detlef Polaschek, Bernd Rose and Dr. Dagmar Valcárcel.

Risk Committee: It advises the Supervisory Board on overall risk appetite and risk strategy, and monitors the implementation of the stated risk appetite and risk strategy by the senior management level. The Risk Committee monitors the material aspects of the rating and valuation processes. In undertaking this responsibility, it receives reports from the Management Board about the operations of the bank's rating systems and about material changes or exceptions to established policies that will materially impact the operations of the bank's rating systems. The Risk Committee receives reports from the Management Board which are appropriate to monitor whether the material financial products and services offered by the bank as well as the conditions in the client business are in line with the bank's business model and risk structure. If this is not the case, the Risk Committee requests proposals from the Management Board on how the financial products and services as well as the conditions in the client business could be structured to bring them into line with the bank's business model and risk structure, and monitors their implementation. On the basis of the reports received from the Management Board, the Risk Committee assesses the risks associated with the financial products and services and takes into account the alignment between the prices assigned to and the profits gained from these products and services. The Risk Committee examines whether the incentives set by the compensation system take into consideration the company's risk, capital and liquidity structure as well as the likelihood and timing of earnings. The Risk Committee also performs all of the tasks assigned to it by law or regulatory authorities. It handles loans which require a resolution by the Supervisory Board pursuant to law or our Articles of Association. In this context, it approves, among other things, the acquisition of participations as defined by Section 13 (1) d) of the Articles of Association of Deutsche Bank AG, insofar as the value of the participation does not exceed € 1.5 billion and the participation will probably not remain in the bank's full or partial possession for more than twelve months. If this period is exceeded, the Chairperson of the Committee informs the Supervisory Board without delay and obtains its approval. The Risk Committee determines the nature, scope, format and frequency of the information which the Management Board is required to submit on strategy and risks. The Chairperson of the Risk Committee is entitled to obtain, in connection with its activities, information directly from the Management Board and the Head of Group Audit. At the meetings of the Risk Committee, the Management Board reports on credit, market, liquidity, operational, litigation and reputational risks. The Management Board also reports on risk strategy, credit portfolios, loans requiring Supervisory Board approval pursuant to law or our Articles of Association, questions of capital resources and matters of special importance due to the risks they entail (for additional information on the disclosure of the risk management objectives and policies for individual risk categories, please see the Risk Report of the Annual Report).

The Risk Committee held six meetings in 2019.

The current members of the Risk Committee are Mayree Carroll Clark (Chairperson), Dr. Paul Achleitner, Ludwig Blomeyer-Bartenstein, Jan Duscheck, Stephan Szukalski, Michele Trogni and Professor Dr. Norbert Winkeljohann.

Integrity Committee: It continually advises and monitors the Management Board with regard to whether management ensures the economically sound, sustainable development of the company while observing the principles of sound, responsible management, fulfilling the company's social responsibilities and protecting the natural resources of the environment (environmental, social and governance (ESG) issues), and to whether the business management is aligned to these values with the objective of a holistic corporate culture. The Integrity Committee monitors the Management Board's measures that ensure the company's compliance with legal requirements, authorities' regulations and the company's own in-house policies (preventive compliance control). It regularly reviews the bank's Code of Conduct and Code of Ethics for Senior Financial Officers to foster conduct on the part of company employees that is exemplary in every way, both within and outside the company, and that such conduct is not just aligned to the formal compliance with statutory requirements. It supports on request the Risk Committee in monitoring and analyzing the legal and reputational risks that are material to the bank. For this purpose, it advises the Management Board on how to generate awareness of the importance of such risks. It supports on request the preparation of the Chairman's Committee's recommendations for Supervisory Board decisions on pursuing recourse claims or taking other measures against current or former members of the Management Board and these are presented by its Chairperson to the Chairman's Committee. Furthermore, the Integrity Committee supports the Supervisory Board in the monitoring of the litigation cases with the highest risk and other material cases.

The Integrity Committee held six meetings in 2019.

The current members of the Integrity Committee are Dr. Dagmar Valcárcel (Chairperson), Dr. Paul Achleitner, Ludwig Blomeyer-Bartenstein, Katherine Garrett-Cox, Timo Heider and Gabriele Platscher.

Compensation Control Committee: It supports the Supervisory Board in the appropriate structuring of the compensation systems for the members of the Management Board. It also monitors the appropriate structure of the compensation systems for the Management Board members and employees and, in particular, the appropriate structure of the compensation for the Head of the compliance function, for the Anti-Money Laundering Officer and for the employees who have a material influence on the bank's overall risk profile. The Compensation Control Committee supports the Supervisory Board in monitoring the process to identify risk takers in accordance with Section 18 (2) of the Remuneration Ordinance for Institutions (InstitutsVergV) and Group risk takers in accordance with Section 27 (2) sentence 1 of the Remuneration Ordinance for Institutions (InstitutsVergV) as well as the appropriate structure of the compensation systems for the company's employees. The Committee assesses the effects of the compensation systems on risk, capital and liquidity management, while ensuring that the compensation systems are aligned to the business strategy focused on the banks sustainable development, to the risk strategies derived from this and to the compensation strategies at the company and Group levels. It prepares the Supervisory Board's resolutions on the compensation of the Management Board, considering, in particular, the effects of the resolutions on the company's risks and risk management. The long-term interests of shareholders, investors and other stakeholders as well as the public interest are also taken into account. It also prepares the Supervisory Board's resolutions on setting the total amount of variable compensation for the members of the Management Board in accordance with Section 45 (2) sentence 1 No. 5a of the German Banking Act (KWG) in consideration of Section 7 of the Remuneration Ordinance for Institutions (InstitutsVergV) and on setting the appropriate compensation parameters, targets for contributions to performance, payment and deferral periods as well as the conditions for a full forfeiture or partial reduction of variable compensation. It also checks regularly, at least annually, whether the adopted specifications are still appropriate. Furthermore, it checks, as part of its support to the Supervisory Board in monitoring the appropriate structure of the compensation systems for employees, regularly, but at least annually, in particular, whether the total amount of variable compensation has been set in accordance with Section 45 (2) sentence 1 No. 5a of the German Banking Act (KWG) in consideration of Section 7 of the Remuneration Ordinance for Institutions (InstitutsVergV) and whether the specified principles to assess the compensation parameters, contributions to performance as well as the payment and deferral periods, including the conditions for a full forfeiture or partial reduction of the variable compensation, are appropriate. In addition, it supports the Supervisory Board in monitoring whether the internal controls and other relevant areas are properly involved in the structuring of the compensation systems. The Committee is authorized to obtain, via its Chairperson, information relating to the Committee tasks from the Head of Group Audit and from the heads of the organizational units responsible for structuring the compensation systems.

The Compensation Control Committee held six meetings in 2019.

The current members of the Compensation Control Committee are Dr. Paul Achleitner (Chairman), Frank Bsirske, Detlef Polaschek.

Strategy Committee: It supports the Supervisory Board in fulfilling its oversight responsibilities relating to the bank's strategy. It advises and monitors the Management Board with regard to the definition of business strategies geared to the sustainable development of the bank and the establishment of processes for planning, implementing, assessing and adjusting the business strategy. It oversees the Management Board's work on the strategic perspective, direction and development of the strategy for Deutsche Bank Group and its business divisions, the Management Board's implementation of the strategic plan and the execution progress against strategic milestones and goals, as well as the Management Board's implementation of major business transformation projects and their execution. It advises the Management Board as to whether the governance, risk appetite, financial and capital planning, liquidity and funding management, control environment and resources can support the bank's strategic objectives, and advises on divestitures and merger and acquisition strategy, including post-transaction performance tracking, as well as on the impact of changes in the competitive environment. Furthermore, the Strategy Committee advises the Management Board in preparation for the Supervisory Board meetings at which the Supervisory Board plenum addresses the company's strategy and prepares the Supervisory Board's decisions on transactions subject to its approval pursuant to Section 13 (1) b) and (1) d) of the Articles of Association.

The Strategy Committee held three meetings in 2019.

The current members of the Strategy Committee are John Alexander Thain (Chairman), Dr. Paul Achleitner, Frank Bsirske, Mayree Carroll Clark, Timo Heider, Henriette Mark, Detlef Polaschek and Michele Trogni.

Technology, Data and Innovation Committee: It supports the Supervisory Board in fulfilling its oversight responsibilities relating to the bank's innovation, data and technology environment. It continually advises and monitors the Management Board with regard to the adequate technical and organizational resources and the definition of an adequate plan for IT systems, including their application with generally established standards to the arrangement of the IT systems and the related IT processes. This includes in particular the oversight over the Management Board's work on the IT strategy and its sustainability outlining the objectives and measures to be taken to achieve these objectives, the IT governance, the information security management, the user access management, the implementation of major IT projects and application development, IT operation, including data backup, outsourcing and other external procurement of IT services, data governance and data strategy, including their implementation, and any other material issues which may arise in connection with the IT systems and services or data quality.

The Technology, Data and Innovation Committee held four meetings in 2019.

The current members of the Technology, Data and Innovation Committee are Michele Trogni (Chairperson), Dr. Paul Achleitner, Jan Duscheck, Dr. Gerhard Eschelbeck, Martina Klee and Bernd Rose.

Mediation Committee: In addition to these eight standing committees, the Mediation Committee, which is required by German law, makes proposals to the Supervisory Board on the appointment or dismissal of members of the Management Board in cases where the Supervisory Board is unable to reach a two-thirds majority decision with respect to the appointment or dismissal. The Mediation Committee only meets if necessary.

The Mediation Committee did not hold any meetings in 2019.

The current members of the Mediation Committee are Dr. Paul Achleitner (Chairman), Frank Bsirske, Detlef Polaschek and Professor Dr. Norbert Winkeljohann.

Further details regarding the Chairman's Committee, the Nomination Committee, the Audit Committee, the Risk Committee, the Integrity Committee, the Compensation Control Committee, the Strategy Committee and the Technology, Data and Innovation Committee are regulated in separate Terms of Reference. The current versions are available on our website, along with the Terms of Reference for the Supervisory Board (see: www.db.com/ir/en/documents.htm).

Share Plans

For information on our employee share programs, please refer to the additional Note 33 "Employee Benefits" to the Consolidated Financial Statements.

Reporting and Transparency

Directors' Share Ownership

Management Board. For information on the share ownership of the Management Board, please refer to our detailed Compensation Report in the Management Report.

Supervisory Board. The members of our Supervisory Board held the following numbers of our shares and share awards under our employee share plans.

Members of the Supervisory Board	Number of shares	Number of share awards
Dr. Paul Achleitner	145,000	0
Ludwig Blomeyer-Bartenstein	3,521	5,259 ¹
Frank Bsirske	0	0
Mayree Carroll Clark	67,776	0
Jan Duscheck	0	0
Dr. Gerhard Eschelbeck	0	0
Katherine Garrett-Cox	0	0
Timo Heider	0	0
Martina Klee	2,452	0
Henriette Mark	1,524	0
Gabriele Platscher	1,460	10
Detlef Polaschek	602	10
Bernd Rose	0	0
Gerd Alexander Schütz	17,360,894	0
Stephan Szukalski	0	0
John Alexander Thain	100,000	0
Michele Trogni	15,000	0
Dr. Dagmar Valcárcel	0	0
Professor Dr. Norbert Winkeljohann	0	0
Jürg Zeltner	0	0
Total	17,698,229	5,279

¹ Restricted Equity Awards. Mr. Blomeyer-Bartenstein has an entitlement linked to 5,259 shares through Restricted Equity Awards as part of his variable compensation. These are due in 2020.

The members of the Supervisory Board held 17,698,229 shares, amounting to less than 0,86 % of our shares as of February 14, 2020.

As listed in the "Number of share awards" column in the table, the members who are employees of Deutsche Bank hold matching awards granted under the Global Share Purchase Plan, which are scheduled to be delivered to them on November 1, 2020, as well as Restricted Equity Awards (deferred share awards), which are granted to employees with deferred variable compensation. The latter are marked separately in the table, and the further details concerning them as a compensation instrument are reported in the section "Employee Compensation Report".

