# Deutsche Börse AG
# Consolidated financial statements and notes as at 31 December 2018

# Consolidated income statement

for the period 1 January to 31 December 2018

| | Note | 2018<br>€m | 2017<br>(restated)[1]<br>€m |
|---|---|---|---|
| Sales revenue | 4 | 2,893.9 | 2,643.6 |
| Net interest income from banking business | 4 | 204.5 | 132.6 |
| Other operating income | 4 | 34.0 | 26.3 |
| **Total revenue** | | **3,132.4** | **2,802.5** |
| | | | |
| Volume-related costs | 4 | –352.7 | –340.2 |
| **Net revenue (total revenue less volume-related costs)** | | **2,779.7** | **2,462.3** |
| | | | |
| Staff costs | 5 | –824.0 | –650.5 |
| Other operating expenses | 6 | –516.2 | –481.1 |
| **Operating costs** | | **–1,340.2** | **–1,131.6** |
| | | | |
| Net income from strategic investments | 8 | 4.2 | 197.8 |
| **Earnings before interest, tax, depreciation and amortisation (EBITDA)** | | **1,443.7** | **1,528.5** |
| | | | |
| Depreciation, amortisation and impairment losses | 11, 12 | –210.5 | –159.9 |
| **Earnings before interest and tax (EBIT)** | | **1,233.2** | **1,368.6** |
| | | | |
| Financial income | 9 | 7.4 | 6.6 |
| Financial expense | 9 | –83.8 | –86.3 |
| **Earnings before tax (EBT)** | | **1,156.8** | **1,288.9** |
| | | | |
| Other tax | | –0.6 | –1.5 |
| Income tax expense | 10 | –303.7 | –391.4 |
| **Net profit for the period** | | **852.5** | **896.0** |
| thereof net profit for the period attributable to Deutsche Börse AG shareholders | | 824.3 | 874.3 |
| thereof net profit for the period attributable to non-controlling interests | | 28.2 | 21.7 |
| | | | |
| **Earnings per share (basic) (€)** | **23** | **4.46** | **4.68** |
| **Earnings per share (diluted) (€)** | **23** | **4.46** | **4.68** |

1) For details regarding the restated figures, please see note 3.

# Consolidated statement of comprehensive income

for the period 1 January to 31 December 2018

| | Note | 2018<br>€m | 2017<br>(restated)<br>€m |
|---|---|---|---|
| **Net profit for the period reported in consolidated income statement** | | **852.5** | **896.0** |
| | | | |
| **Items that will not be reclassified to profit or loss** | | | |
| Changes from defined benefit obligations | | –23.9 | 30.6 |
| Equity investments measured at FVOCI[1] | | –7.2 | 0 |
| Other | | –0.3 | 0 |
| Deferred taxes | 10, 15 | 6.8 | –8.4 |
| | | **–24.6** | **22.2** |
| **Items that may be reclassified subsequently to profit or loss** | | | |
| Exchange rate differences | 15 | 12.8 | –27.8 |
| Other comprehensive income from investments using the equity method | | –0.4 | 0.9 |
| Remeasurement of cash flow hedges | | 0 | 3.5 |
| Remeasurement of other financial instruments | | 0 | –89.5 |
| Deferred taxes | 10, 15 | –3.9 | 46.9 |
| | | **8.5** | **–66.0** |
| **Other comprehensive income after tax** | | **–16.1** | **–43.8** |
| | | | |
| **Total comprehensive income** | | **836.4** | **852.2** |
| thereof Deutsche Börse AG shareholders | | 806.4 | 835.9 |
| thereof non-controlling interests | | 30.0 | 16.3 |

1) FVOCI = fair value through other comprehensive income

# Consolidated balance sheet

as at 31 December 2018

## Assets

| | Note | 31 Dec 2018 | 1 Jan 2018 | 31 Dec 2017 (restated) |
|---|---|---|---|---|
| | | €m | €m | €m |
| NON-CURRENT ASSETS | | | | |
| **Intangible assets** | 11 | | | |
| Software | | 321.0 | 322.1 | 322.1 |
| Goodwill | | 2,865.6 | 2,770.9 | 2,770.9 |
| Payments on account and assets under development | | 52.3 | 86.8 | 86.8 |
| Other intangible assets | | 952.7 | 911.2 | 911.2 |
| | | **4,191.6** | **4,091.0** | **4,091.0** |
| **Property, plant and equipment** | 12 | | | |
| Fixtures and fittings | | 31.3 | 34.8 | 34.8 |
| Computer hardware, operating and office equipment | | 84.8 | 76.4 | 76.4 |
| Payments on account and construction in progress | | 14.8 | 2.2 | 2.2 |
| | | **130.9** | **113.4** | **113.4** |
| **Financial assets** | 13 | | | |
| Equity investments measured at FVOCI | | 108.8 | 101.6 | – |
| Debt financial assets measured at amortised cost | | 1,057.1 | 1,574.1 | – |
| Financial assets at FVPL | | | | |
| Financial instruments held by central counterparties | | 9,985.4 | 4,837.2 | 4,837.2 |
| Derivatives | | 0 | 0.1 | 0.1 |
| Other financial debt assets at FVPL | | 17.3 | 15.9 | 1.2 |
| Available-for-sale financial assets | | – | – | 1,692.0 |
| Loans and receivables | | – | – | 4.9 |
| | | **11,168.6** | **6,528.9** | **6,535.4** |
| Investment in associates and joint ventures | | 42.5 | 38.7 | 38.7 |
| Other non-current assets | | 4.1 | 4.1 | 4.1 |
| Deferred tax assets | 10 | 104.3 | 104.0 | 101.1 |
| **Total non-current assets** | | **15,642.0** | **10,880.1** | **10,883.7** |
| CURRENT ASSETS | | | | |
| **Debt financial assets measured at amortised cost** | 13 | | | |
| Trade receivables | | 397.5 | 333.3 | 331.8 |
| Other financial assets at amortised cost | | 19,722.6 | 13,172.7 | – |
| **Financial assets at FVPL** | 13 | | | |
| Financial instruments held by central counterparties | | 94,280.3 | 79,510.7 | 79,510.7 |
| Derivatives | | 4.7 | 5.2 | 5.2 |
| Other financial assets at FVPL | | 0.4 | 1.5 | 0 |
| Available-for-sale financial assets | 13 | – | – | 254.5 |
| Loans and receivables | | – | – | 12,922.9 |
| Income tax assets | | 55.9 | 91.3 | 91.3 |
| Other current assets | 14 | 639.8 | 451.7 | 451.7 |
| | | **115,101.2** | **93,566.4** | **93,568.1** |
| Restricted bank balances | 13 | 29,833.6 | 29,392.0 | 29,392.0 |
| Other cash and bank balances | | 1,322.3 | 1,297.6 | 1,297.6 |
| **Total current assets** | | **146,257.1** | **124,256.0** | **124,257.7** |
| **Total assets** | | **161,899.1** | **135,136.1** | **135,141.4** |

## Equity and liabilities

| | Note | 31 Dec 2018 €m | 1 Jan 2018 €m | 31 Dec 2017 (restated) €m |
|---|---|---|---|---|
| **EQUITY** | 15 | | | |
| Subscribed capital | | 190.0 | 193.0 | 193.0 |
| Share premium | | 1,340.4 | 1,332.3 | 1,332.3 |
| Treasury shares | | –477.7 | –334.6 | –334.6 |
| Revaluation surplus | | –10.2 | 14.4 | 19.6 |
| Accumulated profit | | 3,787.4 | 3,624.2 | 3,631.0 |
| **Shareholders' equity** | | **4,829.9** | **4,829.3** | **4,841.3** |
| Non-controlling interests | | 133.5 | 118.1 | 118.1 |
| **Total equity** | | **4,963.4** | **4,947.4** | **4,959.4** |
| **NON-CURRENT LIABILITIES** | | | | |
| Provisions for pensions and other employee benefits | 17 | 164.1 | 144.2 | 144.2 |
| Other non-current provisions | 18, 19 | 184.3 | 120.3 | 120.3 |
| Financial liabilities measured at amortised cost | 13 | 2,283.2 | 1,688.4 | 1,688.4 |
| Financial liabilities at FVPL | 13 | | | |
| Financial instruments held by central counterparties | | 9,985.4 | 4,837.2 | 4,837.2 |
| Other financial liabilities at FVPL | | 0.2 | 0.8 | 0.8 |
| Other non-current liabilities | | 17.0 | 16.8 | 6.1 |
| Deferred tax liabilities | 10 | 194.5 | 225.4 | 226.8 |
| **Total non-current liabilities** | | **12,828.7** | **7,033.1** | **7,023.8** |
| **CURRENT LIABILITIES** | | | | |
| Tax provisions[1) 2)] | | 334.8 | 339.4 | 339.4 |
| Other current provisions | 20 | 293.2 | 191.6 | 191.6 |
| Financial liabilities at amortised cost | 13 | | | |
| Trade payables | | 195.0 | 150.1 | 150.1 |
| Other financial liabilities at amortised cost | | 19,024.7 | 13,976.2 | 13,976.2 |
| Financial liabilities at FVPL | 13 | | | |
| Financial instruments held by central counterparties | | 94,068.3 | 78,798.6 | 78,798.6 |
| Derivatives | | 3.0 | 29.1 | 32.0 |
| Other financial liabilities at FVPL | | 0 | 0.3 | 0 |
| Cash deposits by market participants | 13 | 29,559.2 | 29,215.3 | 29,215.3 |
| Other current liabilities | 21 | 628.8 | 455.0 | 455.0 |
| **Total current liabilities** | | **144,107.0** | **123,155.6** | **123,158.2** |
| **Total liabilities** | | **156,935.7** | **130,188.7** | **130,182.0** |
| **Total equity and liabilities** | | **161,899.1** | **135,136.1** | **135,141.4** |

1) Thereof income tax expense: €295.8 million (2017: €299.6 million)
2) Thereof non-current provisions: €104.7 million (2017: €104.6 million)

# Consolidated cash flow statement

for the period 1 January to 31 December 2018

| | Note | 2018<br>€m | 2017<br>€m |
|---|---|---|---|
| Net profit for the period | | 852.5 | 896.0 |
| Depreciation, amortisation and impairment losses | 11, 12 | 210.5 | 159.9 |
| Increase in non-current provisions | | 59.7 | 10.2 |
| Deferred tax income | 10 | –36.0 | –20.6 |
| Other non-cash income | | –21.3 | –96.4 |
| Changes in working capital, net of non-cash items: | | 105.7 | 156.6 |
| (Increase)/decrease in receivables and other assets | | –8.8 | 7.9 |
| Increase in current liabilities | | 113.6 | 148.2 |
| Increase in non-current liabilities | | 0.9 | 0.5 |
| Net loss on disposal of non-current assets | | 5.4 | 1.5 |
| **Cash flows from operating activities excluding CCP positions** | | **1,176.5** | **1,107.2** |
| Changes in liabilities from CCP positions | | – 1,676.0 | – 323.2 |
| Changes in receivables from CCP positions | | 1,797.7 | 272.2 |
| **Cash flows from operating activities** | 22 | **1,298.2** | **1,056.2** |
| | | | |
| Payments to acquire intangible assets | | –94.8 | –106.1 |
| Payments to acquire property, plant and equipment | | –65.2 | –43.1 |
| Payments to acquire non-current financial instruments | | –38.7 | –312.4 |
| Payments to acquire investments in associates and joint ventures | | –4.8 | –10.4 |
| Payments to acquire subsidiaries, net of cash acquired | | –169.2 | –157.5 |
| Effects of the disposal of (shares in) subsidiaries, net of cash disposed | | –0.4 | 0 |
| Net decrease/(net increase) in current receivables and securities from banking business with an original term greater than three months | | 655.1 | –47.7 |
| Net increase in current liabilities from banking business with an original term greater than three months | | 250.3 | 0 |
| Proceeds from disposals of non-current financial instruments | | 259.5 | 859.1 |
| Proceeds from disposals of intangible assets | | 0.2 | 0 |
| **Cash flows from investing activities** | 22 | **792.0** | **181.9** |
| | | | |
| Purchase of treasury shares | | –364.2 | –28.2 |
| Proceeds from sale of treasury shares | | 6.5 | 5.5 |
| Payments to non-controlling interests | | –14.9 | –39.3 |
| Proceeds from non-controlling interests | | 0.6 | 0 |
| Repayment of long-term financing | | –600.0 | 0 |
| Proceeds from long-term financing | | 592.4 | 0 |
| Dividends paid | | –453.3 | –439.0 |
| **Cash flows from financing activities** | 22 | **–832.9** | **–501.0** |
| | | | |
| **Net change in cash and cash equivalents** | | **1,257.3** | **737.1** |

| | Note | 2018<br>€m | 2017<br>€m |
|---|---|---|---|
| **Net change in cash and cash equivalents (brought forward)** | | **1,257.3** | **737.1** |
| | | | |
| Effect of exchange rate differences | | 1.5 | –10.0 |
| Cash and cash equivalents at beginning of period | | 580.2 | –146.9 |
| **Cash and cash equivalents at end of period** | 22 | **1,839.0** | **580.2** |
| | | | |
| Interest-similar income received | | 435.1 | 362.7 |
| Dividends received | | 6.7 | 8.6 |
| Interest paid | | –312.0 | –295.8 |
| Income tax paid | | –303.3 | –308.8 |

# Consolidated statement of changes in equity

for the period 1 January to 31 December 2018

| | Attributable to Deutsche Börse AG shareholders | | |
|---|---|---|---|
| | Subscribed capital €m | Share premium €m | Treasury shares €m |
| **Balance as at 1 January 2017** | 193.0 | 1,327.8 | –311.4 |
| Net profit for the period | 0 | 0 | 0 |
| Other comprehensive income after tax | 0 | 0 | 0 |
| **Total comprehensive income** | **0** | **0** | **0** |
| | | | |
| Exchange rate differences and other adjustments | 0 | 0 | 0 |
| Purchase of treasury shares | 0 | 0 | –28.2 |
| Sale of treasury shares | 0 | 4.5 | 0 |
| Sales under the Group Share Plan | 0 | 0 | 5.0 |
| Changes due to capital increases/decreases | 0 | 0 | 0 |
| Acquisition in the interest of non-controlling shareholders in European Energy Exchange AG | 0 | 0 | 0 |
| Dividends paid | 0 | 0 | 0 |
| **Transactions with shareholders** | **0** | **4.5** | **–23.2** |
| **Balance as at 31 December 2017** | **193.0** | **1,332.3** | **–334.6** |
| | | | |
| Effects of first-time adoption of IFRS 9 and IFRS 15 as at 1 January 2018 | 0 | 0 | 0 |
| | | | |
| **Balance as at 1 January 2018** | **193.0** | **1,332.3** | **–334.6** |
| Net profit for the period | 0 | 0 | 0 |
| Other comprehensive income after tax | 0 | 0 | 0 |
| **Total comprehensive income** | **0** | **0** | **0** |
| | | | |
| Exchange rate differences and other adjustments | 0 | 0 | 0 |
| Purchase of treasury shares | 0 | 0 | –364.2 |
| Sale of treasury shares | 0 | 5.1 | 0 |
| Withdrawal of treasury shares | –3.0 | 3.0 | 215.4 |
| Sales under the Group Share Plan | 0 | 0 | 5.7 |
| Changes due to capital increases/decreases | 0 | 0 | 0 |
| Dividends paid | 0 | 0 | 0 |
| **Transactions with shareholders** | **–3.0** | **8.1** | **–143.1** |
| **Balance as at 31 December 2018** | **190.0** | **1,340.4** | **–477.7** |

| | Attributable to Deutsche Börse AG shareholders | | | | |
|---|---|---|---|---|---|
| | Revaluation surplus €m | Accumulated profit €m | Shareholders' equity €m | Non-controlling interests €m | Total equity €m |
| | 41.5 | 3,230.1 | 4,481.0 | 142.2 | 4,623.2 |
| | 0 | 874.3 | 874.3 | 21.7 | 896.0 |
| | –21.9 | –16.5 | –38.4 | –5.4 | –43.8 |
| | –21.9 | 857.8 | 835.9 | 16.3 | 852.2 |
| | | | | | |
| | 0 | –11.4 | –11.4 | 0.6 | –10.8 |
| | 0 | 0 | –28.2 | 0 | –28.2 |
| | 0 | 0 | 4.5 | 0 | 4.5 |
| | 0 | 0 | 5.0 | 0 | 5.0 |
| | 0 | 0 | 0 | –48.3 | –48.3 |
| | 0 | –6.5 | –6.5 | 7.3 | 0.8 |
| | 0 | –439.0 | –439.0 | 0 | –439.0 |
| | 0 | –456.9 | –475.6 | –40.4 | –516.0 |
| | 19.6 | 3,631.0 | 4,841.3 | 118.1 | 4,959.4 |
| | | | | | |
| | –5.2 | –6.8 | –12.0 | 0 | –12.0 |
| | | | | | |
| | 14.4 | 3,624.2 | 4,829.3 | 118.1 | 4,947.4 |
| | 0 | 824.3 | 824.3 | 28.2 | 852.5 |
| | –24.6 | 6.7 | –17.9 | 1.8 | –16.1 |
| | –24.6 | 831.0 | 806.4 | 30.0 | 836.4 |
| | | | | | |
| | 0 | 0.9 | 0.9 | 0.3 | 1.2 |
| | 0 | 0 | –364.2 | 0 | –364.2 |
| | 0 | 0 | 5.1 | 0 | 5.1 |
| | 0 | –215.4 | 0 | 0 | 0 |
| | 0 | 0 | 5.7 | 0 | 5.7 |
| | 0 | 0 | 0 | –14.9 | –14.9 |
| | 0 | –453.3 | –453.3 | 0 | –453.3 |
| | 0 | –667.8 | –805.8 | –14.6 | –820.4 |
| | –10.2 | 3,787.4 | 4,829.9 | 133.5 | 4,963.4 |

# Notes to the consolidated financial statements
# Basis of preparation

## 1. General principles

### Company information

Deutsche Börse AG (the "company") has its registered office in Frankfurt/Main, and is registered in the commercial register B of the Frankfurt/Main Local Court (Amtsgericht Frankfurt am Main) under HRB 32232. Deutsche Börse AG is the parent company of Deutsche Börse Group. Deutsche Börse AG and its subsidiaries operate cash and derivatives markets. Its business areas range from pre-IPO and growth financing services, the admission of securities to listing, through trading, clearing and settlement, down to custody of securities. Furthermore, IT services are provided and market data distributed. For details regarding internal organisation and reporting see note 24.

### Basis of reporting

The 2018 consolidated financial statements have been prepared in compliance with the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) and the related interpretations issued by the International Financial Reporting Standards Interpretations Committee (IFRIC), as adopted by the European Union in accordance with Regulation No. 1606/2002 of the European Parliament and of the Council on the application of international accounting standards.

The disclosures required in accordance with Handelsgesetzbuch (HGB, German Commercial Code) section 315e (1) have been presented in the notes to the consolidated financial statements and the remuneration report of the combined management report. The consolidated financial statements are also based on the interpretations issued by the Rechnungslegungs Interpretations Committee (RIC, Accounting Interpretations Committee) of the Deutsches Rechnungslegungs Standards Committee e.V. (Accounting Standards Committee of Germany), to the extent that these do not contradict the standards and interpretations issued by the IFRIC or the IASB.

### New accounting standards – implemented in the year under review

In the 2018 reporting period, the following standards and interpretations issued by the IASB and adopted by the European Commission were applied to Deutsche Börse Group. This adoption did not constitute an early adoption.

**Amendments to IFRS 2 "Classification and Measurement of Share-Based Payments" (June 2016)**
The amendments affect the accounting for cash-settled share-based payment transactions. The most important amendment to IFRS 2 is the clarification on how to determine the fair value of liabilities for share-based payments.

**IFRS 9 “Financial Instruments” (July 2014)**
IFRS 9 introduces new requirements for the recognition and measurement of financial instruments.

**IFRS 15 “Revenue from Contracts with Customers” (May 2014 plus clarification dated April 2016)**
IFRS 15 specifies the recognition of revenue from contracts with customers.

The changes in accounting policies resulting from first-time adoption of IFRS 9 and IFRS 15 are set out in note 3.

**Amendments resulting from the “Annual Improvements Project 2014–2016” (December 2016)**
The amendments relate to three standards; the first-time application of the amendments to IFRS 1 and IAS 28 was obligatory as of the year 2018. IAS 28 clarifies that the option to measure an investment in an associate venture or a joint venture held by a venture capital company or by another qualifying entity may be exercised differently for each investment.

**IFRIC 22 “Foreign Currency Transactions and Advance Consideration” (December 2016)**
IFRIC 22 addresses a question on the application of IAS 21 “The Effects of Changes in Foreign Exchange Rates”. It clarifies at which point in time the exchange rate is to be determined for the translation of transactions into foreign currencies containing advance payments received or made. The exchange rate for the underlying asset, income or expense is determined by reference to the point in time on which the asset or liability resulting from the prepayment is recognised for the first time.

The application of the above-mentioned standards and interpretations has no material effect on the presentation of the consolidated financial statements. Amendments to IAS 40 “Transfers of Investment Property” have no effect on the presentation of the consolidated financial statements.

## New accounting standards – not yet implemented

The following standards and interpretations, which are relevant to Deutsche Börse Group but which have not been adopted early by the Group for 2018, have been published by the IASB prior to the publication of this financial report and partially adopted by the European Commission.

The following standards were already adopted by the European Commission:

**IFRS 16 “Leases” (January 2016)**
IFRS 16 establishes principles for the recognition, measurement, presentation and disclosure of leases. The objective of IFRS 16 is to ensure that lessees and lessors provide relevant information on the effects of lease contracts. The standard must be applied for financial years beginning on or after 1 January 2019; earlier application is permitted. Deutsche Börse Group will apply the standard as from 1 January 2019. The standard was adopted by the EU on 31 October 2017.

Deutsche Börse Group as lessee expects a material impact on its consolidated financial statements from the first-time application of the new leasing standard. IFRS 16 introduces a single lessee accounting model. According to this approach, the lessee is obliged to recognise all leases: first, the lessee recognises the right-of-use asset, i.e. the lessee's right to use the leased asset; second, the lessee recognises the lease liability, i.e. the lessee's obligation to make lease payments.

As a result of the recognition of right-of-use assets and the corresponding lease liabilities, Deutsche Börse Group's total assets are expected to increase, as at the date of conversion, by around €300 million. Of this amount, approximately €5 million refer to lease agreements for company cars; the remainder refers to long-term arrangements for office properties and data centres.

Furthermore, the type of expenses associated with such leases will change as well: going forward, Deutsche Börse Group will recognises a right-of-use asset less any accumulated depreciation and any accumulated impairment losses as well as interest expenses from lease liabilities instead of rental and lease expenses recognised in other operating expenses. These changes are expected to amount to around €55 million, and will ultimately lead to an improvement of earnings before interest, tax, depreciation and amortisation (EBITDA).

Deutsche Börse Group will make use of the general practical expedients provided by IFRS 16:

- All arrangements identified as leases in the past will continue to be classified as such.
- Short-term leases (lease term of less than twelve months) and leased assets of low value are not recorded as right-of-use asset or lease liability, respectively.

Value-added tax included in lease payments is included neither in the lease liabilities nor in the carrying amount of the right-of-use asset, regardless of whether Deutsche Börse Group is entitled to make deduct input taxes or not.

As at the date of first-time adoption of IFRS 16, Deutsche Börse Group will proceed as follows:

- The transition is based on the modified retrospective approach; prior-year figures are not restated.
- The present value of the lease liabilities is calculated on the basis of the future lease payments using the incremental borrowing rate. A uniform rate is selected for similar leases.
- The measurement of the right-of-use asset is calculated on the basis of the individual agreements, either retrospectively using the interest rate applied upon first-time adoption or on the basis of the restated lease liabilities. The cumulative effects from first-time adoption of the new standard are recorded as at the date of first-time adoption directly in equity. This results in an effect as at 1 January 2019 of around €10 million. The right-of-use asset is adjusted for provisions from the charges of lease agreements.

- In the case of agreements with a remaining term of less than twelve months at the date of first-time adoption, a decision is made on an individual agreement level.
- Initial direct costs are not taken into account in the right-of-use asset.

**Amendments to IFRS 9 "Prepayment Features with Negative Compensation" (October 2017)**
The amendments regarding prepayment features with negative compensation must be applied for financial years beginning on or after 1 January 2019; earlier application is permitted. The amendments were adopted by the EU on 22 March 2018.

**IFRIC 23 "Uncertainty over Income Tax Treatments" (June 2017)**
This interpretation is to be applied to the determination of current and deferred tax assets and liabilities, in case of uncertainty over income tax treatments. IFRIC 23 must be applied for financial years beginning on or after 1 January 2019; earlier application is permitted. This interpretation was adopted by the EU on 23 October 2018.

**Amendments to IAS 28 "Long-term Interests in Associates and Joint Ventures" (October 2017)**
These amendments clarify that an entity applies IFRS 9 to long-term interests in an associate or joint venture that form part of the net investment in the associate or joint venture but to which the equity method is not applied. The amendments must be applied for financial years beginning on or after 1 January 2019; earlier application is permitted. The amendments were adopted by the EU on 8 February 2019.

The following standards have not yet been adopted by the European Commission:

**Amendments to IFRS 3 "Definition of a Business" (October 2018)**
The amendments aim at resolving the difficulties that arise when an entity determines whether it has acquired a business or a group of assets. The amendments are effective for business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after 1 January 2020. The amendments have not yet been adopted by the EU.

**Amendments to IAS 1 and IAS 8 "Definition of Material" (October 2018)**
The definition of the term "material" – regarding materiality of information – was specified in more detail. Furthermore, the various definitions in the Framework and the Standards were harmonised. The amendments must be applied for financial years beginning on or after 1 January 2020; earlier application is permitted. The amendments have not yet been adopted by the EU.

**Amendments to IFRS 10 and IAS 28 "Sales or Contributions of Assets Between an Investor and its Associate/Joint Venture" (September 2014)**
The amendments clarify that the extent to which gains or losses are recognised for transactions with an associate or joint venture depends on whether the assets sold or contributed constitute a business operation. The application date has been postponed indefinitely.

**IFRS 17 "Insurance Contracts" (May 2017)**
IFRS 17 establishes the principles for the recognition, measurement, presentation and disclosure of insurance contracts. The objective of IFRS 17 is to ensure that an entity provides relevant information that faithfully represents insurance contracts. The standard must be applied for financial years beginning on or after 1 January 2021, and has not yet been adopted by the EU.

**Amendments resulting from the "Annual Improvements Project 2015–2017" (December 2017)**
Four standards are affected by these amendments:

The amendments to IFRS 3 clarify that when an entity obtains control of a business in which it has previously had a participating interest as part of a joint operation, such entity must apply the principles for successive business combinations. The interest previously held by the acquirer must be remeasured.

For IFRS 11, it is clarified that when a party obtains joint control of a business operation in which it has previously had an interest as part of a joint operation, such party does not have to remeasure the interest previously held.

IAS 12 will be amended so that all income tax consequences of dividend payments must be considered in the same way as the income on which the dividends are based.

Finally, IAS 23 states that if an entity has raised funds generally for the acquisition of qualifying assets, borrowing costs specifically incurred in connection with the acquisition of qualifying assets shall not be included in the determination of the financing cost rate until the completion of the borrowing.

The amendments must be applied for financial years beginning on or after 1 January 2019, but have not yet been adopted by the EU.

**Amendments to IAS 19 "Plan Amendment, Curtailment or Settlement" (February 2018)**
The amendments specify that if a plan amendment, curtailment or settlement occurs, it is now mandatory that the current service cost and net interest for the period after the remeasurement are determined using the assumptions used for the remeasurement. In addition, amendments have been included to clarify the effect of a plan amendment, curtailment or settlement on the requirements regarding the asset ceiling. The amendments must be applied for financial years beginning on or after 1 January 2019; earlier application is permitted. The amendments have not yet been adopted by the EU.