As described in the "Management Report: Compensation Report: Compensation System for Supervisory Board Members", 25 % of each member's compensation for services as a member of the Supervisory Board for a given prior year is, rather than being paid in cash, converted into notional shares of Deutsche Bank AG in February of the following year. The cash value of the notional shares is paid to the member in February of the year following their departure from the Supervisory Board or the expiration of their term of office, based on the market price of the Deutsche Bank share near the payment date. The table in the section specified above shows the number of notional shares that will be credited in spring 2020 to members of the Supervisory Board as part of their 2019 compensation.

Related Party Transactions

For information on related party transactions please refer to Note 36 "Related Party Transactions".

Auditing and Controlling

Audit Committee Financial Expert

The Supervisory Board determined that the following members of its Audit Committee are “audit committee financial experts”, as such term is defined by the implementation rules of the U.S. Securities and Exchange Commission issued pursuant to Section 407 of the Sarbanes-Oxley Act of 2002 Dr. Paul Achleitner, Katherine Garrett-Cox, Dr. Dagmar Valcárcel and Professor Dr. Norbert Winkeljohann. These audit committee financial experts are “independent” of the bank, as defined in Rule 10A-3 under the U.S. Securities Exchange Act of 1934. In accordance with the provisions of Sections 107 (4) and 100 (5) of the German Stock Corporation Act (AktG) as well as Section 25d (9) of the German Banking Act (KWG), they have the required expert knowledge in financial accounting and auditing.

Compensation Control Committee Compensation Expert

Pursuant to Section 25d (12) of the German Banking Act (KWG), at least one member of the Compensation Control Committee must have sufficient expertise and professional experience in the field of risk management and risk controlling, in particular, with regard to the mechanisms to align compensation systems to the company’s overall risk appetite and strategy and the bank’s capital base. The Supervisory Board determined that Dr. Paul Achleitner, Chairman of the Compensation Control Committee, fulfill the requirements of Section 25d (12) of the German Banking Act (KWG) and therefore has the required expertise and professional experience in risk management and risk controlling.

For a description of the experience of the Supervisory Board members mentioned in the two foregoing paragraphs, please see “Management Report: Corporate Governance Statement/Corporate Governance Report: Management Board and Supervisory Board: Supervisory Board” in the Annual Report 2019.

Values and leadership principles of Deutsche Bank AG and Deutsche Bank Group

Deutsche Bank Group Code of Conduct and Code of Ethics for Senior Financial Officers

Deutsche Bank Group’s Code of Conduct sets out Deutsche Bank’s purpose, values and beliefs and minimum standards of conduct that we expect all members of our Management Board and employees to follow. These values and standards govern employee interactions with our clients, competitors, business partners, government and regulatory authorities, and shareholders, as well as with other employees. In addition, the Code forms the cornerstone of our policies, which provide guidance on compliance with applicable laws and regulations.

In accordance with Section 406 of the Sarbanes-Oxley Act of 2002, we adopted a Code of Ethics for Senior Financial Officers of Deutsche Bank AG and Deutsche Bank Group with special obligations that apply to our “senior financial officers”, which currently consist of Deutsche Bank’s Chairman of the Management Board, Chief Financial Officer, Group Controller as well as certain other senior financial officers. There were no amendments or waivers to this Code of Ethics in 2019.

The current versions of the Code of Conduct as well as the Code of Ethics for Senior Financial Officers of Deutsche Bank AG and Deutsche Bank Group are available from Deutsche Bank’s website: www.db.com/ir/en/documents.htm.

Corporate Governance at Deutsche Bank AG and Deutsche Bank Group

Deutsche Bank established a Group Governance function to define, implement and monitor the corporate governance framework of Deutsche Bank AG and Deutsche Bank Group and to perform this governance function throughout the Group. Group Governance addresses corporate governance issues in Deutsche Bank AG and Deutsche Bank Group, while focusing closely on clear organizational structures aligned to the key elements of good corporate governance.

Deutsche Bank AG and Deutsche Bank Group are committed to ensuring a corporate governance framework in accordance with international standards and statutory provisions. In support of this objective, Deutsche Bank AG and Deutsche Bank Group have instituted clear corporate governance principles.

Further details on corporate governance are published on Deutsche Bank's website (www.db.com/ir/en/corporate-governance.htm).

Principal accountant fees and services

In accordance with German law, our principal accountant is appointed at our Annual General Meeting based on a recommendation of our Supervisory Board. The Audit Committee of our Supervisory Board prepares such a recommendation. Subsequent to the principal accountant's appointment, the Audit Committee awards the contract and in its sole authority approves the terms and scope of the audit and all audit engagement fees as well as monitors the principal accountant's independence. KPMG AG Wirtschaftsprüfungsgesellschaft was our principal accountant for the 2018 and 2019 fiscal years, respectively.

The table set forth below contains the aggregate fees billed for each of the last two fiscal years by KPMG AG Wirtschaftsprüfungsgesellschaft and the worldwide member firms of KPMG International in each of the following categories: (1) Audit fees, which are fees for professional services for the audit of our annual financial statements or services that are normally provided by the accountant in connection with statutory and regulatory filings or engagements for those fiscal years, (2) Audit-related fees, which are fees for assurance and related services that are reasonably related to the performance of the audit or review of our financial statements and are not reported as Audit fees, (3) Tax-related fees, which are fees for professional services rendered for tax compliance, tax consulting and tax planning, and (4) All other fees, which are fees for products and services other than Audit fees, Audit-related fees and Tax-related fees. These amounts include expenses and exclude Value Added Tax (VAT).

Fee category in € m.	2019	2018
Audit fees	60	60
Audit-related fees	13	12
Tax-related fees	4	5
All other fees	0	1
Total fees	77	78

The Audit fees include fees for professional services for the audit of our annual financial statements and consolidated financial statements. The Audit-related fees include fees for other assurance services required by law or regulations, in particular for financial service specific attestation, for quarterly reviews, for spin-off audits and for merger audits, as well as fees for voluntary assurance services, like voluntary audits for internal management purposes and the issuance of comfort letters. Our Tax-related fees include fees for services relating to the preparation and review of tax returns and related compliance assistance and advice, tax consultation and advice relating to Group tax planning strategies and initiatives and assistance with assessing compliance with tax regulations.

Under SEC regulations, the principal accountant fees are required to be presented as follows: audit fees were €62 million in 2019 compared to €62 million in 2018, audit-related fees were €11 million in 2019 compared to €10 million in 2018, tax-related fees were €4 million in 2019 compared to €5 million in 2018, and all other fees were €0 million in 2019 compared to €1 million in 2018.

United States law and regulations, and our own policies, generally require that all engagements of our principal accountant be pre-approved by our Audit Committee or pursuant to policies and procedures adopted by it. Our Audit Committee has adopted the following policies and procedures for consideration and approval of requests to engage our principal accountant to perform non-audit services. Engagement requests must in the first instance be submitted to the Accounting Engagement Team. If the request relates to services that would impair the independence of our principal accountant, the request must be rejected. Our Audit Committee has given its pre-approval for specified assurance, financial advisory and tax services, provided the expected fees for any such service do not exceed €1 million. If the engagement request relates to such specified pre-approved services, it may be approved by the Accounting Engagement Team and must thereafter be reported to the Audit Committee. If the engagement request relates neither to prohibited non-audit services nor to pre-approved non-audit services, it must be forwarded to the Audit Committee for consideration. In addition, to facilitate the consideration of engagement requests between its meetings, the Audit Committee has delegated approval authority to several of its members who are "independent" as defined by the Securities and Exchange Commission and the New York Stock Exchange. Such members are required to report any approvals made by them to the Audit Committee at its next meeting.

Additionally, United States law and regulations permit the pre-approval requirement to be waived with respect to engagements for non-audit services aggregating to no more than five percent of the total amount of revenues we paid to our principal accountant, if such engagements were not recognized by us at the time of engagement and were promptly brought to the attention of our Audit Committee or a designated member thereof and approved prior to the completion of the audit. In 2018 and 2019, the percentage of the total amount of revenues we paid to our principal accountant for non-audit services that was subject to such a waiver was less than 5 % for each year.

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Supplementary Information (Unaudited)

431	Non-GAAP Financial Measures
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Non-GAAP Financial Measures

This document and other documents the Group has published or may publish contain non-GAAP financial measures. Non-GAAP financial measures are measures of the Group's historical or future performance, financial position or cash flows that contain adjustments that exclude or include amounts that are included or excluded, as the case may be, from the most directly comparable measure calculated and presented in accordance with IFRS in the Group's financial statements.

Return on Equity Ratios

The Group reports a post-tax return on average shareholders' equity and a post-tax return on average tangible shareholders' equity, each of which is a non-GAAP financial measure.

The post-tax returns on average shareholders' equity and average tangible shareholders' equity are calculated as profit (loss) attributable to Deutsche Bank shareholders after AT1 coupon assumed accruals as a percentage of average shareholders' equity and average tangible shareholders' equity, respectively.

Profit (loss) attributable to Deutsche Bank shareholders after AT1 coupon assumed accruals for the segments is a non-GAAP financial measure and is defined as profit (loss) excluding post-tax profit (loss) attributable to noncontrolling interests and after AT1 coupon assumed accruals, which are allocated to segments based on their allocated average tangible shareholders' equity. For the Group, it reflects the reported effective tax rate, which was (100) % for the full year 2019, 74 % for 2018 and 160 % for 2017. For the segments, the applied tax rate was 28 % for all reported periods in 2019, 28 % for all reported periods in 2018 and 33 % for all reported periods in 2017.

At a Group level, tangible shareholders' equity is shareholders' equity as reported in the Consolidated Balance Sheet excluding goodwill and other intangible assets. Tangible shareholders' equity for the segments is calculated by deducting goodwill and other intangible assets from shareholders' equity as allocated to the segments. Shareholders' equity and tangible shareholders' equity are presented on an average basis.

The Group believes that a presentation of average tangible shareholders' equity makes comparisons to its competitors easier, and refers to this measure in the return on equity ratios presented by the Group. However, average tangible shareholders' equity is not a measure provided for in IFRS, and the Group's ratios based on this measure should not be compared to other companies' ratios without considering differences in the calculations.

The reconciliation of the aforementioned ratios is set forth in the table below:

	2019						
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total
Profit (loss) before tax	137	433	(265)	468	(3,177)	(229)	(2,634)
Profit (loss)	98	312	(191)	337	(2,287)	(3,533)	(5,265)
Profit (loss) attributable to noncontrolling interests	0	0	0	0	0	125	125
Profit (loss) attributable to DB shareholders and additional equity components	98	312	(191)	337	(2,287)	(3,658)	(5,390)
Profit (loss) attributable to additional equity components	55	133	65	11	64	0	328
Profit (loss) attributable to Deutsche Bank shareholders	43	178	(256)	326	(2,351)	(3,658)	(5,718)
Average allocated shareholders' equity	9,280	23,639	12,241	4,836	10,174	0	60,170
Deduct: Average allocated goodwill and other intangible assets ¹	385	2,199	1,787	3,038	119	0	7,528
Average allocated tangible shareholders' equity	8,895	21,440	10,454	1,798	10,055	0	52,643
Post-tax return on average shareholders' equity	0 %	1 %	(2) %	7 %	(23) %	N/M	(10) %
Post-tax return on average tangible shareholders' equity	0 %	1 %	(2) %	18 %	(23) %	N/M	(11) %

¹ Goodwill and other intangible assets related to the share of DWS that is not held by Deutsche Bank are excluded since the first quarter of 2018

	2018						
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total
Profit (loss) before tax	1,273	856	701	368	(1,435)	(433)	1,330
Profit (loss)	916	616	505	265	(1,033)	(928)	341
Profit (loss) attributable to noncontrolling interests	0	0	0	0	0	75	75
Profit (loss) attributable to DB shareholders and additional equity components	916	616	505	265	(1,033)	(1,003)	267
Profit (loss) attributable to additional equity components	54	124	60	9	73	0	319
Profit (loss) attributable to Deutsche Bank shareholders	863	492	445	257	(1,106)	(1,003)	(52)
Average allocated shareholders' equity	9,987	23,155	12,231	4,659	12,577	0	62,610
Deduct: Average allocated goodwill and other intangible assets ¹	826	2,062	2,063	3,181	254	0	8,386
Average allocated tangible shareholders' equity	9,161	21,093	10,168	1,478	12,323	0	54,224
Post-tax return on average shareholders' equity	9 %	2 %	4 %	6 %	(9) %	N/M	(0) %
Post-tax return on average tangible shareholders' equity	9 %	2 %	4 %	17 %	(9) %	N/M	(0) %