**Revised "Conceptual Framework in IFRS Standards"**
The revised "Conceptual Framework in IFRS Standards" is structured into an introductory explanation on the status and purpose of the Conceptual Framework, eight chapters and a glossary. Included are revised definitions of assets and liabilities as well as new guidance on measurement and derecognition, presentation and disclosure.

Together with the revised Conceptual Framework, references to the Conceptual Framework have been adapted in various standards.

Regarding the standards and interpretations listed above, Deutsche Börse Group expects no material impact on the presentation of the consolidated financial statements – except for the application of IFRS 16, the expected effects of which are described above.

## 2. Basis of consolidation

Deutsche Börse AG's equity interests in subsidiaries, associates and joint ventures as at 31 December 2018 included in the consolidated financial statements are presented in the following tables. Unless otherwise stated, the financial information in these tables is presented in accordance with the generally accepted accounting principles in the companies' countries of domicile.

### Fully consolidated subsidiaries (part 1)

| Company | Domicile | Equity interest as at 31 Dec 2018 direct/(indirect) % |
|---|---|---|
| Assam SellerCo, Inc. in Liquidation | New York, USA | 100.00 |
| Assam SellerCo Service, Inc. in Liquidation[3] | New York, USA | (100.00) |
| Need to Know News, LLC in Liquidation | Chicago, USA | (100.00) |
| Börse Frankfurt Zertifikate AG | Frankfurt/Main, Germany | 100.00 |
| Clearstream Holding AG | Frankfurt/Main, Germany | 100.00 |
| Clearstream Beteiligungs AG | Frankfurt/Main, Germany | (100.00) |
| Clearstream International S.A. | Luxembourg, Luxembourg | (100.00) |
| Clearstream Banking S.A. | Luxembourg, Luxembourg | (100.00) |
| Clearstream Banking Japan, Ltd. | Tokyo, Japan | (100.00) |
| REGIS-TR S.A. | Luxembourg, Luxembourg | (50.00) |
| Clearstream Banking AG | Frankfurt/Main, Germany | (100.00) |
| Clearstream Global Securities Services Limited | Cork, Ireland | (100.00) |
| Clearstream Operations Prague s.r.o. | Prague, Czech Republic | (100.00) |
| Clearstream Services S.A. | Luxembourg, Luxembourg | (100.00) |
| Clearstream Funds Centre Ltd. | London, United Kingdom | (100.00) |
| DB1 Ventures GmbH | Frankfurt/Main, Germany | 100.00 |
| Deutsche Boerse Asia Holding Pte. Ltd. | Singapore, Singapore | 100.00 |
| Eurex Clearing Asia Pte. Ltd. | Singapore, Singapore | (100.00) |
| Eurex Exchange Asia Pte. Ltd. | Singapore, Singapore | (100.00) |
| Deutsche Boerse Market Data+Services Singapore Pte. Ltd. | Singapore, Singapore | 100.00 |
| Deutsche Boerse Systems Inc. | Chicago, USA | 100.00 |
| Deutsche Börse Photography Foundation gGmbH | Frankfurt/Main, Germany | 100.00 |
| Deutsche Börse Services s.r.o. | Prague, Czech Republic | 100.00 |
| Eurex Frankfurt AG | Frankfurt/Main, Germany | 100.00 |
| Eurex Clearing AG | Frankfurt/Main, Germany | (100.00) |
| Eurex Clearing Security Trustee GmbH | Frankfurt/Main, Germany | (100.00) |
| Eurex Repo GmbH | Frankfurt/Main, Germany | (100.00) |

1) Disclosures are based on preliminary and unaudited figures which may be adjusted subsequently.
2) Includes capital reserves and retained earnings, accumulated gains or losses and net profit or loss for the year and, if necessary, further components according to the respective local GAAP
3) Assam SellerCo Service, Inc. in Liquidation is part of the Assam SellerCo, Inc. in Liquidation subgroup.
4) Before profit transfer or loss absorption
5) Consists of interest and commission results due to business operations
6) Thereof income from profit pooling of Eurex Clearing AG amounting to €8,141 thousand
7) Thereof income from participations amounting to €283,096 thousand (including €192,096 thousand from Clearing Banking S.A. and €91,000 thousand from Clearstream Banking AG)

| | Currency | Ordinary share capital[1) thousand | Equity[1) 2)] thousand | Total assets[1)] thousand | Sales revenue 2018[1)] thousand | Net profit/loss 2018[1)] thousand | Initially consolidated |
|---|---|---|---|---|---|---|---|
| | US$ | 9,911 | 22,550 | 22,596 | 0 | –108 | 2009 |
| | US$ | n.a. | n.a. | n.a. | n.a. | n.a. | 2009 |
| | US$ | 0 | 2,098 | 2,098 | 0 | 0 | 2009 |
| | € | 140 | 16,594 | 22,454 | 19,734 | 3,023 | 2013 |
| | € | 101,000 | 2,285,314 | 2,440,263 | 0 | 152,690[4)] | 2007 |
| | € | 50 | 50 | 50 | 0 | 0 | 14 Dec 2018 |
| | € | 25,000 | 1,345,824 | 1,391,071 | 43,985[5)] | 283,953[7)] | 2002 |
| | € | 92,000 | 1,263,245 | 18,277,543 | 618,209[5)] | 204,280 | 2002 |
| | JPY | 49,000 | 185,854 | 230,900 | 136,095 | 5,781 | 2009 |
| | € | 3,600 | 13,310 | 16,910 | 16,209 | 4,765 | 2010 |
| | € | 25,000 | 462,276 | 2,459,275 | 304,833[5)] | 92,707 | 2002 |
| | € | 6,211 | 14,498 | 22,525 | 39,104 | 2,677 | 2014 |
| | CZK | 160,200 | 193,485 | 546,144 | 696,772 | 9,577 | 2008 |
| | € | 30,000 | 129,534 | 225,982 | 312,422[5)] | 12,419 | 2002 |
| | CHF | 15,000 | 11,482 | 108,149 | 3,978 | 1,501 | 1 Oct 2018 |
| | € | 25 | 50 | 58 | 0 | –11 | 2016 |
| | € | 0 | 14,063 | 14,312 | 0 | –252 | 2013 |
| | € | 10,000 | 9,833 | 10,470 | 0 | 545 | 2013 |
| | € | 6,000 | 633 | 690 | 0 | –206 | 2013 |
| | S$ | 606 | 1,076 | 1,332 | 0 | 58 | 2015 |
| | US$ | 400 | 44,397 | 52,910 | 19,840 | –714 | 2000 |
| | € | 25 | 175 | 216 | 0 | –44 | 2015 |
| | CZK | 200 | 391,760 | 661,102 | 1,416,597 | 71,092 | 2006 |
| | € | 6,000 | 1,122,320 | 1,313,542 | 13,430 | 18,537[6)] | 1998 |
| | € | 25,000 | 514,813 | 25,965,525 | 31,765[5)] | 8,141[4)] | 1998 |
| | € | 25 | 79 | 86 | 4 | 0 | 2013 |
| | € | 3,600 | 22,737 | 29,733 | 12,366 | 4,693 | 2001 |

## Fully consolidated subsidiaries (part 2)

| Company | Domicile | Equity interest as at 31 Dec 2018 direct/(indirect) % |
|---|---|---|
| Eurex Global Derivatives AG[3)] | Zug, Switzerland | 100.00 |
| Eurex Services GmbH | Frankfurt/Main, Germany | 100.00 |
| European Energy Exchange AG | Leipzig, Germany | 75.05[4)] |
| Cleartrade Exchange Pte. Limited | Singapore, Singapore | (75.05) |
| EEX Link GmbH | Leipzig, Germany | (75.05) |
| European Commodity Clearing AG | Leipzig, Germany | (75.05) |
| European Commodity Clearing Luxembourg S.à r.l. | Luxembourg, Luxembourg | (75.05) |
| Nodal Exchange Holdings, LLC | Tysons Corner, USA | (75.05) |
| Nodal Exchange, LLC | Tysons Corner, USA | (75.05) |
| Nodal Clear, LLC | Tysons Corner, USA | (75.05) |
| Power Exchange Central Europe a.s. | Prague, Czech Republic | (50.03) |
| Powernext SAS | Paris, France | (75.05) |
| EPEX SPOT SE | Paris, France | (38.27)[7)] |
| EPEX Netherlands B.V. | Amsterdam, Netherlands | (38.27) |
| EPEX SPOT Schweiz AG | Bern, Switzerland | (38.27) |
| JV Epex-Soops B.V. | Amsterdam, Netherlands | (22.96) |
| Gaspoint Nordic A/S | Brøndby, Denmark | (75.05) |
| PEGAS CEGH Gas Exchange Services GmbH | Vienna, Austria | (38.27) |
| STOXX Ltd. | Zug, Switzerland | 100.00 |
| STOXX Australia Pty Limited | Sydney, Australia | (100.00) |
| Tradegate Exchange GmbH | Berlin, Germany | 80.00 |
| 360 Treasury Systems AG | Frankfurt/Main, Germany | 100.00 |
| 360T Asia Pacific Pte. Ltd. | Singapore, Singapore | (100.00) |
| 360TGTX Inc. | New York, USA | (100.00) |
| 360 Trading Networks Inc. | New York, USA | (100.00) |
| 360 Trading Networks LLC | Dubai, United Arab Emirates (UAE) | (100.00) |
| 360 Trading Networks Sdn Bhd | Kuala Lumpur, Malaysia | (100.00) |
| Finbird GmbH | Frankfurt/Main, Germany | (100.00) |
| Finbird Limited | Jerusalem, Israel | (100.00) |
| ThreeSixty Trading Networks (India) Pte. Ltd. | Mumbai, India | (100.00) |

1) Disclosures are based on preliminary and unaudited figures which may be adjusted subsequently.
2) Includes capital reserves and retained earnings, accumulated gains or losses and net profit or loss for the year and, if necessary, further components according to the respective local GAAP
3) Disclosures are based on the divergent financial year from 1 April 2018 to 31 December 2018.
4) 62.91 per cent of voting rights held
5) Thereof income from profit pooling of European Commodity Clearing AG amounting to €49,930 thousand
6) Before profit transfer or loss absorption
7) Thereof 8.02 per cent indirectly held via European Energy Exchange AG and 30.25 per cent indirectly held via Powernext SAS
8) Disclosures are based on financial statements as at 31 December 2017.

| | Currency | Ordinary share capital[1] thousand | Equity[1) 2)] thousand | Total assets[1] thousand | Sales revenue 2018[1] thousand | Net profit/loss 2018[1] thousand | Initially consolidated |
|---|---|---|---|---|---|---|---|
| | € | 83 | 673,011 | 698,106 | 107,083 | 95,769 | 2012 |
| | € | 25 | 98 | 98 | 0 | 0 | 2007 |
| | € | 60,075 | 340,295 | 408,293 | 74,562 | 45,459[5] | 2014 |
| | US$ | 21,559 | 2,080 | 2,700 | 1,000 | −1,546 | 2014 |
| | € | 50 | 67 | 122 | 184 | 8 | 2016 |
| | € | 1,015 | 108,935 | 18,602,324 | 98,680 | 49,930[6] | 2014 |
| | € | 13 | 109 | 522,160 | 39,721 | 27 | 2014 |
| | US$ | 0 | 156,218 | 657,891 | 20,481 | 2,263 | 3 May 2017 |
| | US$ | 0 | 43,689 | 495,362 | 20,481 | 6,657 | 3 May 2017 |
| | US$ | 0 | 30,310 | 486,571 | 13,594 | 7,171 | 3 May 2017 |
| | CZK | 30,000 | 52,024 | 65,747 | 59,579 | 17,719 | 2016 |
| | € | 12,584 | 33,456 | 43,015 | 36,845 | 13,670 | 2015 |
| | € | 6,168 | 64,257 | 115,691 | 83,075 | 22,177 | 2015 |
| | € | 0 | 0 | 278 | 1,683 | 0 | 2016 |
| | CHF | 100 | 200 | 216 | 334 | 22 | 2015 |
| | € | 18 | 52 | 55 | 20 | −125 | 2015 |
| | DKK | 2,000 | 2,439 | 2,933 | 3,499 | 99 | 2016 |
| | € | 35 | 6,986 | 7,302 | 1,921 | 231 | 2016 |
| | CHF | 1,000 | 171,430 | 221,662 | 173,041 | 96,811 | 2009 |
| | AU$ | 0[8] | 95[8] | 228[8] | 463[8] | 8[8] | 2015 |
| | € | 500 | 2,109 | 2,941 | 3,465 | 723 | 2010 |
| | € | 128 | 77,035 | 98,023 | 77,115 | 18,885 | 2015 |
| | S$ | 550 | 4,767 | 7,039 | 11,198 | 301 | 2015 |
| | US$ | 30,000 | 28,489 | 105,142 | 10,152 | −3,511 | 29 Jun 2018 |
| | US$ | 300 | 7,794 | 8,745 | 8,683 | 943 | 2015 |
| | € | 34 | 445 | 578 | 586 | 64 | 2015 |
| | MYR | 0 | −82 | 84 | 0 | −82 | 25 Aug 2017 |
| | € | 25 | 1,424 | 1,434 | 0 | 138 | 2015 |
| | ILS | 1 | −4,021 | 3,989 | 0 | −1,054 | 2015 |
| | INR | 300 | 75,970 | 86,553 | 44,991 | 7,143 | 2015 |

### Changes to basis of consolidation

| | Germany | Foreign | Total |
|---|---|---|---|
| As at 1 January 2018 | 20 | 41 | 61 |
| Additions | 1 | 2 | 3 |
| Disposals | – 4 | – 3 | – 7 |
| **As at 31 December 2018** | **17** | **40** | **57** |

Eurex Repo GmbH, Frankfurt/Main, Germany, was merged into Eurex Bonds GmbH, Frankfurt/Main, Germany, (a wholly owned subsidiary of Eurex Frankfurt AG) effective 1 January 2018 and subsequently renamed Eurex Repo GmbH. Since Eurex Frankfurt AG, Frankfurt/Main, Germany, (a wholly owned subsidiary of Deutsche Börse AG) is the sole shareholder of Eurex Repo GmbH, a controlling influence within the meaning of IFRS 10 continues to be assumed, and the company continues to be fully consolidated.