¹ Goodwill and other intangible assets related to the share of DWS that is not held by Deutsche Bank are excluded since the first quarter of 2018

							2017
in € m. (unless stated otherwise)	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total
Profit (loss) before tax	1,459	1,498	275	732	(1,633)	(1,105)	1,228
Profit (loss)	978	1,004	184	491	(1,094)	(2,298)	(735)
Profit (loss) attributable to noncontrolling interests	0	0	0	0	0	15	15
Profit (loss) attributable to DB shareholders and additional equity components	978	1,004	184	491	(1,094)	(2,313)	(751)
Profit (loss) attributable to additional equity components	59	127	60	5	75	0	325
Profit (loss) attributable to Deutsche Bank shareholders	919	877	124	486	(1,169)	(2,313)	(1,076)
Average allocated shareholders' equity	10,143	22,553	11,886	4,505	14,087	752	63,926
Deduct: Average allocated goodwill and other intangible assets	1,053	1,392	2,124	3,680	591	42	8,881
Average allocated tangible shareholders' equity	9,090	21,161	9,762	825	13,497	710	55,045
Post-tax return on average shareholders' equity	9 %	4 %	1 %	11 %	(8) %	N/M	(2) %
Post-tax return on average tangible shareholders' equity	10 %	4 %	1 %	59 %	(9) %	N/M	(2) %

Core Bank

The Core Bank represents the Group excluding the Capital Release Unit (CRU).

in € m. (unless stated otherwise)	2019	2018	2017
Profit (loss) before tax	543	2,765	2,860
Profit (loss)	(2,977)	1,375	358
Profit (loss) attributable to noncontrolling interests	125	75	15
Profit (loss) attributable to Deutsche Bank shareholders and additional equity components	(3,102)	1,300	343
Profit (loss) attributable to additional equity components	265	246	251
Profit (loss) attributable to Deutsche Bank shareholders	(3,367)	1,054	93
Average allocated shareholders' equity	49,997	50,032	49,839
Deduct: Average allocated goodwill and other intangible assets	7,409	8,132	8,291
Average allocated tangible shareholders' equity	42,588	41,900	41,548
Post-tax return on average shareholders' equity	(7) %	2 %	0 %
Post-tax return on average tangible shareholders' equity	(8) %	3 %	0 %

in € m. (unless stated otherwise)	2019	2018	2017
Profit (loss) before tax - Group	(2,634)	1,330	1,228
Profit (loss) before tax - CRU	(3,177)	(1,435)	(1,633)
Profit (loss) before tax - Core Bank	543	2,765	2,860
Specific revenue items	108	691	(89)
Transformation charges	635	0	0
Impairment of goodwill / other intangibles	1,037	0	21
Restructuring & severance	649	494	537
Adjusted profit (loss) before tax - Core Bank	2,756	2,568	3,508

Transformation charges

Transformation charges are costs, included in adjusted costs, that are directly related to Deutsche Bank's transformation as a result of the new strategy announced on July 7, 2019. Such charges include the transformation-related impairment of software and real estate, legal fees related to asset disposals as well as the quarterly amortization on software related to the Equities Sales & Trading business and onerous contract provisions. Any other costs related to Deutsche Bank's ongoing business, even if related to the Capital Release Unit (CRU), do not qualify as transformation charges.

in € m.	2019
Occupancy, furniture and equipment expenses	137
IT costs	977
Professional service fees	12
Other	18
Transformation charges	1,145

Adjusted costs

Adjusted costs is one of the key performance indicators and is a non-GAAP financial measure for which the most directly comparable IFRS financial measure is noninterest expenses. Adjusted costs is calculated by deducting (i) impairment of goodwill and other intangible assets, (ii) net litigation charges, and (iii) restructuring and severance from noninterest expenses under IFRS. The Group believes that a presentation of noninterest expenses excluding the impact of these items provides a more meaningful depiction of the costs associated with our operating businesses. To show the development of our cost initiatives excluding costs that are directly related to Deutsche Bank's transformation as a result of the new strategy announced on July 7, 2019, the Group also presents, for 2019 and as its objective for 2020, Adjusted costs excluding transformation charges, in which the transformation charges described above are deducted from Adjusted costs.

In addition, BNP Paribas and Deutsche Bank have signed a master transaction agreement to provide continuity of service to Deutsche Bank's Prime Finance and Electronic Equities clients. Under the agreement Deutsche Bank will continue to operate the platform until clients can be migrated to BNP Paribas, and BNP Paribas reimburses Deutsche Bank for the expenses of the transferred business. To show the development of our cost initiatives excluding not only transformation charges but also these reimbursable expenses, the Group also presents, for 2019 and as its objective for 2020, Adjusted costs excluding transformation charges and expenses associated with our Prime Finance platform being transferred to BNP Paribas. Adjusted cost excluding transformation charges of €21.6 billion in 2019 include expenses of €102 million incurred in the fourth quarter of 2019 that are consistent with those eligible for reimbursement under the terms of the transfer agreement are excluded. The reimbursement is effective from December 1, 2019, and as a result approximately one third of the aforementioned fourth-quarter cost has been recorded as reimbursable in revenues for the month of December 2019.

	2019						
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Noninterest expenses	4,842	6,401	8,168	1,711	3,397	556	25,076
Impairment of goodwill and other intangible assets	492	0	545	0	0	0	1,037
Litigation charges, net	(4)	135	(20)	(5)	129	238	473
Restructuring and severance	150	219	158	41	157	82	805
Adjusted costs	4,204	6,047	7,486	1,675	3,112	237	22,761
Transformation charges	160	214	191	30	510	39	1,145
Adjusted costs ex. transformation charges	4,044	5,833	7,295	1,644	2,602	198	21,616
Expenses associated with the Prime Finance platform being transferred to BNP Paribas							102
Adjusted costs ex. transformation charges and expenses associated with the Prime Finance platform being transferred to BNP Paribas							21,514

	2018						
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Noninterest expenses	3,846	6,517	7,593	1,735	3,349	421	23,461
Impairment of goodwill and other intangible assets	0	0	0	0	0	0	0
Litigation charges, net	34	96	(79)	33	(47)	51	88
Restructuring and severance	44	233	112	45	69	60	563
Adjusted costs	3,767	6,188	7,560	1,657	3,327	311	22,810
Transformation charges	0	0	0	0	0	0	0
Adjusted costs ex. transformation charges	3,767	6,188	7,560	1,657	3,327	311	22,810
Expenses associated with the Prime Finance platform being transferred to BNP Paribas							0
Adjusted costs ex. transformation charges and expenses associated with the Prime Finance platform being transferred to BNP Paribas							22,810

	2017						
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Noninterest expenses	3,876	6,727	8,143	1,799	3,567	582	24,695
Impairment of goodwill and other intangible assets	6	0	12	3	0	0	21
Litigation charges, net	(142)	169	52	5	18	112	213
Restructuring and severance	31	91	395	18	33	2	570
Adjusted costs	3,981	6,467	7,684	1,774	3,516	468	23,891
Transformation charges	0	0	0	0	0	0	0
Adjusted costs ex. transformation charges	3,981	6,467	7,684	1,774	3,516	468	23,891
Expenses associated with the Prime Finance platform being transferred to BNP Paribas							0
Adjusted costs ex. transformation charges and expenses associated with the Prime Finance platform being transferred to BNP Paribas							23,891

Revenues excluding specific items

Revenues excluding specific items is a performance indicator that is a non-GAAP financial measure most directly comparable to the IFRS financial measure net revenues. Revenues excluding specific items is calculated by adjusting net revenues under IFRS for specific revenue items which generally fall outside the usual nature or scope of the business and are likely to distort an accurate assessment of the divisional operating performance. Excluded items are own credit risk related valuation effects of the group's own debt measured at fair value (2017 only, while with the introduction of IFRS 9 in 2018 the own credit risk component is recorded in Other Comprehensive Income), Debt Valuation Adjustment (DVA) and material transactions or events that are either one-off in nature or belong to a portfolio of connected transactions or events where the P&L impact is limited to a specific period of time. The Group believes that a presentation of net revenues excluding the impact of these items provides a more meaningful depiction of the revenues associated with our business.

	2019						
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Revenues	5,264	6,961	8,245	2,332	208	155	23,165
DVA	0	(140)	0	0	(35)	0	(175)
Own credit spread	0	0	0	0	0	0	0
Change in valuation of an investment - FIC S&T	0	143	0	0	0	0	143
Gain on sale - Global Transaction Banking	0	0	0	0	0	0	0
Gain from property sale - Private Bank Germany	0	0	0	0	0	0	0
Gain from property sale - Wealth Management	0	0	0	0	0	0	0
Sal. Oppenheim workout - Wealth Management	0	0	105	0	0	0	105
Insurance recovery related to a real-estate fund - AM	0	0	0	0	0	0	0
Update in valuation methodology – CRU	0	0	0	0	(81)	0	(81)
CTA realization / loss on sale - C&O	0	0	0	0	0	0	0
Adjustment of cash flow hedge - C&O	0	0	0	0	0	0	0
Total Specific revenue items	0	3	105	0	(116)	0	(8)
Revenues excluding specific items	5,264	6,959	8,140	2,332	323	155	23,173

	2018						
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Revenues	5,263	7,467	8,641	2,187	1,878	(120)	25,316
DVA	0	126	0	0	0	0	126
Own credit spread	0	0	0	0	0	0	0
Change in valuation of an investment - FIC S&T	0	140	0	0	0	0	140
Gain on sale - Global Transaction Banking	57	0	0	0	0	0	57
Gain from property sale - Private Bank Germany	0	0	156	0	0	0	156
Gain from property sale - Wealth Management	0	0	40	0	0	0	40
Sal. Oppenheim workout - Wealth Management	0	0	172	0	0	0	172
Insurance recovery related to a real-estate fund - AM	0	0	0	0	0	0	0
Update in valuation methodology – CRU	0	0	0	0	0	0	0
CTA realization / loss on sale - C&O	0	0	0	0	0	0	0
Adjustment of cash flow hedge - C&O	0	0	0	0	0	0	0
Total Specific revenue items	57	266	368	0	0	0	691
Revenues excluding specific items	5,206	7,201	8,273	2,187	1,878	(120)	24,625

							2017
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Revenues	5,376	8,303	8,732	2,532	2,044	(539)	26,447
DVA	0	(348)	0	0	0	0	(348)
Own credit spread	0	0	0	0	0	(164)	(164)
Change in valuation of an investment - FIC S&T	0	0	0	0	0	0	0
Gain on sale							
- Global Transaction Banking	0	0	0	0	0	0	0
Termination of legacy Trust Preferred Security							
- Private Bank Germany	0	0	(118)	0	0	0	(118)
Gain from asset sale							
- Private Bank Germany	0	0	108	0	0	0	108
Gain from property sale							
- Wealth Management	0	0	0	0	0	0	0
Sal. Oppenheim workout							
- Wealth Management	0	0	409	0	0	0	409
Insurance recovery related to a real-estate fund - AM	0	0	0	52	0	0	52
Update in valuation methodology – CRU	0	0	0	0	3	0	3
CTA realization / loss on sale - C&O	0	0	0	0	0	(164)	(164)
Adjustment of cash flow hedge - C&O	0	0	0	0	0	137	137
Total Specific revenue items	0	(348)	398	52	3	(191)	(86)
Revenues excluding specific items	5,376	8,651	8,333	2,480	2,041	(348)	26,533

Adjusted profit (loss) before tax

Adjusted profit (loss) before tax is calculated by adjusting the profit (loss) before tax under IFRS for specific revenue items, transformation charges, impairments of goodwill and other intangibles, as well as restructuring and severance expenses. The Group believes that a presentation of profit (losses) before tax excluding the impact of the foregoing items provides a more meaningful depiction of the profitability of our operating business.