Agricultural Commodity Exchange GmbH, EEX Power Derivatives GmbH and Global Environmental Exchange GmbH (all three in Leipzig, Germany) were merged into European Energy Exchange AG, Leipzig, Germany, with effect from 1 January 2018. As Deutsche Börse AG continues to hold a controlling interest in European Energy Exchange AG (EEX), the company continues to be fully consolidated.

On 29 June 2018, Deutsche Börse Group acquired the GTX Electronic Communication Network (ECN) business from GAIN Capital Holdings, Inc., Bedminster, USA. Within the scope of the transaction, 360 Treasury Systems AG, Frankfurt/ Main, Germany, (a wholly-owned subsidiary of Deutsche Börse AG) established 360TGTX, Inc., New York City, USA, as a subsidiary, which acquired the GTX ECN business at a purchase price of US$100.1 million (€85.9 million), by way of an asset deal. Deutsche Börse Group consolidated the business activities of 360TGTX for the first time as at 29 June 2018.

The purchase price allocation – preliminary as at the reporting date – yielded the following effects:

### Goodwill resulting from the business combination with the GTX ECN business

| | Preliminary goodwill calculation 29 June 2018 €m |
|---|---|
| **Consideration transferred** | |
| Purchase price | 85.9 |
| **Total consideration** | **85.9** |
| | |
| **Acquired assets and liabilities** | |
| Customer relationships | 23.3 |
| Trade names | 1.7 |
| Software | 4.5 |
| Other non-current assets | 0.4 |
| Other current assets less liabilities | 2.0 |
| **Total assets and liabilities acquired** | **31.9** |
| | |
| **Goodwill (tax deductible)** | **54.0** |

Goodwill resulting from the transaction largely reflects expected cost and revenue synergies from the business combination.

The full consolidation of the GTX ECN business resulted in an increase of net revenue amounting to €5.5 million as well as of income after tax amounting to €0.9 million. Due to the structure of the transaction (asset deal), no pro forma disclosures regarding the effects of a potential initial consolidation as at 1 January 2018 can be made.

With effect from 1 October 2018, Clearstream International S.A., Luxembourg, acquired 100 per cent of the shares in Swisscanto Funds Centre Ltd., London, United Kingdom. Since the completion of the transaction, the acquired entity has been fully consolidated. Effective 2 November 2018, the company name of the acquired entity was changed to Clearstream Funds Centre Ltd. With this transaction, Clearstream is extending its range of services in the investment funds area by adding distribution channels. The consideration paid for the acquisition of the shares was CHF 95.0 million (€83.3 million), leading to goodwill of €36.5 million.

The purchase price allocation – preliminary as at the reporting date – yielded the following effects:

Goodwill resulting from the business combination with Swisscanto Funds Centre Ltd.

| | Preliminary goodwill calculation 1 October 2018 €m |
|---|---|
| **Consideration transferred** | |
| Purchase price in cash | 92.7 |
| Acquired bank balances | –9.4 |
| **Total consideration** | **83.3** |
| | |
| **Acquired assets and liabilities** | |
| Customer relationships | 40.8 |
| Software | 0.5 |
| Other intangible assets | 0.4 |
| Non-current financial assets | 14.7 |
| Other non-current assets | 0.6 |
| Current financial assets (without cash) | 16.3 |
| Other current assets | 1.7 |
| Tax provisions | –0.4 |
| Current financial liabilities (without cash deposits by customers) | –20.6 |
| Deferred tax liabilities on temporary differences | –7.2 |
| **Total assets and liabilities acquired** | **46.8** |
| | |
| **Goodwill (not tax deductible)** | **36.5** |

The goodwill resulting from the transaction mainly reflects expected revenue synergies with existing customers. Due to the expansion of its product range, Clearstream expects to generate revenue from cross-selling synergies amounting to a low eight-digit sum in euros.

The full consolidation of Clearstream Funds Centre Ltd. (formerly Swisscanto Funds Centre Ltd.) resulted in an increase of net revenue amounting to €3.3 million as well as of income after tax amounting to €0.8 million. If the company had been fully consolidated as at 1 January 2018, this would have resulted in an increase of net revenue amounting to €12.5 million as well as of income after tax amounting to €2.0 million.

Eurex Zürich AG, Zurich, Switzerland, was merged into Eurex Global Derivatives AG, Zug, Switzerland, with effect from 1 October 2018. Since Deutsche Börse AG remains the sole shareholder of Eurex Global Derivatives AG, a controlling influence within the meaning of IFRS 10 continues to be assumed, and the company continues to be fully consolidated.

EPEX SPOT Belgium S.A., Brussels, Belgium, was merged into EPEX SPOT SE, Paris, France, with effect from 31 December 2018. Since European Energy Exchange AG (a 75 per cent subsidiary of Deutsche Börse AG) exerts a controlling influence within the meaning of IFRS 10 both indirectly via Powernext SAS (40.31 per cent) as well as directly (10.69 per cent), the company continues to be fully consolidated.

In the 2018 financial year, the following three companies were liquidated and deconsolidated: APX Shipping B.V.i.L. (as at 16 April 2018), APX Commodities Limited (as at 18 September 2018) and Impendium Systems Ltd. (as at 4 December 2018).

By purchase agreement dated 14 December 2018, Clearstream Holding AG, Frankfurt/Main, Germany, (a wholly owned subsidiary of Deutsche Börse AG) acquired all shares in Skylinehöhe 96 VV AG, Frankfurt/Main, Germany, at a purchase price of €57 thousand. The company was subsequently renamed Clearstream Beteiligungs AG. Since Deutsche Börse AG indirectly holds 100 per cent of the shares, a controlling influence within the meaning of IFRS 10 continues to be assumed, and the company is fully consolidated.

## Associates

The following table summarises the main financial information of associates; data comprise the totals of each company according to the local GAAP and not proportional values from the view of Deutsche Börse Group.

### Associates (part 1)

| Company | Domicile | Segment | Equity interest as at 31 Dec 2018 direct/(indirect) % | Associate since |
|---|---|---|---|---|
| BrainTrade Gesellschaft für Börsensysteme mbH | Frankfurt/Main, Germany | Xetra (cash equities) | (28.58)[1] | 2013 |
| China Europe International Exchange AG | Frankfurt/Main, Germany | Eurex (financial derivatives) | 40.00 | 2015 |
| Deutsche Börse Commodities GmbH | Frankfurt/Main, Germany | Xetra (cash equities) | 16.20 | 2007 |
| Digital Vega FX Ltd | London, United Kingdom | Eurex (financial derivatives) | 23.85 | 2011 |
| enermarket GmbH | Frankfurt/Main, Germany | EEX (commodities) | (30.02) | 2018 |
| HQLAx S.à r.l. | Luxembourg, Luxembourg | GSF (collateral management) | 28.76 | 2018 |
| LuxCSD S.A. | Luxembourg, Luxembourg | Clearstream (post-trading) | (50.00) | 2015 |
| RegTek Solutions Inc. | New York, USA | Data | 12.50 | 2015 |
| R5FX Ltd | London, United Kingdom | Eurex (financial derivatives) | 16.33 | 2014 |
| SEEPEX a.d. | Belgrade, Serbia | EEX (commodities) | (9.57) | 2015 |
| Tradegate AG Wertpapierhandelsbank | Berlin, Germany | Xetra (cash equities) | 19.99 | 2010 |
| ZDB Cloud Exchange GmbH in Liquidation | Eschborn, Germany | Eurex (financial derivatives) | 49.90 | 2013 |
| Zimory GmbH in Liquidation | Berlin, Germany | Eurex (financial derivatives) | 30.03 | 2013 |

1) Thereof 14.29 per cent held directly and 14.29 per cent indirectly via Börse Frankfurt Zertifikate AG

### Associates (part 2)

| Company | Currency | Ordinary share capital[1] thousand | Assets[1] thousand | Liabilities[1] thousand | Sales revenue 2018[1] thousand | Net profit/loss 2018[1] thousand |
|---|---|---|---|---|---|---|
| BrainTrade Gesellschaft für Börsensysteme mbH | € | 1,400 | 3,723 | 2,027 | 3,780 | 101 |
| China Europe International Exchange AG | € | 27,000 | 13,284 | 76 | 255 | –4,136 |
| Deutsche Börse Commodities GmbH | € | 1,000 | 6,518,505 | 6,511,137 | 13,974 | 4,601 |
| Digital Vega FX Ltd | GBP | 2,607[2] | 2,387[2] | –458[2] | 1,597[2] | 563[2] |
| enermarket GmbH | € | 25 | 351 | 357 | 8 | –599 |
| HQLAx S.à r.l. | € | 17 | 3,141 | 1,331 | 0 | –1,550 |
| LuxCSD S.A. | € | 6,000 | 6,547 | 1,265 | 2,679 | 427 |
| RegTek Solutions Inc. | US$ | 4,857 | 4,688 | 2,709 | 2,917 | –1,759 |
| R5FX Ltd | GBP | 2 | 477 | 930 | 38 | –700 |
| SEEPEX a.d. | RSD | 240,000 | 151,468 | 155,706 | 94,300 | 5,344 |
| Tradegate AG Wertpapierhandelsbank | € | 24,403 | 160,700 | 113,330 | 68,958 | 17,191 |
| ZDB Cloud Exchange GmbH in Liquidation | € | 50 | 207 | 78 | 0 | –16 |
| Zimory GmbH in Liquidation | € | 263 | 204 | 48 | 0 | –18 |

1) Disclosures are based on preliminary and unaudited figures which may be adjusted subsequently.
2) The figures refer to the financial year from 1 December 2017 to 30 November 2018.

On 1 February 2018, European Energy Exchange AG acquired 40.0 per cent of the voting rights in enermarket GmbH, Frankfurt/Main, Germany. This resulted in an indirect equity investment of Deutsche Börse AG amounting to 30.02 per cent.

With effect from 4 July 2018, Deutsche Börse AG sold parts of its interest in PHINEO gAG, Berlin, Germany, to Phineo Pool GbR, Berlin, Germany. This resulted in a decrease in voting rights to 4 per cent. Hence, PHINEO gAG is no longer classified as an associate and is accounted for using the equity method.

On 7 August 2018, Deutsche Börse AG acquired 10.0 per cent of the voting rights in HQLAx S.à r.l., Luxembourg. On 5 December 2018, a second tranche was acquired, resulting in an equity investment of Deutsche Börse AG amounting to 28.76 per cent.

Effective 19 September 2018, Deutsche Börse AG sold its interest in Switex GmbH, Hamburg, Germany.

With effect from 31 December 2018, the purchase agreement to sell Deutsche Börse AG's shares in Digital Vega FX Ltd., London, United Kingdom, was signed. However, the Financial Conduct Authority (FCA), London, United Kingdom, must express its consent before such agreement can take effect.

Where Deutsche Börse Group's share of the voting rights in a company amounts to less than 20 per cent, Deutsche Börse Group's significant influence is exercised in accordance with IAS 28.6 (a) through the Group's representation on the supervisory board or the board of directors of the following companies as well as through corresponding monitoring systems:

- Deutsche Börse Commodities GmbH, Frankfurt/Main, Germany
- RegTek Solutions Inc., New York, USA
- R5FX Ltd, London, United Kingdom
- SEEPEX a.d., Belgrade, Serbia
- Tradegate AG Wertpapierhandelsbank, Berlin, Germany

## 3. Summary of key accounting policies

Deutsche Börse AG's consolidated financial statements have been prepared in euros, the functional currency of Deutsche Börse AG. Unless stated otherwise, all amounts are shown in millions of euros (€m). Due to rounding, the amounts may differ from unrounded figures.

The annual financial statements of subsidiaries included in the consolidated financial statements have been prepared on the basis of the Group-wide accounting policies based on IFRS that are described in the following. They were applied consistently to the periods shown.

### Adjustments to the presentation of the consolidated income statement

Since 1 January 2018, personnel-related costs for continuing professional development, food and drink have been reported under "staff costs" in order to improve transparency. Before then, such costs were contained in other operating expenses. Prior-year figures were restated accordingly. For further details, see note 5 and note 6.

As part of a comprehensive analysis of customer contracts due to the first-time adoption of IFRS 15 as at 1 January 2018, reporting of connectivity and maintenance fees within Deutsche Börse Group has been harmonised. In this context, €5.1 million from other operating income were reclassified as sales revenue for the 2017 financial year. For further details, see note 4.

### Effects from the first-time adoption of IFRS 9 "Financial instruments"

Deutsche Börse AG has implemented IFRS 9 as at 1 January 2018. The implementation has resulted in changes to the accounting principles and the restatement of amounts reported in the consolidated financial statements. Moreover, Deutsche Börse AG has adjusted the presentation of the consolidated balance sheet in order to enhance transparency as regards the financial instruments used. Under the new structure, the measurement categories in accordance with IFRS 9 are directly reflected in the consolidated balance sheet.

## Reclassification of financial assets

| 31 Dec 2017 (IAS 39) (restated) | | | Changes arising from transition to IFRS 9 |
|---|---|---|---|
| **Consolidated balance sheet item** | **Category** | **Carrying amount** €m | €m |
| **Non-current assets** | | | |
| Other equity investments | AFS[1] | 99.4 | 2.2 |
| Receivables and securities from banking business | AFS | 1,563.0 | –8.3 |
| Other financial instruments | AFS | 14.5 | 0 |
| | AFS | 15.1 | –0.4 |
| | FVPL[2] (FV option) | 1.2 | 0 |
| Other loans | LaR[3] | 0.4 | 0 |
| Non-current financial instruments held by central counterparties | Derivatives | 4,837.2 | 0 |
| Other non-current assets | – | 4.1 | 0 |
| | LaR | 4.5 | 0 |
| | Derivatives | 0.1 | 0 |
| **Total non-current assets** | | **6,539.5** | **– 6.5** |
| **Current assets** | | | |
| Current financial instruments held by central counterparties | LaR | 272.0 | 0 |
| | Derivatives | 79,238.7 | 0 |
| Receivables and securities from banking business | LaR | 12,776.8 | 0 |
| | AFS | 254.5 | –0.5 |
| | Derivatives | 5.2 | 0 |
| Trade receivables | LaR | 329.4 | 1.5 |
| Receivables from related parties | LaR | 2.5 | 0 |
| Other current assets | – | 451.7 | 0 |
| | LaR | 141.8 | 0 |
| | LaR | 3.0 | –1.5 |
| | LaR | 1.2 | –1.5 |
| Restricted bank balances | LaR | 29,392.0 | 0 |
| Other cash and bank balances | LaR | 1,297.6 | 0 |
| **Total current assets** | | **124,166.4** | **– 2.0** |
| **Total** | | **130,705.9** | **– 8.5** |

1) AFS = available for sale
2) FVPL = fair value through profit or loss
3) LaR = loans and receivables
4) FVOCI = fair value through other comprehensive income
5) aAC = at amortised cost

1 Jan 2018 (IFRS 9)

| Carrying amount €m | Consolidated balance sheet item | Category |
|---|---|---|
| | | |
| 101.6 | Equity investments measured at FVOCI[4] | FVOCI |
| 1,554.7 | Financial assets measured at amortised cost | aAC[5] |
| 14.5 | Financial assets measured at amortised cost | aAC |
| 14.7 | Financial assets at fair value through profit or loss | FVPL |
| 1.2 | Financial assets at fair value through profit or loss | FVPL |
| 0.4 | Financial assets measured at amortised cost | aAC |
| 4,837.2 | Derivatives | FVPL |
| 4.1 | Other non-current assets | – |
| 4.5 | Financial assets measured at amortised cost | aAC |
| 0.1 | Derivatives | FVPL |
| 6,533.0 | | |
| | | |
| 272.0 | Financial assets measured at amortised cost | aAC |
| 79,238.7 | Derivatives | FVPL |
| 12,776.8 | Financial assets measured at amortised cost | aAC |
| 254.0 | Financial assets measured at amortised cost | aAC |
| 5.2 | Derivatives | FVPL |
| 330.9 | Trade receivables | aAC |
| 2.5 | Trade receivables | aAC |
| 451.7 | Other current assets | – |
| 141.8 | Financial assets measured at amortised cost | aAC |
| 1.5 | Financial assets at fair value through profit or loss | FVPL |
| –0.3 | Financial liabilities at fair value through profit or loss | FVPL |
| 29,392.0 | Restricted bank balances | aAC |
| 1,297.6 | Other cash and bank balances | aAC |
| 124,164.4 | | |
| 130,697.4 | | |

The reclassification and the measurement of financial instruments as well as the first-time adoption of IFRS 15 “Revenue from Contracts with Customers” had the following effects on the revaluation surplus and accumulated profit of Deutsche Börse Group as at 1 January 2018:

Total impact on shareholders’ equity

| | Revaluation surplus €m | Accumulated profit €m |
|---|---|---|
| **Closing balance as at 31 Dec 2017 – IAS 39/IAS 18** | **19.6** | **3,631.0** |
| Reclassification of equity investments from “available for sale” to “fair value through other comprehensive income” | 3.2 | –1.0 |
| Reclassification of debt investments from “available for sale” to “at amortised cost” | –8.5 | 0 |
| Reclassification of financial assets from “available for sale” to “fair value through profit or loss” | –2.0 | 1.6 |
| Change in valuation allowance for trade receivables | 0 | 1.5 |
| Change in valuation allowance for debt investments carried at amortised cost | 0 | –0.3 |
| Recognition of deferred tax assets | 1.0 | –0.7 |
| Recognition of deferred tax liabilities | 1.1 | –0.1 |
| **Adjustment due to first-time adoption of IFRS 9 as at 1 Jan 2018** | **–5.2** | **1.0** |
| Recognition of contract liabilities | 0 | –10.7 |
| Recognition of deferred tax assets | 0 | 2.9 |
| **Adjustment due to first-time adoption of IFRS 15 as at 1 Jan 2018** | **0** | **–7.8** |
| **Opening balance as at 1 Jan 2018 – IFRS 9/IFRS 15** | **14.4** | **3,624.2** |

**Reclassification of equity instruments from “available for sale” to “fair value through other comprehensive income (FVOCI)”**

Equity instruments categorised as available for sale (€99.4 million) were presented in other equity investments until 31 December 2017. Since 1 January 2018, they have been shown within the “equity investments measured at fair value through other comprehensive income (FVOCI)” line item.

All equity instruments recognised as at 1 January 2018 are designated as at FVOCI by Deutsche Börse Group.

Under IAS 39, equity instruments for which no active market existed and for which no alternative valuation methods could be applied, were measured at cost. Deutsche Börse Group developed valuation models to calculate the fair values for these financial assets leading to an increase of €2.2 million in the amounts shown under “equity investments measured at fair value through other comprehensive income (FVOCI)”. Foreign-exchange effects amounting to €1.0 million were reclassified from accumulated profit into revaluation surplus in connection with the allocation of equity investments to “equity investments measured at fair value through other comprehensive income (FVOCI)”.

**Reclassification of debt instruments from “available for sale” to “at amortised cost”**
The management of Deutsche Börse Group assessed the business model for the financial assets classified as available for sale under IAS 39 as at 1 January 2018.

Following the analysis, debt instruments complying with the criteria to solely represent payments of principal and interest and following the business model “to hold” have been classified to the category “at amortised cost” and are shown in the “financial assets measured at amortised cost” line item. In 2017, these instruments had been shown as non-current and current receivables and securities from banking business (€1,563.0 million and €254.5 million, respectively) and as other non-current financial instruments (€14.5 million). Related fair value gains amounting to €8.5 million were de-recognised from other comprehensive income and from the related financial assets as at 1 January 2018.

As at 31 December 2018, the fair value of the debt instruments originally recognised in the available-for-sale category stood at €1,617.9 million. If these instruments had been recognised as available for sale on 31 December 2018, Deutsche Börse Group would have been obliged to recognise an unrealised gain of €2.4 million in other comprehensive income.

**Reclassification of debt instruments from “available for sale” to “financial assets at fair value through profit or loss (FVPL)”**
Debt instruments that do not meet the criteria to be classified as “at amortised cost” in accordance with IFRS 9 because their cash flows do not represent solely payments of principal and interest were reclassified to financial assets at fair value through profit or loss (€15.1 million). As Deutsche Börse Group applied the “at cost” exemption under IAS 39 for instruments without an active market, the revaluation at fair value led to a reduction of €0.4 million in accumulated profit. Furthermore, the measurement of financial instruments at FVPL led to a reduction of €2.0 million of the revaluation surplus and an increase of accumulated profit in the same amount. These financial instruments were already measured at fair value before adoption of IFRS 9.

As at 31 December 2018, the fair value of the debt instruments originally recognised in the available-for-sale category stood at €14.6 million. If these instruments had been recognised as available for sale on 31 December 2018, Deutsche Börse Group would have been obliged to recognise an unrealised loss of €1.6 million in other comprehensive income.

**Change in provision for trade receivables**
For trade receivables, Deutsche Börse Group applies the simplified approach to calculate the expected credit losses, which requires the use of the lifetime expected loss provision for all trade receivables. The transfer from the incurred loss model of IAS 39 to the expected loss model of IFRS 9 reduced the impairment charges for trade receivables by €1.5 million and increased accumulated profit by the same amount. As at 31 December 2017, impairments recognised for trade receivables amounted to €5.2 million.

**Change in provision for debt instruments at amortised cost**
Debt investments at amortised cost are considered to be generally low risk, and thus the impairment provision recognised is equal to the twelve-month expected credit loss. The corresponding provision calculated as at 1 January 2018 amounted to €0.3 million and retained earnings were reduced by the same amount.

**Adjustment regarding the presentation of hybrid financial instruments**
Since the new standard no longer provides for a separation of hybrid financial instruments, Deutsche Börse Group reclassified a total amount of €2.9 million from other liabilities to the items "financial instruments measured at fair value through profit or loss" and "financial liabilities measured at fair value through profit or loss". This reclassification did not affect the Group's equity.

**Change in deferred tax assets**
The impact on the deferred taxes is mainly driven by the reclassifications of financial instruments measured at available for sale under IAS 39 to "amortised cost" under IFRS 9.

## Changes resulting from the first-time adoption of IFRS 15

Deutsche Börse Group applied IFRS 15 "Revenue from Contracts with Customers" as issued in May 2014 and the corresponding clarifications as issued in April 2016. IFRS 15 replaces the following standards and interpretations on revenue recognition:

- IAS 11 "Construction Contracts"
- IAS 18 "Revenue"
- IFRIC 13 "Customer Loyalty Programmes"
- IFRIC 15 "Agreements for the Construction of Real Estate"
- IFRIC 18 "Transfers of Assets from Customers"
- SIC-31 "Revenue – Barter Transactions Involving Advertising Services"

In accordance with the transition provisions set out in IFRS 15, Deutsche Börse Group has adopted the new accounting policies according to the modified retrospective approach.

**Adjustments to the recognition of revenue from the admission, listing or inclusion of securities**
Until 31 December 2017, the admission, listing and inclusion services for securities were each accounted for as a separate performance obligation, and revenue was recognised when (or as) the promised service was transferred to the customer and the customer obtained control of such service. More specifically, this was the point in time when Deutsche Börse's management resolved the admission of the respective securities, or when the initial listing took place.

In its updates dated September 2018 and January 2019, the IFRS IC explains that specific fees related to security admission (as well as listing or inclusion) services do not represent distinct performance obligations to customers and may therefore not be accounted for separately from the subsequent listing of the respective securities. The question of how to recognise fees charged before the listing of securities was – and still is – subject to controversial debate among exchange operators, auditors and other stakeholders around the world.

In accordance with the published decisions taken by the IFRS IC, Deutsche Börse Group will allocate (a) the recognition of fees charged for the listing of securities to the regulated unofficial market (Freiverkehr) as well as (b) fees charged for the admission and inclusion of securities with definite maturities to/in the regulated market to the projected listing periods of the underlying securities; these amendments will be applied with retrospective effect as from 1 January 2018. Effective 1 January 2018, the adjustment effects resulting from the accounting method change amounted to €9.3 million and were netted against Deutsche Börse Group's equity. Regarding the 2018 financial year, the change in the accounting method led to an increase in sales revenue of €0.1 million.

**Adjustment to the recognition of revenue from a pricing scale agreement**
A pricing scale agreement exists for the continual provision of service in the cash market. An average price is calculated as a basis for the recognition of revenue. Due to the fact that, relatively speaking, a higher consideration is due on the part of the customer at the beginning of the contract compared to the services the customer receives during this period, a contract liability must be recognised and dissolved over the contract period until the end of the contract. The adjustment effect resulting from the change in the accounting method as at 1 January 2018 amounts to €1.4 million and is offset against equity. With regard to the 2018 financial year, the change in the accounting method results in an increase of sales revenue of €0.7 million.

## Recognition of revenue and expenses

**Revenue from contracts with customers**
The accounting treatment of the most important performance obligations of Deutsche Börse Group's segments is described below.

**Eurex (financial derivatives)**
Deutsche Börse Group operates one of the leading global derivatives exchanges as well as one of the leading clearing houses. Revenue in the derivatives business is generated primarily from fees that are charged for transactions with regard to the matching/registration, administration and regulation of order book and off-book transactions on Eurex Deutschland. Additionally, there are connectivity fees. Fees, as well as any reductions due to discounts and rebates, are specified in price lists and circulars. Rebates depend mainly on monthly volumes or the monthly fulfilment of liquidity provisioning obligations in certain products or product groups.

Revenue for transactions in listed derivatives is recognised as soon as contracts are matched/registered and there is no unfulfilled obligation towards the customer. A receivable is recognised when the promised service is transferred at a specific point in time, and the entitlement to consideration depends solely on the passage of time. Transaction fees are invoiced on a monthly basis and are payable when invoiced. As rebates are granted mainly on a monthly basis, there is no need to recognise a contract liability. Payments are generally debited directly from the clearing member immediately after invoicing, which means that there are no financing components.

Fees are also collected for clearing and settlement services provided for off-exchange (over-the-counter, OTC) transactions and are generated primarily from posting and administration fees. Fees for these transactions and the related discounts and rebates are also specified in price lists and circulars of Eurex Clearing AG.

In the case of OTC transactions, posting fees are recognised at novation on a monthly basis. These fees are recognised at a specific point in time; namely, when the promised service is transferred at a specific point in time, and the entitlement to consideration depends solely on the passage of time. OTC administrative fees are recognised based on a time period as the service is provided until the transaction has been closed, terminated or has matured. A receivable is recognised monthly based on the usage within the respective month, provided that the respective position is still open at month end. In general, the payments are directly debited from the clearing member, which means that there are no financing components.

Deutsche Börse Group offers a whole range of connectivity options to the trading and clearing platforms. The customer has use of the company's service and uses the service as it is performed over the life of the contract. As the smallest reporting period is the same as the contract term, the performance progress equals 100 per cent. The connectivity revenue generated from this is usually realised monthly with invoicing.

**EEX (commodities)**

The EEX segment operates the central marketplace for energy and other commodity products in Europe. Its product portfolio comprises contracts on power, natural gas and emission allowances, as well as freight rates and agricultural products. Revenue is generated primarily from fees that are charged for exchange trading and clearing of commodity products. Transaction fees are specified in the price list. Rebates are granted primarily in the form of monthly rebates for the provision of a certain volume or level of liquidity. These types of rebates are dependent upon the total monthly volume or the monthly fulfilment of certain liquidity provision obligations.

Revenue is recognised as soon as contracts are matched/registered and there is no unfulfilled obligation towards the customer as the service has already been performed by this point in time. EEX recognises receivables when the promised service is provided at a certain time and the entitlement to consideration depends solely on the passage of time. Most of the invoiced amounts are debited directly from the clearing members, which means that there are no financing components.

**360T (foreign exchange)**

Via 360T group, the segment operates one of the biggest independent global multibank and multi-product trading platforms. 360T is a provider of optimised services covering the entire trading process of foreign-exchange products. It generates commission income from transaction and access fees payable for the use of its trading platform. In addition, 360T generates installation fees from the onboarding of customers on its trading platform, as well as user set-up fees and fees for the programming and maintenance of necessary interfaces.

Revenue is recognised when the contractually agreed service is provided to the customer. Revenue from the use of the platform and maintenance fees are recognised on a pro-rata basis.