							2019
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Profit (loss) before tax	137	433	(265)	468	(3,177)	(229)	(2,634)
Specific revenue items	0	(3)	(105)	0	116	0	8
Transformation charges	160	214	191	30	510	39	1,145
Impairment of goodwill / other intangibles	492	0	545	0	0	0	1,037
Restructuring & severance	150	219	158	41	157	82	805
Adjusted profit (loss) before tax	939	863	524	539	(2,395)	(109)	361

							2018
in € m.	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Profit (loss) before tax	1,273	856	701	368	(1,435)	(433)	1,330
Specific revenue items	(57)	(266)	(368)	0	0	0	(691)
Transformation charges	0	0	0	0	0	0	0
Impairment of goodwill / other intangibles	0	0	0	0	0	0	0
Restructuring & severance	44	233	112	45	69	60	563
Adjusted profit (loss) before tax	1,260	823	445	413	(1,366)	(373)	1,202

in € m.							2017
	Corporate Bank	Investment Bank	Private Bank	Asset Management	Capital Release Unit	Corporate & Other	Total consolidated
Profit (loss) before tax	1,459	1,498	275	732	(1,633)	(1,105)	1,228
Specific revenue items	0	348	(398)	(52)	(3)	191	86
Transformation charges	0	0	0	0	0	0	0
Impairment of goodwill / other intangibles	6	0	12	3	0	0	21
Restructuring & severance	31	91	395	18	33	2	570
Adjusted profit (loss) before tax	1,497	1,938	285	700	(1,603)	(911)	1,905

Net assets (adjusted)

Net assets (adjusted) are defined as IFRS Total assets adjusted to reflect the recognition of legal netting agreements, offsetting of cash collateral received and paid and offsetting pending settlements balances. The Group believes that a presentation of net assets (adjusted) makes comparisons to its competitors easier.

in € b. (unless stated otherwise)	2019	2018	2017
Total assets	1,298	1,348	1,475
Deduct: Derivatives (incl. hedging derivatives) credit line netting	266	253	288
Deduct: Derivatives cash collateral received / paid	74	68	72
Deduct: Securities Financing Transactions credit line netting	1	1	1
Deduct: Pending settlements netting	10	18	20
Net assets (adjusted)	946	1,010	1,095

Book Value and Tangible Book Value per Basic Share Outstanding

Book value per basic share outstanding and tangible book value per basic share outstanding are non-GAAP financial measures that are used and relied upon by investors and industry analysts as capital adequacy metrics. Book value per basic share outstanding represents the Bank's total shareholders' equity divided by the number of basic shares outstanding at period-end. Tangible book value represents the Bank's total shareholders' equity less goodwill and other intangible assets. Tangible book value per basic share outstanding is computed by dividing tangible book value by period-end basic shares outstanding.

Tangible Book Value

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Total shareholders' equity (Book value)	55,857	62,495	63,174	(6,638)	(11)	(680)	(1)
Goodwill and other intangible assets	(6,254)	(8,372) ¹	(8,839)	2,119	(25)	467	(5)
Tangible shareholders' equity (Tangible book value)	49,603	54,122	54,335	(4,519)	(8)	(213)	(0)

¹ Excludes Goodwill and other intangible assets attributable to partial sale of DWS.

Basic Shares Outstanding

in € m. (unless stated otherwise)	2019	2018	2017	2019 increase (decrease) from 2018		2018 increase (decrease) from 2017	
				in € m.	in %	in € m.	in %
Number of shares	2,066.8	2,066.8	2,066.8	0	0	0	0
Shares outstanding:							
Treasury shares	(0.7)	(1.3)	(0.4)	0.7	(50.1)	(0.9)	N/M
Vested share awards	52.4	39.8	28.5	12.6	31.7	11.3	39.5
Basic shares outstanding¹	2,118.5	2,105.2	2,094.9	13.3	0.6	10.3	0.5
Book value per basic share outstanding in €	26.37	29.69	30.16	(3.32)	(11.2)	(0.47)	(1.6)
Tangible book value per basic share outstanding in €	23.41	25.71	25.94	(2.30)	(8.9)	(0.23)	(0.9)

¹ The basic shares outstanding have been adjusted for comparative periods in order to reflect the effect of the bonus component of subscription rights issued in April 2017 in connection with the capital increase.

Regulatory fully loaded measures

Our regulatory assets, exposures, risk-weighted assets, capital and ratios thereof are calculated for regulatory purposes and are set forth throughout this document under the CRR/CRD, including recent amendments.

The CET 1 minimum capital requirement applicable to the Group is 4.5 % of risk-weighted assets. With effect from January 1, 2018, the CRR/CRD transitional rules as applicable until June 26, 2019, under which Common Equity Tier 1 (CET 1) regulatory adjustments were phased in have reached a rate of 100 %, together with the 100 % phase-out rate of minority interest only recognizable under the transitional rules. For risk-weighted assets (RWA) the grandfathering of equity investments at a risk weight of 100 % expired by the end of 2017. Instead a risk weight between 190 % and 370 % determined based on Article 155 CRR under the CRR/CRD as applicable until June 26, 2019, is applied. Hence, starting 2018 onwards, the CET 1 capital and RWA figures show no difference between CRR/CRD as applicable until June 26, 2019 and fully loaded CRR/CRD, as defined further below, i.e. excluding the transitional arrangements introduced by the CRR/CRD applicable until June 26, 2019, but reflecting the latest transitional arrangements introduced by the amendments to the CRR/CRD applicable from June 27, 2019.

In addition to this minimum capital requirement, various capital buffer requirements were phased in starting 2016 and are fully effective from 2019 onwards. Transitional arrangements are still applicable for Additional Tier 1 (AT1) and Tier 2 (T2) capital. Capital instruments that no longer qualify as AT1 or T2 capital under the fully loaded CRR/CRD applicable until June 26, 2019 are subject to grandfathering rules during the transitional period and are being phased out from 2013 to 2022 with their recognition capped at 40 % in 2018, 30 % in 2019 and the cap decreasing by ten percentage points every year thereafter.

We present in this report certain figures based on our definition of own funds (applicable for AT1 capital and T2 capital and figures based thereon, including Tier 1 capital and Leverage Ratio) on a “fully loaded” basis. We calculate such “fully loaded” figures excluding the transitional arrangements for own funds introduced by the CRR/CRD applicable until June 26, 2019, but reflecting the latest transitional arrangements introduced by the amendments to the CRR/CRD applicable from June 27, 2019.

We also present our objective for our leverage ratio (fully loaded) for 2020 excluding balances held for BNP Paribas in Prime Finance.

We believe that these “fully loaded” calculations provide useful information to investors as they reflect our progress against the regulatory capital standards and as many of our competitors have been describing calculations on a “fully loaded” basis. As our competitors’ assumptions and estimates regarding “fully loaded” calculations may vary, however, our “fully loaded” measures may not be comparable with similarly labelled measures used by our competitors.

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Supplemental Financial Information (Unaudited)

Industry Guide 3 Information

Amounts for 2019, 2018, 2017, 2016 and 2015 are prepared in accordance with IFRS, which is consistent with the Group's Financial Statements.

Financial condition

Average balance sheet based upon month-end balances

Average balance sheet and interest and similar income

in € m. (unless stated otherwise)	2019			2018			2017		
	Average balance	Interest	Average yield/rate	Average balance	Interest	Average yield/rate	Average balance	Interest	Average yield/rate
Assets:¹									
Interest-earning deposits with banks: ⁵									
In German offices ²	67,120	(278)	(0.41) %	101,124	(406)	(0.40) %	91,135	(346)	(0.38) %
In Non-German offices ²	90,280	1,981	2.19 %	107,079	2,015	1.88 %	102,700	1,257	1.22 %
Total interest-earning deposits with banks	157,401	1,702	1.08 %	208,203	1,610	0.77 %	193,835	911	0.47 %
Central bank funds sold and securities purchased under resale agreements: ⁵									
In German offices	1,837	(5)	(0.25) %	975	(5)	(0.50) %	3,053	(14)	(0.47) %
In Non-German offices	8,130	333	4.10 %	7,511	220	2.93 %	9,857	291	2.95 %
Total central bank funds sold and securities purchased under resale agreements	9,967	329	3.30 %	8,486	215	2.53 %	12,910	276	2.14 %
Securities borrowed: ⁵									
In German offices	136	16	11.51 %	10	0	0.22 %	123	0	(0.19) %
In Non-German offices	2,335	63	2.70 %	3,305	29	0.89 %	21,995	(152)	(0.69) %
Total securities borrowed	2,471	79	3.19 %	3,315	29	0.88 %	22,118	(152)	(0.69) %
Interest-earning financial assets at fair value through profit or loss: ⁴									
In German offices	25,805	394	1.53 %	18,541	355	1.91 %	20,905	378	1.81 %
In Non-German offices	223,855	6,526	2.92 %	258,953	7,402	2.86 %	256,045	6,870	2.68 %
Total interest-earning financial assets at fair value through profit or loss	249,660	6,921	2.77 %	277,494	7,757	2.80 %	276,949	7,248	2.62 %
Financial assets at fair value through OCI: ⁴									
In German offices	6,784	49	0.72 %	10,148	90	0.89 %	N/A	N/A	N/A
In Non-German offices	42,715	976	2.28 %	40,660	927	2.28 %	N/A	N/A	N/A
Total financial assets at fair value through OCI	49,500	1,025	2.07 %	50,808	1,017	2.00 %	N/A	N/A	N/A
Financial assets available for sale:									
In German offices	N/A	N/A	N/A	N/A	N/A	N/A	16,656	93	0.56 %
In Non-German offices	N/A	N/A	N/A	N/A	N/A	N/A	36,860	1,077	2.92 %
Total financial assets available for sale	N/A	N/A	N/A	N/A	N/A	N/A	53,516	1,170	2.19 %
Loans at amortized cost: ^{3,4}									
In German offices	222,854	5,497	2.47 %	214,858	5,721	2.66 %	213,294	5,798	2.72 %
In Non-German offices	196,620	8,263	4.20 %	180,677	7,269	4.02 %	192,288	6,204	3.23 %
Total loans	419,475	13,760	3.28 %	395,534	12,990	3.28 %	405,583	12,002	2.96 %
Securities held to maturity									
In German offices	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0.00 %
In Non-German offices	N/A	N/A	N/A	N/A	N/A	N/A	2,942	68	2.30 %
Total securities held to maturity	N/A	N/A	N/A	N/A	N/A	N/A	3,188	68	2.12 %
Total other interest-earning assets	62,815	387	0.62 %	46,829	97	0.21 %	53,599	767	1.43 %
Total interest-earning assets	951,287	24,201	2.54 %	990,670	23,716	2.39 %	1,021,697	22,290	2.18 %
Cash and due from banks	26,169			21,387			26,791		
Noninterest-earning financial assets at fair value through profit or loss:									
In German offices	205,937			154,906			190,504		
In Non-German offices	161,727			192,110			223,535		
All other assets	88,078			95,660			104,809		
Allowance for credit losses	(4,232)			(4,368)			(4,135)		
Total assets	1,428,965			1,450,364			1,563,202		
% of assets attributable to Non-German offices	59 %			62 %			63 %		

Average balance sheet and interest expense in € m. (unless stated otherwise)	2019			2018			2017		
	Average balance	Interest	Average yield/rate	Average balance	Interest	Average yield/rate	Average balance	Interest	Average yield/rate
Liabilities and equity:¹									
Interest-bearing deposits:									
In German offices:									
Time deposits	87,672	732	0.83 %	86,690	658	0.76 %	82,596	384	0.46 %
Savings deposits	87,988	435	0.49 %	86,277	417	0.48 %	87,902	572	0.65 %
Demand deposits	54,763	353	0.64 %	42,630	247	0.58 %	38,891	135	0.35 %
Total in German offices	230,423	1,519	0.66 %	215,596	1,322	0.61 %	209,389	1,091	0.52 %
In Non-German offices:									
Time deposits	42,085	1,487	3.53 %	43,223	1,224	2.83 %	53,338	1,372	2.57 %
Savings deposits	657	9	1.43 %	664	7	1.11 %	886	8	0.87 %
Demand deposits	76,957	591	0.77 %	82,880	529	0.64 %	90,462	330	0.36 %
Total in Non-German offices	119,699	2,088	1.74 %	126,767	1,760	1.39 %	144,687	1,710	1.18 %
Total interest-bearing deposits	350,122	3,607	1.03 %	342,363	3,082	0.90 %	354,075	2,800	0.79 %
Central bank funds purchased and securities sold under repurchase agreements: ⁵									
In German offices	289	29	9.85 %	126	16	12.38 %	122	0	(0.29) %
In Non-German offices	5,084	335	6.58 %	13,146	347	2.64 %	19,497	407	2.09 %
Total central bank funds purchased and securities sold under repurchase agreements	5,374	363	6.76 %	13,271	363	2.73 %	19,619	407	2.07 %
Securities loaned: ⁵									
In German offices	2	0	9.15 %	2	0	(0.11) %	4	0	(0.13) %
In Non-German offices	2,336	74	3.16 %	6,244	141	2.26 %	5,536	(75)	(1.35) %
Total securities loaned	2,338	74	3.16 %	6,246	141	2.26 %	5,540	(75)	(1.35) %
Interest-bearing financial liabilities at fair value through profit or loss:									
In German offices	14,219	206	1.45 %	11,626	197	1.69 %	13,785	240	1.74 %
In Non-German offices	102,232	2,974	2.91 %	118,221	3,390	2.87 %	120,472	3,800	3.15 %
Total interest-bearing financial liabilities at fair value through profit or loss	116,451	3,180	2.73 %	129,848	3,587	2.76 %	134,258	4,040	3.01 %
Other short-term borrowings: ⁵									
In German offices	560	12	2.22 %	670	7	1.03 %	571	7	1.26 %
In Non-German offices	11,535	150	1.30 %	16,985	131	0.77 %	18,601	128	0.69 %
Total other short-term borrowings	12,094	163	1.34 %	17,656	137	0.78 %	19,172	135	0.70 %
Long-term debt and trust preferred securities: ⁵									
In German offices	92,883	850	0.92 %	101,903	817	0.80 %	113,732	1,178	1.04 %
In Non-German offices	58,582	1,246	2.13 %	58,653	1,292	2.20 %	58,174	911	1.57 %
Total long-term debt and trust preferred securities	151,465	2,096	1.38 %	160,556	2,110	1.31 %	171,906	2,089	1.22 %
Total other interest-bearing liabilities⁵	73,729	970	1.32 %	75,964	1,104	1.45 %	85,918	516	0.60 %
Total interest-bearing liabilities	711,574	10,452	1.47 %	745,904	10,524	1.41 %	790,488	9,912	1.25 %

Average balance sheet and interest expense in € m. (unless stated otherwise)	2019			2018			2017		
	Average balance	Interest	Average yield/rate	Average balance	Interest	Average yield/rate	Average balance	Interest	Average yield/rate
Noninterest-bearing deposits:									
In German offices	203,378			199,705			183,938		
In Non-German offices	22,641			24,980			31,401		
Noninterest-bearing financial liabilities at fair value through profit or loss:									
In German offices	184,845			135,163			159,090		
In Non-German offices	164,734			195,094			231,225		
All other noninterest-bearing liabilities	75,353			81,083			98,181		
Total shareholders' equity	60,170			62,537			63,926		
Additional equity components	4,670			4,675			4,672		
Noncontrolling interests	1,600			1,225			280		
Total equity	66,441			68,437			68,878		
Total liabilities and equity	1,428,965			1,450,364			1,563,202		
% of liabilities attributable to Non-German offices ¹	43 %			48 %			53 %		
Rate spread	1.08 %			0.98 %			0.93 %		
Net interest margin (Net interest income to total interest-earning assets):									
In German offices	0.92 %			0.91 %			0.99 %		
In Non-German offices	1.72 %			1.57 %			1.32 %		
Total	1.45 %			1.33 %			1.21 %		

¹ The allocation of the assets and liabilities between German and Non-German offices are based on the location of the entity which carries the respective asset or liability.

² Interest-earning deposits with banks include interest earning deposit with central bank and interest earning deposit with bank w/o central bank.

³ Loans include impaired loans.

⁴ Loans classifications have been significantly impacted by the adoption of IFRS 9. Loans previously classified at amortized cost under IAS 39 are now reported not only in loans at amortized cost, but also in financial assets at fair value through profit or loss and financial assets designated at fair value through other comprehensive income.

⁵ Figures in interest revenue and expense positions are based on net effect of negative interest revenue and expenses. However, negative interest revenue and expenses are reported in "others" in interest and similar income and interest expenses, respectively, in Note 5 to the consolidated financial statement.

Analysis of changes in interest and similar income and interest expense

in € m.	2019 over 2018 due to changes in ¹			2018 over 2017 due to changes in ¹		
	Net change	Volume	Rate	Net change	Volume	Rate
Interest and similar income:						
Interest-earning deposits with banks:						
German offices	127	141	(13)	(59)	(39)	(20)
Non-German offices	(35)	(342)	307	762	56	707
Total interest-earning deposits with banks	93	(201)	294	703	16	687
Central bank funds sold and securities purchased under resale agreements:						
German offices	0	(3)	3	9	10	(1)
Non-German offices	113	19	94	(71)	(69)	(2)
Total central bank funds sold and securities purchased under resale agreements	114	16	97	(62)	(58)	(3)
Securities borrowed:						
German offices	16	3	13	0	0	0
Non-German offices	34	(11)	45	181	49	132
Total securities borrowed	49	(8)	57	181	49	132
Financial assets at fair value through profit or loss:						
German offices	39	120	(81)	(24)	(44)	21
Non-German offices	(876)	(1,021)	145	532	79	454
Total financial assets at fair value through profit or loss	(837)	(900)	64	509	34	474
Financial assets at fair value through OCI:						
German offices	(41)	(26)	(15)	N/A	N/A	N/A
Non-German offices	49	47	2	N/A	N/A	N/A
Total financial assets at fair value through OCI	8	21	(13)	N/A	N/A	N/A
Financial assets available for sale:						
German offices	N/A	N/A	N/A	N/A	N/A	N/A
Non-German offices	N/A	N/A	N/A	N/A	N/A	N/A
Total financial assets available for sale	N/A	N/A	N/A	N/A	N/A	N/A
Loans at amortized cost:						
German offices	(224)	208	(432)	(81)	42	(123)
Non-German offices	993	660	333	1,065	(393)	1,458
Total loans	769	868	(99)	985	(351)	1,335
Securities held to maturity:						
German offices	N/A	N/A	N/A	N/A	N/A	N/A
Non-German offices	N/A	N/A	N/A	N/A	N/A	N/A
Total Securities held to maturity	N/A	N/A	N/A	N/A	N/A	N/A
Other interest-earning assets	289	43	246	(669)	(86)	(583)
Total interest and similar income	485	(161)	646	1,647	(395)	2,043

	2019 over 2018 due to changes in ¹			2018 over 2017 due to changes in ¹		
Interest expense:						
Interest-bearing deposits:						
German offices	197	94	103	233	33	200
Non-German offices	328	(103)	431	53	(227)	279
Total interest-bearing deposits	525	(8)	533	286	(194)	480
Central bank funds purchased and securities sold under repurchase agreements:						
German offices	13	17	(4)	16	0	16
Non-German offices	(13)	(305)	293	(60)	(152)	92
Total central bank funds purchased and securities sold under repurchase agreements	0	(289)	289	(44)	(152)	108
Securities loaned:						
German offices	0	0	0	0	0	0
Non-German offices	(67)	(110)	42	216	(8)	224
Total securities loaned	(67)	(110)	43	216	(8)	224
Financial liabilities at fair value through profit or loss:						
German offices	9	40	(31)	(43)	(37)	(6)
Non-German offices	(417)	(464)	48	(410)	(70)	(340)
Total financial liabilities at fair value through profit or loss	(408)	(424)	17	(452)	(107)	(346)
Other short-term borrowings:						
German offices	6	(1)	7	0	1	(1)
Non-German offices	20	(51)	71	2	(12)	14
Total other short-term borrowings	25	(52)	78	2	(11)	12
Long-term debt and trust preferred securities:						
German offices	33	(76)	109	(365)	(114)	(251)
Non-German offices	(47)	(2)	(45)	379	8	371
Total long-term debt and trust preferred securities	(14)	(78)	64	14	(107)	120
Other interest-bearing liabilities	(133)	(32)	(102)	588	(66)	654
Total interest expense	(72)	(993)	921	608	(644)	1,252
Net change in net interest income	557	832	(275)	1,039 ²	249	790

¹ Changes due to combination of volume and rate are allocated proportionally

² Net change in net interest income' in 2018 over 2017 does not include items impacted by IFRS 9 classification as in 2018 assets category of 'Financial assets at fair value through other comprehensive income' and discontinued assets category of 'Financial assets available for sale' and 'Securities held to maturity' did not have comparative numbers.

Investment portfolio (debt Securities at fair value through other comprehensive income)

Fair values of the Group's investment portfolio

in € m.	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017
Debt securities:			
German government	6,243	7,705	N/A
U.S. Treasury and U.S. government agencies	7,703	13,118	N/A
U.S. local (municipal) governments	0	101	N/A
Other foreign governments	21,020	18,152	N/A
Corporates	3,423	5,606	N/A
Other asset-backed securities	36	27	N/A
Mortgage-backed securities, including obligations of U.S. federal agencies	457	103	N/A
Other debt securities	332	181	N/A
Total	39,214	44,993	N/A

Fair value, amortized cost and gross unrealized holding gains and losses for the Group's investment portfolio

Dec 31, 2019 in € m.	Fair value	Gross unrealized holding		Amortized cost
		Gains	Losses	
Debt securities:				
German government	6,243	20	7	6,231
U.S. Treasury and U.S. government agencies	7,703	29	9	7,683
U.S. local (municipal) governments	0	0	0	0
Other foreign governments	21,020	142	196	21,073
Corporates	3,423	43	1	3,381
Other asset-backed securities	36	0	0	36
Mortgage-backed securities, including obligations of U.S. federal agencies	457	9	1	448
Other debt securities	332	10	0	323
Total	39,214	252	214	39,176

The following table presents the fair value, remaining maturities, approximate weighted-average yields (based on amortized cost) and total amortized cost by maturity distribution of the debt security components of the Group's investment portfolio as of December 31, 2019:

in € m.	Up to one year		More than one year and up to five years		More than five years and up to ten years		More than ten years		Total	
	Amount	Yield	Amount	Yield	Amount	Yield	Amount	Yield	Amount	Yield
German government	829	1.5 %	3,211	1.5 %	1,943	1.0 %	259	1.4 %	6,243	1.4 %
U.S. Treasury and U.S. government agencies	1,118	2.0 %	5,202	2.4 %	1,384	1.8 %	0	0.0 %	7,703	2.2 %
U.S. local (municipal) governments	0	0.0 %	0	0.0 %	0	0.0 %	0	0.0 %	0	0.0 %
Other foreign governments	6,752	2.2 %	6,603	2.2 %	7,145	0.6 %	520	2.5 %	21,020	1.6 %
Corporates	394	0.8 %	1,875	1.4 %	1,074	1.0 %	80	2.0 %	3,423	1.2 %
Other asset-backed securities	0	0.0 %	9	2.4 %	10	0.0 %	17	0.0 %	36	0.6 %
Mortgage-backed securities, including obligations of U.S. federal agencies	0	0.0 %	0	0.0 %	4	0.0 %	453	2.3 %	457	2.3 %
Other debt securities	19	3.8 %	133	0.8 %	180	1.1 %	0	0.0 %	332	1.2 %
Total fair value	9,112	2.0 %	17,033	2.0 %	11,739	0.9 %	1,330	2.2 %	39,214	1.7 %
Total amortized cost	9,108		16,990		11,743		1,335		39,176	

Fair values of the Group's investment portfolio (securities available for sale)

in € m.	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017
Debt securities:			
German government	N/A	N/A	8,131
U.S. Treasury and U.S. government agencies	N/A	N/A	8,092
U.S. local (municipal) governments	N/A	N/A	2,436
Other foreign governments	N/A	N/A	19,275
Corporates	N/A	N/A	6,775
Other asset-backed securities	N/A	N/A	1
Mortgage-backed securities, including obligations of U.S. federal agencies	N/A	N/A	11
Other debt securities	N/A	N/A	359
Total debt securities	N/A	N/A	45,081
Equity securities:			
Equity shares	N/A	N/A	897
Investment certificates and mutual funds	N/A	N/A	97
Total equity securities	N/A	N/A	994
Total	N/A	N/A	46,075

Loans outstanding

From reporting period of 2018, we are providing information following the IFRS 9 accounting standard, while reporting period 2017 and earlier details are based on the IAS 39 accounting rules and are presented in the old format. Since the accounting requirements have changed significantly, numbers are not comparable with prior 2018.