Access fees, transaction fees, as well as trading platform fees, contain different discount schedules on a monthly basis. Such discounts are considered accordingly in the month in which the services are rendered and reduce the sales revenue of such period. They are invoiced on a monthly basis. Maintenance fees are invoiced on an annual basis.

### Xetra (cash equities)

As a general rule, securities intended for trading on the regulated market of Frankfurter Wertpapierbörse (FWB, the Frankfurt Stock Exchange) are subject to the admission, listing or inclusion, resolved by FWB's Exchange Management. Deutsche Börse AG, as the operator of the public-sector exchange, charges fees for the admission, listing, inclusion and quotation of securities on the regulated market. Fees charged for the admission and inclusion of securities with definite maturities on the regulated market are realised using the projected useful lives of the underlying securities. Accordingly, the fees charged for the listing of securities on the regulated unofficial market are realised using the projected useful lives of the underlying securities. The method for measuring performance progress based on the projected useful life correctly reflects the performance progress until the complete fulfilment of the performance obligation. Customer invoicing is carried out on a quarterly basis, and receivables are payable upon invoicing.

Listing fees are levied for the activity of all bodies of FWB, which supervise the trading and the settlement of trades as well as ensure the proper functioning of all trading activities (permanent possibility to make use of exchange facilities). Listing fees are recurring fees, which are charged for a service that is delivered over time. Accordingly, revenue is realised on a pro-rata basis. Revenue from fees for listings on the regulated unofficial market is realised in a similar manner.

For trading cash market products, the same accounting treatment as described within the "Eurex (financial derivatives) segment" section applies for the Xetra (cash equities) segment.

### Clearstream (post-trading)

Clearstream provides post-trading infrastructure and services; it offers transaction settlement services as well as administration and custody of securities. The fees are calculated in accordance with the prices set in the price list as well as with any relevant discounts granted. In accordance with the general terms and conditions, the customer authorises direct debiting and consequently no financing component has been identified.

Customers in the custody business receive the benefit from the service provided and consume it at the same time as the performance is fulfilled during the contract period. The revenue generated from this is generally realised on a monthly basis upon invoicing.

Fees collected for the administration of securities and for settlement services are recognised when the agreed service is provided to the customer. This occurs when instructions are received, and the transactions are processed. The service has been fulfilled at this point in time. Receivables are recognised if the agreed service is rendered at a specific point in time and the claim to the consideration solely depends on the course of time. Since discounts are generally granted on a monthly basis, the recognition of a contractual liability is not necessary. Customers are invoiced on a monthly basis and consideration is payable when invoiced.

### IFS (investment fund services)

The segment provides services to standardise fund processing and to increase efficiency and safety in the investment fund sector. The services offered comprise order routing, settlement and asset administration, as well as custody services.

Revenue is recognised when the promised service is transferred to the customer. This occurs when instructions are received and the transactions are processed. The service has been fulfilled at this point in time.

Revenue is recognised based on the price specified in the price list and reduced by the corresponding rebates. Customers are invoiced on a monthly basis and consideration is payable when invoiced. In accordance with the general terms and conditions, the customer authorises direct debiting and consequently no financing component has been identified.

**GSF (collateral management)**
Via Clearstream, Deutsche Börse Group provides a comprehensive range of global securities financing (GSF) services with the two most prominent being collateral management and securities lending services. Customers of collateral management services simultaneously receive and consume the benefits with the company's performance of the service.

Revenue is recognised over a certain period of time concurrent with the provision of collateral management services. Services in the securities lending business, on the other hand, are provided at a specific point in time.

**STOXX (index business)**
STOXX is Deutsche Börse Group's global index provider that calculates and distributes a comprehensive index family. Its offering ranges from blue-chip to benchmark to strategy to sustainability to smart-beta indices. The Group generates revenue from calculating and marketing indices, which financial market participants use as underlyings for financial instruments or as a benchmark for the performance of investment funds. Customers simultaneously receive and consume the benefits provided by the entity's performance of the service during the contract term. The recognition of revenue for index licences is based on fixed payments, variable payments (usage-based volumes; mostly assets under management), or a combination of the two.

For variable payments, customers report their usage, and fees are invoiced in the quarter after usage; monthly estimates are recognised. This is determined either based on the customer's average usage over the previous twelve months, adjusted to take into account current developments in the markets, or based on the real data in the markets on a customer level. Revenue estimates are revised when warranted by the circumstances. Increases and decreases in estimated revenue are reflected in the consolidated income statement in the period in which the circumstances that give rise to the revision become known by the management.

For two fee components (minimum fee and usage-based fee), a contract liability is recognised and reduced each month based on the usage that has been recognised each month. Customers are invoiced on a quarterly basis, and consideration is payable when invoiced.

**Data**
Market participants subscribe to real-time trading and market signals or licence these services for their own use, processing, or dissemination. The customer simultaneously receives and consumes the benefits provided by the entity's performance during the contract term. Customers report their usage, and fees are charged in the month after usage. Deutsche Börse Group puts together monthly estimates that are based on the trend of the preceding months. Revenue estimates are revised when warranted by the circumstances. Increases and decreases in estimated revenue are reflected in the consolidated income statement in the period in which the circumstances that give rise to the revision become known by the management.

Revenue is recognised based on the price specified in the price list. Customers are invoiced on a monthly basis, and consideration is payable when invoiced.

**Volume-related costs**

The “volume-related costs” item comprises expenses that depend, in particular, on the number of certain trade or settlement transactions, the custody volume, the Global Securities Financing volume, or the volume of market data acquired or that result from revenue-sharing agreements or maker-taker pricing models. Volume-related costs are not incurred if the corresponding revenue is no longer generated.

**Interest income and expense**

Interest income and expense are recognised using the effective interest method over the respective financial instrument’s term to maturity. Interest income is recognised when it is probable that the economic benefits associated with the transaction will flow to the entity and the income can be measured reliably. Interest expense is recognised in the period in which it is incurred. Interest income and expense from banking business are set off in the consolidated income statement and disclosed separately in note 4.

**Dividends**

Dividends are recognised in net income from strategic investments if the right to receive payment is based on legally assertable claims.

The consolidated income statement is structured using the nature of expense method.

## Research and development costs

Research costs are expensed in the period in which they are incurred. Development costs for an internally developed intangible asset are only capitalised when the definition and recognition criteria of an intangible asset and the recognition criteria of an intangible asset generated from development are met. An intangible asset has to be recognised when it is probable that the expected future economic benefit will flow to Deutsche Börse Group, and the cost of the asset can be measured reliably. An intangible asset generated from development has to be recorded when Deutsche Börse Group can provide evidence of the following:

- the technical feasibility of completing the intangible asset so that it will be available for use or sale
- the intention to complete development of the intangible asset and use (or sell) it
- the ability to use or sell the intangible asset
- how the intangible asset will generate probable future economic benefits
- the availability of adequate technical, financial and other resources to complete the intangible asset
- the ability to reliably measure the costs attributable to the intangible asset during its development

Development costs that have to be capitalised include direct labour costs, costs of purchased services and workplace costs, including proportionate overheads that can be directly attributed to the preparation of the respective asset for use, such as costs for the software development environment. Development costs that do not meet the requirements for capitalisation are recognised through profit or loss. Interest expense that cannot be allocated directly to one of the development projects is recognised in profit or loss in the reporting period and not included in capitalised development costs. If research and development costs cannot be separated, the expenditures are recognised as expenses in the period in which they are incurred.

All development costs (both primary costs and costs incurred subsequently) are allocated to projects. The projects are broken down into the following phases in order to decide which cost components must be capitalised and which cannot be capitalised:

**1. Design**
- Definition of product design
- Specification of the expected economic benefit
- Initial cost and revenue forecast

**2. Detailed specifications**
- Compilation and review of precise specifications
- Troubleshooting process

**3. Building and testing**
- Software programming
- Product testing

**4. Acceptance**
- Planning and implementation of acceptance tests
- Analysis to identify weak points in functional, operational software
- Identification of inefficiencies

**5. Simulation**
- Preparation and implementation of simulation
- Compilation and testing of simulation software packages
- Compilation and review of documents

**6. Roll-out**
- Planning of product launch
- Compilation and dispatch of production systems
- Compilation and review of documents

In accordance with IAS 38, only expenses attributable to the “detailed specifications” and “building and testing” phases are capitalised. All other phases of software development projects are expensed.

## Intangible assets

Capitalised development costs are amortised from the date of first use of the software using the straight-line method over the asset's expected useful life. The useful life of internally developed software is generally assumed to be five years; a useful life of seven years is used as the basis in the case of newly developed trading platforms and clearing or settlement systems, and for certain enhancements of these systems.

Purchased software is carried at cost and reduced by amortisation and, where necessary, impairment losses. Amortisation is charged using the straight-line method over the expected useful life or at most until the right of use has expired.

### Useful life of software

| Asset | Amortisation period |
|---|---|
| Standard software | 3 to 10 years |
| Purchased custom software | 3 to 7 years |
| Internally developed custom software | 3 to 7 years |

Intangible assets are derecognised on disposal or when no further economic benefits are expected to flow from them.

The amortisation period for intangible assets with finite useful lives is reviewed at a minimum at the end of each financial year. If the expected useful life of an asset differs from previous estimates, the amortisation period is adjusted accordingly.

Goodwill is recognised at cost and tested at least once a year for impairment.

The other intangible assets were largely acquired within the context of business combinations and refer to exchange licences, trade names and customer relationships. The acquisition costs correspond to the fair values as at the acquisition date.

Assets with a finite useful life are amortised using the straight-line method over their expected useful life. Depending on the relevant acquisition transaction, the expected useful life is 5 years for trade names, 4 to 24 years for participant and customer relationships, and 2 to 20 years for other intangible assets.

Assets with an indefinite useful life – exchange licences and transaction-dependent trade names – are tested for impairment at least once a year.

Since the acquired exchange licences have no time limit on their validity and, in addition, there is an intention to maintain the exchange licences disclosed as at 31 December 2018 as part of the general business strategy, an indefinite useful life is assumed. Moreover, it is assumed that the trade name of STOXX, certain trade names of 360T as well as certain registered trade names of EEX group also have an indefinite useful life. These umbrella brands benefit from strong brand awareness and are used in the course of operating activities, so there are no indications that their useful life is limited.

## Property, plant and equipment

Depreciable items of property, plant and equipment are carried at cost less cumulative depreciation. The straight-line depreciation method is used. Costs of an item of property, plant and equipment comprise all costs directly attributable to the production process, as well as an appropriate proportion of production overheads. No borrowing costs were recognised in the reporting period as they could not be directly allocated to any particular development project.

### Useful life of property, plant and equipment

| Asset | Depreciation period |
|---|---|
| Computer hardware | 3 to 5 years |
| Office equipment | 5 to 25 years |
| Leasehold improvements | based on lease term |

Repair and maintenance costs are expensed as incurred.

If it is probable that the future economic benefits associated with an item of property, plant and equipment will flow to the Group and the cost of the asset in question can be reliably determined, expenditure subsequent to acquisition is added to the carrying amount of the asset as incurred. The carrying amounts of any parts of an asset that have been replaced are derecognised.

## Impairment losses on property, plant and equipment and intangible assets

Specific non-current non-financial assets are tested for impairment. At each reporting date, the Group assesses whether there are any indications that an asset may be impaired. If this is the case, the carrying amount is compared with the recoverable amount (the higher of value in use and fair value less costs of disposal) to determine the amount of any potential impairment.

Value in use is estimated on the basis of the discounted estimated future cash flows from continuing use of the asset and from its ultimate disposal, before taxes. For this purpose, discount rates are estimated based on the prevailing pre-tax weighted average cost of capital. If no recoverable amount can be determined for an asset, the recoverable amount of the cash-generating unit (CGU) to which the asset can be allocated is determined.

Irrespective of any indications of impairment, intangible assets with indefinite useful lives and intangible assets not yet available for use must be tested for impairment at least once a year. If the estimated recoverable amount of the asset or CGU is lower than the respective carrying amount, an impairment loss is recognised and the net carrying amount of the asset or CGU, respectively, is reduced to its estimated recoverable amount.

At the acquisition date, goodwill is allocated to identifiable groups of assets (cash-generating units) or groups of cash-generating units that are expected to create synergies from the relevant acquisition. If changes arise in the structure of cash-generating units, for example through a new segmentation, goodwill is allocated taking into account the relative fair values of the newly defined cash-generating units. Irrespective of any indications of impairment, these items must be tested for impairment at least annually at the lowest level of impairment at which Deutsche Börse Group monitors the respective goodwill. An impairment loss is recognised if the carrying amount of the cash-generating unit to which goodwill is allocated (including the carrying amount of that goodwill) is higher than the recoverable amount of this group of assets. The impairment loss is first allocated to the goodwill, then to the other assets in proportion to their carrying amounts.

A review is conducted at every reporting date to establish whether there are any indications that an impairment loss recognised on non-current assets (excluding goodwill) in prior periods no longer applies. If this is the case, the carrying amount of the asset is increased and the difference is recognised in profit or loss. The maximum amount of this reversal is limited to the carrying amount that would have resulted if no impairment loss had been recognised in prior periods. Impairment losses on goodwill are not reversed.

## Fair value measurement

The fair value of a financial instrument is measured using quoted market prices, if available. If no quoted market prices are available, observable market prices, for example for interest rates or exchange rates, are used. This observable market information is then used as inputs for financial valuation techniques, e.g. option pricing models or discounted cash flow models. In isolated instances, fair value is determined exclusively on the basis of internal valuation models.

## Investments in associates and joint ventures

Investments in associates and joint ventures are measured at cost on initial recognition and accounted for using the equity method upon subsequent measurement.

## Financial instruments

### Financial assets since 1 January 2018

#### Financial assets: recognition and derecognition of financial assets

Financial assets are recognised when the Group or one of its companies becomes a party to a financial instrument. Regular way purchases and sales of financial assets are generally recognised and derecognised at the trade date. Purchases and sales of debt instruments classified as "at amortised cost" and of equities eligible for clearing via the central counterparties (CCPs) of Deutsche Börse Group are recognised and derecognised at the settlement date.

Financial assets are derecognised when the contractual rights to the cash flows expire or when the company transfers these rights in a transaction that transfers substantially all risks and rewards of ownership of the financial assets.