Analysis of the Group's loan portfolio by industry sector and by the borrower's country of domicile (in- or outside Germany)

in € m.	Dec 31, 2019	Dec 31, 2018
German:		
Agriculture, forestry and fishing	297	283
Mining and quarrying	181	309
Manufacturing	10,954	10,604
Electricity, gas, steam and air conditioning supply	1,024	779
Water supply, sewerage, waste management and remediation activities	630	672
Construction	1,391	1,392
Wholesale and retail trade, repair of motor vehicles and motorcycles	6,427	6,404
Transport and storage	1,232	1,656
Accommodation and food service activities	793	637
Information and communication	1,385	1,007
Financial and insurance activities	8,437	7,245
Real estate activities	9,251	8,169
Professional, scientific and technical activities	4,783	4,704
Administrative and support service activities	2,533	3,794
Public administration and defense, compulsory social security	3,589	6,186
Education	107	251
Human health services and social work activities	2,654	2,710
Arts, entertainment and recreation	325	302
Other service activities	2,251	2,388
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	156,476	149,130
Activities of extraterritorial organizations and bodies	0	0
Total German	214,721	208,619
Non-German:		
Agriculture, forestry and fishing	379	372
Mining and quarrying	2,845	3,391
Manufacturing	19,245	20,362
Electricity, gas, steam and air conditioning supply	3,552	2,776
Water supply, sewerage, waste management and remediation activities	213	224
Construction	2,719	3,029
Wholesale and retail trade, repair of motor vehicles and motorcycles	16,142	15,468
Transport and storage	4,378	4,893
Accommodation and food service activities	1,840	1,457
Information and communication	5,190	4,274
Financial and insurance activities	89,996	86,641
Real estate activities	35,902	26,984
Professional, scientific and technical activities	2,647	2,316
Administrative and support service activities	4,531	4,127
Public administration and defense, compulsory social security	4,423	4,565
Education	220	447
Human health services and social work activities	977	908
Arts, entertainment and recreation	542	649
Other service activities	3,515	2,939
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	40,256	39,365
Activities of extraterritorial organizations and bodies	3	25
Total Non-German	239,514	225,212
Gross loans	454,235	433,832
(Deferred expense)/unearned income	340	254
Loan less (deferred expense)/unearned income	453,895	433,578

in € m.	Dec 31, 2017 ¹	Dec 31, 2016	Dec 31, 2015
German:			
Financial intermediation	4,654	5,048	7,716
Fund management activities	910	984	778
Manufacturing	9,456	8,821	9,357
Wholesale and retail trade	6,265	5,736	5,736
Households	139,196	137,078	137,332
Commercial real estate activities	7,864	7,741	8,178
Public sector	9,090	11,059	12,846
Lease financing	296	383	482
Other	22,072	20,579	20,085
Total German	199,804	197,430	202,510
Non-German:			
Financial intermediation	47,550	44,569	54,023
Fund management activities	17,798	25,145	25,313
Manufacturing	18,022	20,470	18,773
Wholesale and retail trade	12,986	11,008	12,591
Households	47,533	50,791	62,674
Commercial real estate activities	21,382	19,627	14,701
Public sector	4,621	4,682	4,398
Lease financing	88	178	79
Other	36,095	39,643	38,487
Total Non-German	206,076	216,114	231,039
Gross loans	405,879	413,544	433,549
(Deferred expense)/unearned income	259	88	772
Loan less (deferred expense)/unearned income	405,621	413,455	432,777

¹ Comparatives have been restated to reflect changes in industry sectors.

Loan maturities and sensitivity to changes in interest rates

Analysis of maturities of the Group's loan portfolio (excluding lease financing)

Dec 31, 2019 in € m.	Within 1 year	After one but within 5 years	After 5 years	Total
German:				
Agriculture, forestry and fishing	69	43	184	297
Mining and quarrying	22	121	38	181
Manufacturing	5,283	3,489	2,182	10,954
Electricity, gas, steam and air conditioning supply	525	270	229	1,024
Water supply, sewerage, waste management and remediation activities	324	70	236	630
Construction	391	243	757	1,391
Wholesale and retail trade, repair of motor vehicles and motorcycles	3,986	969	1,472	6,427
Transport and storage	436	444	352	1,232
Accommodation and food service activities	51	159	583	793
Information and communication	491	579	316	1,385
Financial and insurance activities	2,778	3,111	2,548	8,437
Real estate activities	1,347	1,096	6,808	9,251
Professional, scientific and technical activities	929	849	3,004	4,783
Administrative and support service activities	1,116	554	862	2,533
Public administration and defense, compulsory social security	1,650	1,819	120	3,589
Education	12	11	84	107
Human health services and social work activities	274	520	1,859	2,654
Arts, entertainment and recreation	57	41	227	325
Other service activities	846	427	978	2,251
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	7,611	12,386	136,480	156,476
Activities of extraterritorial organizations and bodies	0	0	0	0
Total German	28,200	27,202	159,319	214,721
Non-German:				
Agriculture, forestry and fishing	251	67	61	379
Mining and quarrying	1,634	533	678	2,845
Manufacturing	13,513	4,281	1,440	19,234
Electricity, gas, steam and air conditioning supply	1,290	629	1,633	3,552
Water supply, sewerage, waste management and remediation activities	49	123	40	212
Construction	1,318	950	449	2,717
Wholesale and retail trade, repair of motor vehicles and motorcycles	12,510	2,384	1,242	16,136
Transport and storage	1,424	1,925	994	4,344
Accommodation and food service activities	482	881	476	1,839
Information and communication	2,714	2,026	450	5,190
Financial and insurance activities	39,559	41,850	8,587	89,996
Real estate activities	11,874	18,513	5,514	35,901
Professional, scientific and technical activities	1,118	608	919	2,645
Administrative and support service activities	1,624	2,145	757	4,526
Public administration and defense, compulsory social security	1,846	1,358	1,219	4,423
Education	76	27	116	219
Human health services and social work activities	147	558	269	974
Arts, entertainment and recreation	117	388	36	541
Other service activities	1,319	1,444	752	3,515
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	12,053	7,385	20,817	40,256
Activities of extraterritorial organizations and bodies	2	0	1	3
Total Non-German	104,920	88,076	46,449	239,445
Gross loans	133,119	115,278	205,768	454,166
(Deferred expense)/unearned income	3	107	230	340
Loans less (deferred expense)/unearned income	133,117	115,171	205,538	453,826

Volumes of loans in loan portfolio (excluding lease financing) with residual maturities of more than one year from that date

Dec 31, 2019 in € m.	After one but within 5 years	After 5 years	Total
Fixed rate loans	35,989	169,608	258,111
Floating or adjustable rate loans	79,289	36,160	196,055
Total	115,278	205,768	454,166

Risk elements

For 2019 and 2018, we provide information following the IFRS 9 accounting standard, while 2017, 2016 and 2015 numbers are based on the IAS 39 accounting rules. Since the accounting requirements have changed significantly, numbers are not comparable. Therefore 2015 - 2017 figures are shown in a separate section subsequent to the disclosures under IFRS 9. The main reasons are the broader scope of assets subject to impairment, differences in asset classification as well as in impairment calculation and definition.

The following section provides information about certain risk elements included in the amortized cost portfolio intended to address the requirements of SEC Industry Guide 3 while at the same time reflecting the classifications most relevant to how Deutsche Bank Group evaluates the credit quality of its amortized cost portfolio. All stage 3 assets, which are defined as financial assets at amortized cost where known information about possible credit problems of borrowers causes the Group's management to have serious doubts as to the ability of such borrowers to comply with the present repayment terms, are included in this disclosure of risk elements.

Loans 90 days or more past due and still accruing

Under IFRS 9, all loans 90 days or more past due are classified as credit impaired and reflected in stage 3. Interest income for credit impaired loans is recognized in line with IFRS 9.5.4.1 and B 5.4.4. The accretion of the net present value of the written down amount of the loan due to the passage of time is recognized as interest income based on the original effective interest rate of the loan.

Stage 3 financial assets at amortized cost

Breakdown of the Group's IFRS stage 3 financial assets at amortized cost by region based on the borrower's country of domicile

in € m.	Dec 31, 2019	Dec 31, 2018
Germany	3,580	3,391
Western Europe (excluding Germany)	4,609	4,615
Eastern Europe	75	88
North America	683	574
Central and South America	112	155
Asia/Pacific	608	471
Africa	13	78
Other	0	43
Total¹	9,681	9,415

¹ of which POCl: €2,150 million and €1,963 million for December 31, 2019 and December 31, 2018 respectively.

Breakdown of the Group's IFRS stage 3 financial assets at amortized cost by industry sector of the borrower

in € m.	Dec 31, 2019	Dec 31, 2018
Agriculture, forestry and fishing	43	60
Mining and quarrying	142	147
Manufacturing	1,044	849
Electricity, gas, steam and air conditioning supply	70	77
Water supply, sewerage, waste management and remediation activities	64	10
Construction	451	426
Wholesale and retail trade, repair of motor vehicles and motorcycles	664	594
Transport and storage	249	539
Accommodation and food service activities	105	156
Information and communication	32	46
Financial and insurance activities	1,255	1,006
Real estate activities	710	782
Professional, scientific and technical activities	427	341
Administrative and support service activities	214	94
Public administration and defense, compulsory social security	43	81
Education	2	8
Human health services and social work activities	17	14
Arts, entertainment and recreation	10	14
Other service activities	284	343
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	3,853	3,830
Activities of extraterritorial organizations and bodies	1	1
Total¹	9,681	9,415

¹ of which POCl: €2,150 million and €1,963 million for December 31, 2019 and December 31, 2018 respectively.

The previous year's figures are stated as reported under IAS 39 – impaired loans.

Interest revenue of financial assets at amortized cost in stage 3

The following table shows the approximate effect on interest revenue of financial assets at amortized cost in stage 3 (excluding POCI). It shows the gross interest income that would have been recorded during the reporting period, if those assets had been current in accordance with their original terms and had been outstanding throughout the reporting period or since their origination, if Deutsche Bank Group only held them for part of the reporting period. It also shows the amount of interest income on those loans that was included in net income for the reporting period.

in € m.	2019	2018
German loans:		
Gross amount of interest that would have been recorded at original rate	75	47
Less interest, net of reversals, recognized in interest revenue	16	20
Reduction of interest revenue	59	26
Non-German loans:		
Gross amount of interest that would have been recorded at original rate	77	76
Less interest, net of reversals, recognized in interest revenue	30	26
Reduction of interest revenue	47	51
Total reduction of interest revenue	106	77

Forborne assets at amortized costs

For economic or legal reasons we might enter into a forbearance agreement with a borrower who faces or will face financial difficulties in order to ease the contractual obligation for a limited period of time. A case-by-case approach is applied for our corporate clients considering each transaction and client-specific facts and circumstances. For consumer loans we offer forbearances for a limited period of time, in which the total or partial outstanding or future instalments are deferred to a later point in time. However, any amounts not paid, including accrued interest during this period must also be re-paid at a later point in time. Repayment options include distribution over residual tenor, a one-off payment or a tenor extension. Forbearances are restricted and depend on the economic situation of the client, our risk management strategies and local legislation. In case a forbearance agreement is entered into, an impairment measurement is conducted as described below, an impairment charge is taken if necessary and the loan is subsequently recorded as impaired.

In our management and reporting of forborne loans, we follow the EBA definition for forbearances and non-performing loans (Implementing Technical Standards (ITS) on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013). Once the conditions mentioned in the ITS are met, we report the loan as being forborne. We remove the loan from our forbearance reporting once the discontinuance criteria in the ITS are met (i.e., the contract is considered performing, a minimum two year probation period has passed, regular payments of more than an insignificant aggregate amount of principal or interest have been made during at least half of the probation period, and none of the exposures to the debtor is more than 30 days past-due at the end of the probation period).

Breakdown of the Group's forborne loans

in € m.	Dec 31, 2019	Dec 31, 2018
Forborne loans		
German	2,243	2,295
Non-German	2,552	2,546
Total forborne loans¹	4,796	4,841

¹ of which: TDR €1,019 million for December 31, 2019 and TDR €790 million for December 31, 2018.

Forborne loans slightly decreased by €45 million or 1 % in 2019.