Clearstream Banking S.A. acts as a principal in securities borrowing and lending transactions in the context of the ASLplus securities lending system. Legally, it operates between the lender and the borrower without being an economic party to the transaction (transitory items). In these transactions, the securities borrowed and lent match each other. Consequently, these transactions are not recognised in the consolidated balance sheet.

**Financial assets: measurement**
Since 1 January 2018, the Group has classified its financial assets according to the following measurement categories:

- fair value (through other comprehensive income or through profit or loss)
- amortised cost

The classification depends on the entity's business model for managing the financial assets and contractual terms of the cash flows.

For assets measured at fair value, gains and losses will be recognised in profit or loss or in other comprehensive income. For investments in debt instruments, the recognition method will depend on the business model according to which the investment is held. For investments in equity instruments that are not held for trading, this will depend on whether Deutsche Börse Group made use of the option at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. The classficiation chosen may not be changed in future periods.

The Group reclassifies debt instruments when – and only when – its business model for managing such items changes.

**Financial assets: initial measurement**
At initial recognition, Deutsche Börse Group measures a financial asset at its fair value through profit or loss. In the case of financial assets measured through other comprehensive income, measurement also takes into account transaction costs that are directly attributable to the acquisition of the respective asset. Transaction costs of financial assets carried at fair value through profit or loss are recognised in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

### Financial assets: subsequent measurement of debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and cash flow characteristics of the respective assets. Deutsche Börse Group allocates each debt instrument in one of the following categories:

- **Amortised cost:** Assets held for collection of contractual cash flows, where those cash flows represent solely payments of principal and interest, are measured at amortised cost. A gain or loss on a debt instrument that is subsequently measured at amortised cost is recognised through profit or loss when the asset is derecognised or impaired. Interest income from these financial assets is included in financial income or in net interest income from banking business using the effective interest rate method. Foreign-exchange gains and losses are shown in other operating income or expenses or in financial income or expense.
- **Fair value through other comprehensive income (FVOCI):** Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at FVOCI. Changes in the carrying amount are shown in other comprehensive income. An exception to this rule is the recognition of impairment gains or losses, interest revenue and foreign-exchange gains and losses which are recognised in profit or loss. When a financial asset is derecognised, the cumulative gain or loss previously recognised in other comprehensive income is reclassified from equity to profit or loss and recognised in other operating income or expenses. Interest income from these financial assets would be included in financial income or in net interest income from banking business using the effective interest rate method. Foreign-exchange gains and losses are presented in other operating income or expenses or in financial income or expense. Impairment expenses are shown in other operating expenses. The Group did not follow the business model to hold and to sell in the reporting period. Accordingly, no debt instruments were classified at FVOCI.
- **Fair value through profit or loss (FVPL):** Financial assets that do not meet the criteria for measurement at amortised cost or at FVOCI, are measured at FVPL. A gain or loss on a debt investment that is subsequently measured at FVPL and not part of a hedging relationship is recognised in profit or loss and included as a net amount in the consolidated income statement within net income from strategic investments in the period in which it arises.

### Financial assets: subsequent measurement of equity instruments

Deutsche Börse Group subsequently measures all equity investments at fair value. Where the Group's management opted for presenting fair value gains and losses on equity investments in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividends from such investments are recognised in profit or loss as net income from strategic investments when the Group's right to receive payments is established.

Changes in the fair value of financial assets measured at fair value through profit or loss are recognised in net income from strategic investments in the consolidated income statement as applicable.

Impairment losses (and reversal of impairment losses) on equity investments measured at FVOCI are not reported separately from other changes in fair value.

As at the reporting date, Deutsche Börse Group has designated all equity instruments as at fair value through other comprehensive income.

**Impairment**

The Group assesses the expected credit losses associated with its debt instruments carried at amortised cost or at FVOCI on a forward-looking basis. The impairment is measured based on an amount equal to twelve-month expected losses or lifetime expected losses at Deutsche Börse Group. The impairment methodology applied depends on whether there has been a significant increase in credit risk. A loss allowance equal to twelve-month expected losses is recognised unless the credit risk on a financial instrument has increased significantly since initial recognition.

In accordance with IFRS 9, a default is assumed, and a transfer to stage 3 is required when a financial asset is credit-impaired, i.e. when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred. Deutsche Börse Group has identified the following triggers to identify an event of default and which cause a transfer to stage 3 accordingly:

- **Legal default:** a contractual partner is unable to fulfil its contractual obligation according to an agreement with Deutsche Börse Group due to insolvency/bankruptcy.
- **Contractual default:** a contractual partner is unable or unwilling to fulfil, in a timely manner, one or more of its scheduled contractual obligations according to an agreement with Deutsche Börse Group. The non-fulfilment of the contractual obligation could potentially result in a financial loss for Deutsche Börse Group.

IFRS 9 sets out that a default is to be assumed if a debtor is past due for more than 90 days. This is only used as a fallback at Deutsche Börse Group, as the company expects to identify a debtor’s default based on the above-mentioned criteria at an earlier point in time. For trade receivables, a default is assumed for amounts which are overdue for more than 360 days.

Financial assets are considered to have low credit risk if listed bonds and other financial investments or counterparties have an investment-grade credit rating. For financial assets with a low credit risk rating, a risk provision is calculated that is equal to the twelve-month expected loss.

For trade receivables, the Group applies the simplified approach permitted by IFRS 9, which requires lifetime expected losses to be recognised from initial recognition of the receivables.

In case there is no reasonable expectation that the outstanding amounts can be collected, receivables are written off directly. Indicators used to arrive at the "uncollectability assumption" include the following:

- Insolvency proceedings are not started due to missing substance of the debtor.
- Insolvency proceedings have not resulted in any payment for a period of three years, and there is no indication that any amount will be received going forward.
- Enforcement activities are not pursued by Deutsche Börse Group due to cost-benefit analysis, or Deutsche Börse Group has tried unsuccessfully to collect the receivable for a period of three years.

### Cash and cash equivalents

Cash and cash equivalents comprise cash on hand and demand deposits as well as financial assets that are readily convertible into cash. They are subject to only minor changes in value. Cash and cash equivalents are measured at amortised cost.

Restricted bank balances mainly include cash deposits by market participants that are invested largely overnight, mainly at central banks or in the form of reverse repurchase agreements with banks.

## Financial assets until 31 December 2017

The Group has opted for retrospective application of IFRS 9 but did not elect to restate prior-year figures. Accordingly, the presented comparative information continues to be accounted for in line with the accounting policies previously applied for financial assets. These are set out in the following:

### Financial assets: recognition and derecognition

Financial assets were recognised when a Group company became a party to the contractual provisions of the instrument. Regular purchases and sales of financial assets were generally recognised or derecognised, respectively, as at the trade date. The purchase and the sale of debt instruments carried at amortised cost, as well as equity securities that were settled via a central counterparty of Deutsche Börse Group, were recognised and derecognised, respectively, as at the settlement date.

Financial assets were derecognised when the contractual rights to the cash flows from the financial asset expired or when the company transferred these rights in a transaction where substantially all the risks and rewards of ownership of the financial asset were transferred.

### Financial assets: initial measurement

Financial assets were initially measured at fair value; in the case of a financial asset that was not measured at fair value through profit or loss in subsequent periods; this included transaction costs. If they were settled within one year, they were allocated to current assets. All other financial assets were allocated to non-current assets.

### Financial assets: subsequent measurement of financial assets

Subsequent measurement of financial instruments followed the categories which are described below. Until the end of 2016, Deutsche Börse Group had not made use of the option to allocate financial assets to the "held-to-maturity investments" category. In 2017, Deutsche Börse Group applied the option for the first time to designate financial assets at fair value through profit or loss (the fair value option) for a convertible bond.

The financial assets were allocated to the respective categories at initial recognition.

### Assets held for trading

Derivatives that were not designated as hedging instruments, as well as financial instruments held by central counterparties (excluding collateral not yet collected from clearing participants) were measured at fair value through profit or loss.

If they resulted from banking business, realised and unrealised gains and losses were immediately recognised in the consolidated income statement as “other operating income”, “other operating expenses” and “net interest income from banking business” or, if incurred outside the banking business, as “financial income” and “financial expenses”.

### Loans and receivables

Loans and receivables were recognised at amortised cost, taking into account any impairment losses, if applicable. Premiums and discounts were included in the amortised cost of the instrument concerned and were amortised using the effective interest method; they were contained in “net interest income from banking business” if they related to banking business, or in “financial income” and “financial expense”.

### Cash and cash equivalents

Cash and cash equivalents comprised cash on hand and demand deposits as well as financial assets that were readily convertible to cash. They were subject to only minor changes in value. Cash and cash equivalents were measured at amortised cost.

Restricted bank balances mainly included cash deposits by market participants that were invested largely overnight, mainly at central banks or in the form of reverse repurchase agreements with banks.

### Available-for-sale financial assets

Non-derivative financial assets were classified as “available-for-sale financial assets” if they could not be allocated to the “loans and receivables” or “assets held for trading” categories.

Available-for-sale financial assets were generally measured at the fair value observable in an active market. Unrealised gains and losses were recognised directly in equity in the revaluation surplus. Impairment losses and the effects of exchange rates on monetary items were excluded from this general principle and were recognised in profit or loss.

Equity instruments for which no active market existed were measured on the basis of current comparable market transactions, if these were available. If an equity instrument was not traded in an active market and alternative valuation methods could not be applied to that equity instrument, it was measured at cost, subject to an impairment test.

Realised gains and losses were generally recognised in “financial income” or “financial expense”. Interest income in connection with debt instruments in the banking business was recognised in the consolidated income statement in “net interest income from banking business” using the effective interest rate method. Other realised gains and losses were recognised in the consolidated income statement in “other operating income” and “other operating expenses”.

**Derecognition of financial assets**

Financial assets were derecognised when the contractual rights to the cash flows expired or when substantially all the risks and rewards of ownership of the financial assets were transferred.

Clearstream Banking S.A. acts as a principal in securities borrowing and lending transactions in the context of the ASLplus securities lending system. Legally, it operates between the lender and the borrower without being an economic party to the transaction (transitory items). In these transactions, the securities borrowed and lent match each other. Consequently, these transactions were not recognised in the consolidated balance sheet.

**Impairment of financial assets**

Financial assets that were not measured at fair value through profit or loss were reviewed at each reporting date to establish whether there were any indications of impairment.

Deutsche Börse Group had laid down criteria for assessing whether there was evidence of impairment. These criteria primarily included significant financial difficulties on the part of the debtor and breaches of contract. In the case of equity instruments, the assessment also took into account the duration and the amount of the impairment compared with cost. If the decline in value amounted to at least 20 per cent of the cost or lasted for at least nine months, or if the decline was at least 15 per cent of the cost and lasted for at least six months, Deutsche Börse Group took this to be evidence of impairment. Impairment was assumed in the case of debt instruments if there was a significant decline in the issuer’s credit quality.

The amount of an impairment loss for a financial asset measured at amortised cost was the difference between the carrying amount and the present value of the estimated future cash flows, discounted at the original effective interest rate. A subsequent reversal was recognised at a maximum at the carrying amount that would have resulted if no impairment loss had been recognised.

The amount of an impairment loss for a financial asset measured at cost (unlisted equity instruments) was the difference between the carrying amount and the present value of the estimated future cash flows, discounted at a current market interest rate. Subsequent reversal was not permitted.

In the case of available-for-sale financial assets, the impairment loss was calculated as the difference between cost and fair value. Any reduction in fair value previously recognised in equity was reclassified to profit or loss upon determination of the impairment loss. An impairment loss recognised on debt instruments was only permitted to be reversed in a subsequent period if the reason for the original impairment no longer applied.

## Financial liabilities

Financial liabilities are recognised when a Group company becomes a party to the instrument. Purchases and sales of equities via the central counterparty Eurex Clearing AG are recognised at the settlement date analogous to financial assets.

**Offsetting financial assets and liabilities**
Financial assets and liabilities are offset and only the net amount is presented in the consolidated balance sheet when a Group company currently has a legally enforceable right to set off the recognised amounts and intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

**Financial liabilities measured at amortised cost**
Financial liabilities not held for trading are carried at amortised cost. The borrowing costs associated with the placement of financial liabilities are included in the carrying amount and accounted for using the effective interest method if they are directly attributable. Discounts are amortised over the term of the liabilities.

**Financial liabilities measured at fair value through profit or loss**
A forward transaction with a non-controlling shareholder for the acquisition of non-controlling interests that is settled in cash or by delivering other financial assets is a financial liability recognised at fair value. It is subsequently measured at fair value through profit or loss. The equity interest attributable to a non-controlling shareholder underlying the transaction is accounted for as if it had already been acquired at the time of the transaction.

## Derivatives and hedging activities since 1 January 2018

Derivatives are initially recognised at fair value on the date a derivatives contract is entered into and are subsequently re-measured at their fair value at the end of each reporting period. The accounting for subsequent changes in fair value depends on whether the derivatives contract is designated as a hedging instrument.

The Group designates currency or interest rate derivatives as hedges of foreign-exchange risk associated with the cash flows of highly probable forecast transactions and interest rate swaps if required as hedges of interest rate risk associated with the expected issuance of fixed interest rate bonds in the future (both cash flow hedges).

Deutsche Börse Group has not entered into fair value hedges in 2017 or 2018.

At the inception of the hedging transaction, the Group documents the economic relationship between hedging instruments and hedged items including whether the hedging instrument is expected to offset changes in cash flows of hedged items. The Group also documents its risk management objective and strategy for undertaking various hedge transactions at that point in time.

The fair value of a hedging derivative is classified as a non-current asset or liability when the remaining maturity of the hedged item is more than twelve months; it is classified as a current asset or liability when the remaining maturity of the hedged item does not exceed twelve months.

**Cash flow hedges that qualify for hedge accounting**

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognised in other comprehensive income, limited to the cumulative change in fair value of the hedged item on a present value basis from the inception of the hedge. The gain or loss relating to the ineffective portion is recognised immediately in profit or loss within net interest income from banking business or within financial income or expense.