Risk elements (previous years figures as reported under IAS 39)

The following section provides information about certain risk elements included in the loan portfolio intended to address the requirements of SEC Industry Guide 3 while at the same time reflecting the classifications most relevant to how Deutsche Bank Group evaluates the credit quality of its loan portfolio. All potential problem loans, which are defined as loans where known information about possible credit problems of borrowers causes the Group's management to have serious doubts as to the ability of such borrowers to comply with the present loan repayment terms, are included in this disclosure of risk elements.

Loans 90 days or more past due and still accruing

Exposure of loans carried at amortized cost which were 90 days or more past due and still accruing

in € m.	Dec 31, 2017	Dec 31, 2016	Dec 31, 2015
German	321	252	278
Non-German	174	190	135
Total loans 90 days or more past due and still accruing	495	442	413

Impaired loans

Breakdown of the Group's IFRS impaired loans by region based on the borrower's country of domicile

in € m.	Dec 31, 2017	Dec 31, 2016	Dec 31, 2015
Germany	2,266	2,639	3,004
Western Europe (excluding Germany)	2,892	3,709	4,337
Eastern Europe	168	179	255
North America	498	496	342
Central and South America	70	5	6
Asia/Pacific	292	355	178
Africa	49	64	26
Other	0	2	2
Total impaired loans	6,234	7,447	8,151

Breakdown of the Group's IFRS impaired loans by industry sector of the borrower

in € m.	Dec 31, 2017	Dec 31, 2016	Dec 31, 2015
Financial intermediation	129	133	169
Fund management activities	16	21	33
Manufacturing	685	754	765
Wholesale and retail trade	521	707	538
Households	2,388	2,661	3,263
Commercial real estate activities	376	422	912
Public sector	74	19	16
Other	2,046 ¹	2,731 ²	2,456
Total impaired loans	6,234	7,447	8,151

¹ Of which: 'Transportation, storage and communication' - Total Impaired Loans €808 million/Total Loan loss allowance €473 million. 'Real estate; renting and business activities' - €482 million/€208 million, 'Construction' - €378 million/€103 million, 'Mining and quarrying' - €169 million/€123 million.

² Of which: 'Transportation, storage and communication' - Total Impaired Loans €1.1 billion/Total Loan loss allowance €650 million, 'Real estate; renting and business activities' - €489 million/€230 million, 'Construction': €309 million/€170 million, 'Mining and quarrying' - €232 million/€103 million.

Renegotiated loans

Loans that have been renegotiated in such a way that, for economic or legal reasons related to the borrower's financial difficulties, we granted a concession to the borrower that we would not otherwise have considered are disclosed and defined as renegotiated loans and are a subset of forbore loans disclosed in the Asset Quality section of the Risk Report.

Breakdown of the Group's renegotiated loans representing our troubled debt restructurings

in € m.	Dec 31, 2017	Dec 31, 2016	Dec 31, 2015
Renegotiated loans considered nonimpaired			
German	717	553	520
Non-German	288	263	356
Total renegotiated loans considered nonimpaired	1,006	816	875
Renegotiated loans considered impaired			
German	509	661	942
Non-German	718	770	876
Total renegotiated loans considered impaired	1,227	1,430	1,819
Renegotiated loans			
German	1,226	1,213	1,463
Non-German	1,007	1,033	1,233
Total renegotiated loans	2,233	2,246	2,695

In 2017, renegotiated loans remained stable, decreasing by € 13 million or 1 %.

In 2016, renegotiated loans decreased by € 449 million or 17 % driven mainly by disposal and charge offs of impaired assets in Germany and the UK in NCOU and CIB. This was further complemented by disposals and charge offs of non-impaired assets in non-German region in CIB and AM.

It should be noted that these renegotiations are not part of a special modification or restructuring program such as the Fannie Mae "Home Affordable Modification Program". Rather, new terms (for example modification of interest rates, principal amounts, interest due, maturities, etc.) were arranged depending on the requirements of the individual renegotiation.

Foreign outstandings

The following tables list only those countries for which the cross-border outstandings exceeded 0.75 % of the Group's total assets as of December 31, 2019, 2018 and 2017. Offsetting of local country claims is done for third party liabilities of the respective foreign offices that represent legal obligations of the foreign offices and for which no payment is guaranteed at locations outside of the country of the office. As of December 31, 2019, there were no outstandings that exceeded 0.75 % of total assets in any country currently facing debt restructuring or liquidity problems that the Group expects would materially impact the country's ability to service its obligations.

							Dec 31, 2019	
in € m. (unless stated otherwise)	Banks and other financial institutions	Governments and Official institutions	Other ¹	Commit- ments	Net local country claim	Total	in %	
United States	4,276	27,261	89,587	10,671	134,877	266,673	20.55	
Great Britain	2,602	17,252	14,242	5,950	35,686	75,732	5.84	
Luxembourg	8,781	7,929	39,403	2,994	7,968	67,076	5.17	
France	4,152	13,836	26,823	6,109	3,352	54,272	4.18	
Italy	4,106	14,898	15,505	1,166	6,065	41,739	3.22	
Spain	3,214	7,482	13,197	1,366	-	25,259	1.95	
Ireland	787	1,570	20,329	1,418	-	24,103	1.86	
Switzerland	3,142	5,541	8,441	5,204	666	22,994	1.77	
Netherlands	1,690	2,638	9,928	5,469	-	19,726	1.52	
Japan	511	305	9,129	332	-	10,277	0.79	

¹ Other includes commercial and industrial, insurance and other loans.

Dec 31, 2018

in € m. (unless stated otherwise)	Banks and other financial institutions	Governments and Official institutions	Other ¹	Commit- ments	Net local country claim	Total	in %
United States	9,684	22,272	146,578	12,835	129,905	321,274	23.83
Luxembourg	8,446	7,474	37,708	3,840	6,548	64,015	4.75
France	5,850	7,185	25,098	5,056	-	43,190	3.20
Italy	3,617	12,572	12,875	1,008	5,045	35,117	2.60
Great Britain	3,360	12,480	10,159	4,907	-	30,905	2.29
Spain	3,790	7,927	12,022	1,835	-	25,574	1.90
Switzerland	2,338	4,464	13,516	3,895	1,065	25,277	1.87
Netherlands	1,333	3,998	14,172	5,266	-	24,770	1.84
Ireland	227	1,373	19,290	2,623	1	23,513	1.74
Japan	956	496	12,400	232	-	14,084	1.04
Belgium	3,040	2,426	4,339	1,095	-	10,900	0.81
China	4,470	970	4,618	516	-	10,574	0.78
India	2,135	706	4,822	246	2,511	10,419	0.77
Canada	1,209	309	7,240	1,332	-	10,090	0.75

¹ Other includes commercial and industrial, insurance and other loans.

Dec 31, 2017

in € m. (unless stated otherwise)	Banks and other financial institutions	Governments and Official institutions	Other ¹	Commit- ments	Net local country claim	Total	in %
United States	15,972	18,597	168,590	9,482	110,721	323,362	21.92
Luxembourg	9,389	9,595	36,990	2,844	6,085	64,903	4.40
Great Britain	4,945	11,522	13,117	4,844	16,974	51,402	3.49
France	4,583	11,197	25,675	8,318	-	49,774	3.37
Italy	6,070	16,149	14,490	1,132	4,470	42,310	2.87
Netherlands	2,309	4,750	14,206	5,050	-	26,316	1.78
Spain	5,590	7,328	10,764	1,010	-	24,692	1.67
Switzerland	2,082	3,392	12,067	4,484	967	22,993	1.56
Ireland	594	2,071	19,387	1,150	2	23,203	1.57
Japan	1,297	264	18,408	262	-	20,231	1.37
Norway	438	259	11,269	490	-	12,457	0.84
China	4,386	793	6,206	635	-	12,020	0.81
Australia	1,571	286	9,493	391	-	11,741	0.80
India	2,584	917	5,497	704	1,960	11,662	0.79
Cayman Islands	57	597	6,292	1,150	3,031	11,127	0.75

¹ Other includes commercial and industrial, insurance and other loans.

IFRS 9 allowance for credit losses against financial assets at amortized cost

Breakdown of the movements in the Group's allowance for credit losses against financial assets at amortized cost

in € m. (unless stated otherwise)	2019	2018
Balance, beginning of year	4,259	4,596
Charge-offs:		
German:		
Agriculture, forestry and fishing	0	0
Mining and quarrying	0	0
Manufacturing	(38)	(55)
Electricity, gas, steam and air conditioning supply	(2)	0
Water supply, sewerage, waste management and remediation activities	0	0
Construction	(1)	(1)
Wholesale and retail trade, repair of motor vehicles and motorcycles	(3)	(22)
Transport and storage	(68)	(159)
Accommodation and food service activities	(0)	(0)
Information and communication	(0)	(0)
Financial and insurance activities	(1)	(12)
Real estate activities	(0)	(1)
Professional, scientific and technical activities	(0)	(0)
Administrative and support service activities	(0)	(0)
Public administration and defense, compulsory social security	0	0
Education	(0)	0
Human health services and social work activities	(0)	0
Arts, entertainment and recreation	(0)	0
Other service activities	(3)	(4)
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	(252)	(121)
Activities of extraterritorial organizations and bodies	0	0
German total	(370)	(375)
Non-German total	(528)	(619)
Total charge-offs	(898)	(995)
Recoveries:		
German:		
Agriculture, forestry and fishing	0	0
Mining and quarrying	0	0
Manufacturing	4	14
Electricity, gas, steam and air conditioning supply	0	0
Water supply, sewerage, waste management and remediation activities	0	0
Construction	0	1
Wholesale and retail trade, repair of motor vehicles and motorcycles	4	1
Transport and storage	6	6
Accommodation and food service activities	0	0
Information and communication	0	0
Financial and insurance activities	1	0
Real estate activities	1	3
Professional, scientific and technical activities	0	0
Administrative and support service activities	15	1
Public administration and defense, compulsory social security	0	0
Education	0	0
Human health services and social work activities	0	0
Arts, entertainment and recreation	0	0
Other service activities	1	9
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	46	65
Activities of extraterritorial organizations and bodies	0	0
German total	78	99
Non-German total	18	73
Total recoveries	96	172
Net charge-offs	(802)	(823)
Provision for loan losses	636	507
Other changes (i.e., exchange rate changes, changes in the group of consolidated companies)	0	(21)
Balance, end of year¹	4,093	4,259
Percentage of total net charge-offs to average loans for the year	0.21 %	0.24 %

¹ Fluctuation rate (Allowance for Credit Losses at end of reporting period/Total Loans at Amortized Costs before deduction of Allowance for Loan Losses at end of reporting period): 0.65 % for 2019 and 0.73 % for 2018,

Allowance for credit losses against financial assets at amortized cost subject to impairment dropped by € 166 million or 4 % in 2019 mainly driven by Stage 3:

Stage 1 allowances increased by €40 million or 8 % driven by an increase In Loans at Amortized Cost in Investment Bank and Private Bank.

Stage 2 allowances remained roughly stable with a slight decrease of €8 million or 2%.

Stage 3 allowances decreased by € 198 million or 6% driven by NPL sales in Private Bank as well as write-offs in shipping in Capital Release Unit, which were partly offset by new defaults in Corporate Bank and Investment Bank.

Allowance for credit losses against financial assets at amortized cost subject to impairment dropped by € 338 million or 7 % in 2018 mainly driven by Stage 3:

Stage 1 allowances increased by €47 million or 10 % driven by additional provisions in former CIB to reflect for a weakening macro-economic outlook as well as a one-off adjustment to the calculation methodology on certain loans on which we hold insurance protection.

Stage 2 allowances remained almost stable.

Stage 3 allowances decreased by € 391 million or 11 % driven by former CIB, where charge offs partly related to de-risking activities in our shipping portfolio overcompensated additional provisions.

The following table presents an analysis of the changes in the non-German component of the allowance for credit losses against financial assets at amortized cost. As of December 31, 2019, 55% of the Group's total allowance was attributable to non-German clients, compared to 57 % % at the beginning of the year.

Non-German component of the allowance for credit losses against financial assets at amortized cost

in € m.	2019	2018
Balance, beginning of year	2,434	2,760
Provision for loan losses	420	130
Net charge-offs	(510)	(547)
Charge-offs	(528)	(619)
Recoveries	18	73
Other changes (i.e., exchange rate changes, changes in the group of consolidated companies)	(107)	91
Balance, end of year	2,237	2,434

The following table presents the components of the Group's allowance for credit losses against financial assets at amortized cost by industry of the borrower, and the percentage of its total loan portfolio accounted for by those industry classifications, on the dates specified. The breakdown between German and non-German borrowers is based on the location of the borrowers.

Allowance for credit losses against financial assets at amortized cost by industry of the borrower

in € m.

(unless stated otherwise)

	Dec 31, 2019		Dec 31, 2018	
German:				
Agriculture, forestry and fishing	3	0 %	4	0 %
Mining and quarrying	1	0 %	2	0 %
Manufacturing	203	2 %	127	2 %
Electricity, gas, steam and air conditioning supply	1	0 %	3	0 %
Water supply, sewerage, waste management and remediation activities	4	0 %	4	0 %
Construction	39	0 %	38	0 %
Wholesale and retail trade, repair of motor vehicles and motorcycles	122	1 %	104	1 %
Transport and storage	32	0 %	105	0 %
Accommodation and food service activities	4	0 %	3	0 %
Information and communication	10	0 %	11	0 %
Financial and insurance activities	119	2 %	27	2 %
Real estate activities	47	2 %	53	2 %
Professional, scientific and technical activities	45	1 %	24	1 %
Administrative and support service activities	11	1 %	10	1 %
Public administration and defense, compulsory social security	0	1 %	0	1 %
Education	1	0 %	1	0 %
Human health services and social work activities	7	1 %	7	1 %
Arts, entertainment and recreation	1	0 %	1	0 %
Other service activities	11	0 %	11	1 %
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	1,197	34 %	1,291	34 %
Activities of extraterritorial organizations and bodies	0	0 %	0	0 %
German total	1,857	47 %	1,825	48 %
Non-German:				
Non-German total	2,236	53 %	2,434	52 %
Total allowance for loan losses	4,093		4,259	

Allowance for loan losses (comparables as reported under IAS 39)

Breakdown of the movements in the Group's allowance for loan losses

in € m.
(unless stated otherwise)

	2017	2016	2015
Balance, beginning of year	4,546	5,028	5,212
Charge-offs:			
German:			
Financial intermediation	(1)	(1)	(3)
Manufacturing	(6)	(49)	(32)
Wholesale and retail trade	(12)	(10)	(24)
Households (excluding mortgages)	(149)	(309)	(276)
Households – mortgages	(53)	(90)	(107)
Commercial real estate activities	(1)	(6)	(30)
Public sector	0	(0)	0
Other	(68)	(156)	(75)
German total	(291)	(621)	(547)
Non-German total	(854)	(1,330)	(708)
Total charge-offs	(1,146)	(1,951)	(1,255)
Recoveries:			
German:			
Financial intermediation	0	0	0
Manufacturing	8	6	14
Wholesale and retail trade	3	3	3
Households (excluding mortgages)	19	22	33
Households – mortgages	40	44	39
Commercial real estate activities	11	5	7
Public sector	0	0	0
Other	17	13	14
German total	100	94	110
Non-German total	27	93	51
Total recoveries	127	187	161
Net charge-offs	(1,019)	(1,764)	(1,094)
Provision for loan losses	552	1,347	882
Other changes (i.e., exchange rate changes, changes in the group of consolidated companies)	(158)	(65)	28
Balance, end of year¹	3,921	4,546	5,028
Percentage of total net charge-offs to average loans for the year	0.25 %	0.43 %	0.25 %

¹ Fluctuation rate (Allowance for Loan Losses at end of reporting period/Total Loans before deduction of Allowance for Loan Losses at end of reporting period): 0.97 % for 2017, 1.10 % for 2016 and 1.16 % for 2015.

The Group's allowance for loan losses as of December 31, 2017 was €3.9 billion, 55 % of which was related to collectively assessed and 45 % to individually assessed loan losses. The reduction in the allowance for loan losses of €625 million compared to prior year end was driven by €1.1 billion net charge-offs, partly offset by €552 million of additional loan loss provisions.

The decrease in our individually assessed loan portfolio mainly resulted from former CIB, driven by all portfolios including shipping. Despite the year-over-year reduction, shipping continued to be the main driver of provision for credit losses in 2017, in part related to the re-evaluation of the respective impairment method during the year as discussed in Note 1 "Significant accounting policies and critical accounting estimates" to the consolidated financial statements. A further year-over-year reduction in former PCB was driven by a release in former Postbank. The decrease in provisions for our collectively assessed loan portfolio mainly resulted from the non-recurrence of one-off items related to assets reported under former NCOU in prior year and further reflected the good portfolio quality and ongoing benign economic environment in former PCB.

The decrease in 2017 in net charge-offs of €745 million compared to 2016 was mainly driven by non-recurrence of net charge offs related to assets reported under former NCOU in 2016.

The Group's allowance for loan losses as of December 31, 2016 was €4.5 billion, 54 % of which was related to collectively assessed and 46 % to individually assessed loan losses. The reduction in the allowance for loan losses of €482 million compared to prior year end was driven by €1.8 billion net charge-offs, partly offset by €1.3 billion of additional loan loss provisions.

Provision for loan losses increased by €465 million in 2016 compared to 2015. The increase in our individually assessed portfolio mainly resulted from CIB reflecting the continued market weakness of the shipping sector as well as lower commodity prices in the metals and mining and oil and gas sectors. The increase in provisions for our collectively assessed loan portfolio was mainly driven by former NCOU partly relating to higher charges for IAS 39 reclassified assets and partly offset by former PCB, among other factors reflecting the good quality of the loan book and the benign economic environment.

The increase in net charge-offs of €670 million compared to prior year is mainly driven by former NCOU caused by IAS 39 reclassified assets along with disposals.

Our allowance for loan losses for IAS 39 reclassified assets, which were reported in former NCOU, amounted to €69 million as of December 31, 2016, representing 2 % of our total allowance for loan losses, down 82 % from the level at the end of 2015 which amounted to €389 million (8 % of total allowance for loan losses). This reduction was driven by charge offs of €355 million along with reduction driven by foreign exchange as most IAS 39 reclassified assets are denominated in non-Euro currencies and was partly offset by additional provisions of €66 million.

Compared to 2015, provision for loan losses for IAS 39 reclassified assets increased by €110 million mainly related to our European Mortgage Portfolios. Net Charge offs increased by €242 million mainly driven by the European Mortgage portfolio and one large single booking.

The following table presents an analysis of the changes in the non-German component of the allowance for loan losses. As of December 31, 2017, 61 % of the Group's total allowance was attributable to non-German clients compared to 67 % as of December 31, 2016.

Non-German component of the allowance for loan losses

in € m.	2017	2016	2015
Balance, beginning of year	3,057	3,345	3,339
Provision for loan losses	278	1,004	612
Net charge-offs	(828)	(1,238)	(657)
Charge-offs	(854)	(1,330)	(708)
Recoveries	27	93	51
Other changes (i.e., exchange rate changes, changes in the group of consolidated companies)	(114)	(54)	51
Balance, end of year	2,394	3,057	3,345

The following table presents the components of the Group's allowance for loan losses by industry of the borrower, and the percentage of its total loan portfolio accounted for by those industry classifications, on the dates specified. The breakdown between German and non-German borrowers is based on the location of the borrowers.

Allowance for loan losses by industry of the borrower

in € m. (unless stated otherwise)	Dec 31, 2017		Dec 31, 2016		Dec 31, 2015	
German:						
Individually assessed loan loss allowance:						
Financial intermediation	0	1 %	0	1 %	0	1 %
Manufacturing	133	2 %	139	2 %	196	2 %
Households (excluding mortgages)	2	4 %	11	4 %	98	4 %
Households – mortgages	3	30 %	5	29 %	6	27 %
Public sector	0	2 %	0	3 %	0	3 %
Wholesale and retail trade	86	2 %	74	1 %	84	1 %
Commercial real estate activities	59	2 %	45	2 %	48	5 %
Other ¹	317	6 %	289	5 %	216	3 %
Individually assessed loan loss allowance						
German total	600		563		647	
Collectively assessed loan loss allowance	927		926		1,035	
German total	1,527	49 %	1,489	48 %	1,683	47 %
Non-German:						
Individually assessed loan loss allowance	1,166		1,508		1,604	
Collectively assessed loan loss allowance	1,228		1,549		1,741	
Non-German total	2,394	51 %	3,057	52 %	3,345	53 %
Total allowance for loan losses	3,921	100 %	4,546	100 %	5,028	100 %
Total individually assessed loan loss allowance	1,766		2,071		2,252	
Total collectively assessed loan loss allowance	2,155		2,475		2,776	
Total allowance for loan losses	3,921		4,546		5,028	

¹ Includes mainly Transportation and Services.

Deposits

The amount of other time deposits in the amount of U.S.\$ 100,000 or more in offices in Germany was €60.3 billion as of December 31, 2019, of which €22.8 billion had maturities of three months or less, €12.1 billion had maturities over three months but less than six months, €14.7 billion had maturities of over six months but less than one year and €10.7 billion had maturities of over one year. The amount of certificates of deposits in the amount of U.S.\$ 100,000 or more in offices in Germany was €40 million as of December 31, 2019, having maturities of three months or less.

The amount of certificates of deposits and other time deposits in the amount of U.S.\$ 100,000 or more issued by non-German offices was €31.1 billion as of December 31, 2019.

Total deposits by foreign depositors in German offices were €43.4 billion, €40.5 billion and €38.3 billion as of December 31, 2019, 2018 and 2017, respectively.

Return on equity and assets

	2019	2018	2017
Return on average shareholders' equity (post-tax) ¹	(8.96)%	0.43%	(1.17)%
Return on average total assets (post-tax) ²	(0.38)%	0.02%	(0.05)%
Equity to assets ratio ³	4.21%	4.32%	4.09%
Dividend payout ratio: ⁴			
Basic earnings per share	N/M	N/M	N/M
Diluted earnings per share	N/M	N/M	N/M

N/M – Not meaningful

¹ Net income (loss) attributable to Deutsche Bank shareholders as a percentage of average shareholders' equity.

² Net income (loss) attributable to Deutsche Bank shareholders as a percentage of average total assets.

³ Average shareholders' equity as a percentage of average total assets for each year.

⁴ Dividends paid per share in respect of each year as a percentage of the Group's basic and diluted earnings per share for that year.

Short-term borrowings with an original maturity of one year or less

The difference between the period-end and average balances for central bank funds purchased and securities sold under repurchase agreements mainly arises from fluctuating activity with respect to fixed income securities positions within Corporate Bank and Investment Bank divisions. Intra-quarter trading volume, which increases the monthly averages relative to quarter-end and year-end, predominantly comprises financing of short-term positions in highly liquid U.S. Treasuries and Agencies, which is a result of the Bank providing liquidity to the market via market-making activity and is largely driven by client demand. These U.S. Treasury and Agency positions are very low risk and have negligible impact on the firm's liquidity and capital position.

in € m.

(unless stated otherwise)

	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017
Central bank funds purchased and securities sold under repurchase agreements:			
Balance, end of year	3,115	4,867	18,105
Average balance ¹	5,374	13,721	19,619
Maximum balance at any month-end	10,581	21,281	25,137
Weighted-average interest rate during the year	6.76%	2.73%	2.07%
Weighted-average interest rate on year-end balance	1.13%	1.21%	0.58%
Securities loaned:			
Balance, end of year	259	3,359	6,688
Average balance ¹	2,338	6,246	5,540
Maximum balance at any month-end	3,620	9,036	9,823
Weighted-average interest rate during the year	3.16%	2.26%	(1.35)%
Weighted-average interest rate on year-end balance	1.77%	1.90%	0.03%
Commercial paper:			
Balance, end of year	1,585	2,752	5,274
Average balance ¹	2,142	4,909	4,775
Maximum balance at any month-end	2,476	6,221	5,665
Weighted-average interest rate during the year	1.45%	0.39%	0.42%
Weighted-average interest rate on year-end balance	1.84%	0.60%	0.31%
Other:			
Balance, end of year	3,633	11,406	13,137
Average balance ¹	9,952	12,747	14,398
Maximum balance at any month-end	12,720	13,907	16,125
Weighted-average interest rate during the year	1.32%	0.93%	0.80%
Weighted-average interest rate on year-end balance	1.30%	0.59%	0.40%

¹ Based upon month-end balances.

Imprint

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