Amounts accumulated in other comprehensive income are reclassified in the periods when the hedged item affects profit or loss, as follows:

- The amount accumulated in the cash flow hedge reserve is reclassified to profit or loss as a reclassification adjustment in the same period or periods during which the hedged future cash flows affect profit or loss. If that amount is a loss and Deutsche Börse Group expects that the entirety or a portion of that loss will not be recovered in one or more future periods, it immediately reclassifies the amount that is not expected to be recovered into profit or loss as a reclassification adjustment.
- The gain or loss relating to the effective portion of the interest rate-related instruments hedging fixed-rate borrowings is recognised in profit or loss within “financial expenses”.

When a hedging instrument expires or is sold or terminated, or when a hedge no longer meets the criteria for hedge accounting, the Group discontinues hedge accounting. When the forecast transaction is no longer expected to occur, the cumulative gain or loss and deferred costs of hedging that were reported in equity are immediately reclassified to profit or loss.

Hedge ineffectiveness is recognised in profit or loss within net interest income from banking business or financial income or expenses.

**Hedges of a net investment in a foreign operation**

The portion of the gain or loss on the hedging instrument that is determined to be an effective hedge is recognised in other comprehensive income. It is recognised in profit or loss when the foreign operation is sold. The ineffective portion of the gain or loss on the hedging instrument is recognised immediately in the consolidated income statement.

## Derivatives and hedges (until 31 December 2017)

Derivatives were used to hedge interest rate risk or currency risk. All derivatives were carried at their fair values.

Hedge accounting was used for derivatives that were part of a hedging relationship determined to be highly effective and for which certain conditions were met. This related in particular to the documentation of the hedging relationship and the risk strategy and to how reliably effectiveness could be measured.

**Cash flow hedges**
The portion of the gain or loss on the hedging instrument determined to be highly effective was recognised in other comprehensive income. This gain or loss ultimately adjusted the value of the hedged cash flow, i.e. the gain or loss on the hedging instrument was recognised in profit or loss when the hedged item was recognised in the balance sheet or in profit or loss. The ineffective portion of the gain or loss was recognised immediately in the consolidated income statement.

**Fair value hedges**
The gain or loss on the hedging instrument, together with the gain or loss on the hedged item (underlying) attributable to the hedged risk, was recognised immediately in the consolidated income statement. Any gain or loss on the hedged item adjusted its carrying amount.

**Hedges of a net investment in a foreign operation**
The effective portion of the gain or loss from a hedging transaction that was designated as a highly effective hedge was recognised in other comprehensive income. It was recognised in profit or loss when the foreign operation was sold. The ineffective portion of the gain or loss was recognised immediately in the consolidated income statement.

**Derivatives that were not part of a hedging relationship**
Gains or losses on derivative instruments that were not part of a highly effective hedging relationship were recognised immediately in the consolidated income statement.

## Financial instruments held by central counterparties

European Commodity Clearing AG, Nodal Clear, LLC and Eurex Clearing AG act as central counterparties:

- Eurex Clearing AG guarantees the settlement of all transactions involving futures and options on Eurex Deutschland. It also guarantees the settlement of all transactions for Eurex Repo (repo trading platform), certain exchange transactions in equities on Frankfurter Wertpapierbörse (FWB, the Frankfurt Stock Exchange) and certain cash market transactions on the Irish Stock Exchange. Eurex Clearing AG also guarantees the settlement of off-order-book trades entered for clearing in the trading systems of the Eurex exchanges, Eurex Bonds, Eurex Repo, the Frankfurt Stock Exchange and the Irish Stock Exchange. In addition, Eurex Clearing AG clears over-the-counter (OTC) interest rate derivatives and securities lending transactions, where these meet the specified novation criteria.
- European Commodity Clearing AG guarantees the settlement of spot and derivatives transactions at the trading venues of EEX group and the connected partner exchanges.

- Nodal Clear, LLC was acquired by European Energy Exchange in 2017 as part of Nodal Exchange group. Nodal Clear, LLC is a Derivatives Clearing Organisation (DCO) registered in the United States and is the central counterparty for all transactions executed on Nodal Exchange.

The transactions of the clearing houses are only executed between the respective clearing house and a clearing member.

In accordance with IFRS 9, purchases and sales of equities and bonds via the Eurex Clearing AG central counterparty are recognised and simultaneously derecognised at the settlement date.

For products that are marked to market (futures, options on futures as well as OTC interest-rate deriva-tives), the clearing houses recognise gains and losses on open positions of clearing members on each exchange day. By means of the variation margin, profits and losses on open positions resulting from market price fluctuations are settled on a daily basis. The difference between this and other margin types is that the variation margin does not comprise collateral, but is a daily offsetting of profits and losses in cash. Therefore, futures and OTC interest rate derivatives are not reported in the consolidated balance sheet.

“Traditional” options, for which the buyer must pay the option premium in full upon purchase, are carried in the consolidated balance sheet at fair value. Receivables and liabilities from repo transactions and from cash-collateralised securities lending transactions are classified as held for trading and carried at fair value.

“Financial instruments held by central counterparties” are reported as non-current if the remaining maturity of the underlying transactions exceeds twelve months at the reporting date.

The fair values recognised in the consolidated balance sheet are based on daily settlement prices. These are calculated and published by the clearing house in accordance with the rules set out in the contract specifications (see also the clearing conditions of the respective clearing house).

### Cash or securities collateral held by central counterparties

As the clearing houses of the Deutsche Börse Group guarantee the settlement of all traded contracts, they have established multi-level collateral systems. The central pillar of the collateral systems is the determination of the overall risk per clearing member (margin) to be covered by cash or securities collateral. Losses calculated on the basis of current prices and potential future price risks are covered up to the date of the next collateral payment.

In addition to these daily collateral payments, each clearing member must make contributions to the respective default fund (for further details, see the risk report in the combined management report). Cash collateral is reported in the consolidated balance sheet under “cash deposits by market participants” and the corresponding amounts under “restricted bank balances”.

Securities collateral is generally not derecognised by the clearing member providing the collateral, as the opportunities and risks associated with the securities are not transferred to the secure party. Recognition at the secure party is only permissible if the clearing member providing the transfer is in default according to the underlying contract.

## Treasury shares

The treasury shares held by Deutsche Börse AG at the reporting date are deducted directly from shareholders' equity. Gains or losses on treasury shares are recognised in other comprehensive income. The transaction costs directly attributable to the acquisition of treasury shares are accounted for as a deduction from shareholders' equity (net of any related income tax benefit).

## Non-current assets held for sale, disposal groups and discontinued operations

Non-current assets that are available for immediate sale in their present condition, and whose sale is highly probable within a reasonable period of time, are classified as "non-current assets held for sale". A transaction is highly probable if measures for the sale have already been initiated and the relevant bodies have adopted the corresponding resolutions. Disposal groups may comprise current and non-current assets, and the corresponding liabilities, which fulfil the criteria provided above and which are to be sold and discontinued. Income and expenses from non-current assets held for sale are recognised within continuing operations, provided such items are not included in net profit from discontinued operations.

Discontinued operations exclusively comprise assets and liabilities which are to be sold, entirely or partly, as part of an individual plan or are to be abandoned. Furthermore, discontinued operations are assets or liabilities of major lines of business or geographical areas of operations. Every line of business or geographical area of operation must be identifiable for operational and accounting purposes. Net profit from discontinued operations is recognised in the period in which it is incurred, and is disclosed separately in the consolidated income statement and the consolidated statement of comprehensive income. The corresponding cash flows are disclosed separately in the consolidated cash flow statement. Furthermore, the figures disclosed in the previous year's income statement and cash flow statement have been restated accordingly.

## Pensions and other employee benefits

Pensions and other employee benefits relate to defined contribution and defined benefit pension plans.

### Defined contribution plans

There are defined contribution plans as part of the occupational pension system using pension funds and similar pension institutions, as well as on the basis of 401(k) plans. In addition, contributions are paid to the statutory pension insurance scheme. The level of contributions is normally determined in relation to income. As a rule, no provisions are recognised for defined contribution plans. The contributions paid are reported as pension expenses in the year of payment.

There are defined contribution pension plans for employees in several countries. In addition, the employer pays contributions to employees' private pension funds.

**Multi-employer plans**
Several Deutsche Börse Group companies are, along with other financial institutions, member institutions of BVV Versicherungsverein des Bankgewerbes a.G. (BVV), a pension insurance provider with a registered office in Berlin, Germany. Employees and employers make regular contributions, which are used to provide guaranteed pension plans and a potential surplus. The contributions to be made are calculated based on contribution rates applied to active employees' monthly gross salaries, taking into account specific financial thresholds. Member institutions are liable in the second degree regarding the fulfilment of BVV's agreed pension benefits. However, we consider the risk that said liability would actually be utilised as remote. Given that BVV membership is governed by a Works Council Agreement, membership termination is subject to certain conditions. Deutsche Börse Group considers BVV pension obligations as multi-employer defined benefit pension plans (leistungsorientierte Pläne). However, the Group currently lacks information regarding the allocation of BVV assets to individual member institutions and the respective beneficiaries, as well as regarding Deutsche Börse Group's actual share in BVV's total obligations. Hence, Deutsche Börse Group discloses this plan as a defined contribution plan ("beitragsorientierter Plan"). Based on its latest publications, BVV does not suffer any deficient cover with a potential impact on Deutsche Börse Group's future contributions.

EPEX Netherlands B.V. participates in the ABP pension fund within the EEX subgroup. Participation is mandatory for all employees. Employer contributions are calculated by ABP and adjusted, if necessary. This pension plan was reported as a defined contribution plan, given the limited information regarding the allocation of fund assets to member institutions and beneficiaries.

**Defined benefit plans**
Provisions for pension obligations are measured separately for each pension plan, using the projected unit credit method on the basis of actuarial opinions. The fair value of plan assets is deducted from the present value of pension obligations, reflecting the asset ceiling rules if there are any excess plan assets. This results in the net defined benefit liability or asset. Net interest expense for the financial year is calculated by applying the discount rate determined at the beginning of the financial year to the net defined benefit liability determined as at that date.

The relevant discount rate is determined by reference to the return on long-term corporate bonds with a rating of at least AA (Moody's Investors Service, S&P Global Ratings, Fitch Ratings and Dominion Bond Rating Service) on the basis of the information provided by Bloomberg, and a maturity that corresponds approximately to the maturity of the pension obligations. Moreover, the bonds must be denominated in the same currency as the underlying pension obligation. Measurement of the pension obligations in euros is, in principle, based on a discount rate of 1.75 per cent, which is determined according to the Towers Watson "GlobalRate:Link" methodology updated in line with the current market trend.

Actuarial gains or losses resulting from changes in expectations with regard to life expectancy, pension trends, salary trends and the discount rate as compared with the estimate at the beginning of the period or compared with the actual development during the period are recognised directly in other comprehensive income. Actuarial gains and losses recognised in other comprehensive income may not be reclassified to profit or loss in subsequent periods. Similarly, differences between the (interest) income on plan assets determined at the beginning of the period and the return on plan assets actually recorded at the end of the period are also recognised directly in other comprehensive income. The actuarial gains or losses and the difference between the expected and the actual return or loss on plan assets are recognised in the revaluation surplus.

Other long-term benefits for employees and members of executive boards (total disability pension, transitional payments and surviving dependants' pensions) are also measured using the projected unit credit method. Actuarial gains and losses and past service cost are recognised immediately and in full through profit or loss.

### Other provisions

Provisions are recognised if the Group has a present obligation from an event in the past, it is probable that there will be an outflow of resources embodying economic benefits to settle the obligation and the amount of this obligation can be estimated reliably. The amount of the provision corresponds to the best estimate of the expenditure required to settle the obligation at the reporting date.

A restructuring provision is only recognised when an entity has a detailed formal plan for the restructuring and has raised a valid expectation in those affected that the restructuring measures will be implemented, for example, by starting to implement such plan or by announcing its principal features to those affected. Provisions in the context of the programme resolved in 2018 to reduce structural costs (Structural Performance Improvement Programme, SPIP) as well as provisions recognised for contractually agreed early retirement agreements and severance agreements, are recorded in other provisions.

Contingent liabilities are not recognised, but rather disclosed unless the possibility of an outflow of resources embodying economic benefits is remote.

### Share-based payment

Deutsche Börse Group operates the Group Share Plan (GSP), the Stock Bonus Plan (SBP), the Co-Performance Investment Plan (CPIP) and the Performance Share Plan (PSP) as well as the Long-term Sustainable Instrument (LSI) and the Restricted Stock Units (RSU), which provide share-based payment components for employees, senior executives and executive board members.

**Group Share Plan (GSP)**

Under the GSP, shares are generally granted at a discount to the market price to the non-executive staff of Deutsche Börse AG and of participating subsidiaries who have been employed on a non-temporary basis since at least 31 March of the previous year. The expense of this discount is recognised in the income statement at the grant date.

**Stock Bonus Plan (SBP)**

The SBP for senior executives of Deutsche Börse AG and of participating subsidiaries grants a long-term remuneration component in the form of so-called SBP shares. These are generally accounted for as share-based payments for which Deutsche Börse AG has a choice of settlement in cash or equity instruments for certain tranches. Tranches due in previous years were each settled in cash. Regarding the 2018 tranche, cash settlement has been agreed upon too. Under these circumstances, it is presently presumed in accordance with IFRS 2 that all SBP shares will be settled in cash. Accordingly, Deutsche Börse Group has measured the SBP shares as cash-settled share-based payment transactions. The cost of the options is estimated using an option pricing model (fair value measurement) and recognised in staff costs in the consolidated income statement. Any right to payment of a stock bonus only vests after the expiration of the service or performance period of four years on which the plan is based.

**Performance Share Plan (PSP)**

The PSP was launched in financial year 2016 for members of the Executive Board of Deutsche Börse AG as well as selected senior executives and employees of Deutsche Börse AG and of participating subsidiaries. The number of phantom PSP shares to be allocated is calculated based on the number of shares granted and the increase of net profit for the period attributable to Deutsche Börse AG shareholders, as well as on the relative performance of the total shareholder return (TSR) on Deutsche Börse AG's shares compared with the total shareholder return of the STOXX Europe 600 Financials Index constituents. The shares are subject to a performance period of five years. The subsequent payment of the stock bonus will be settled in cash. For further details on this plan, please see the "Principles governing the PSP and assessing target achievement for performance shares" section in the remuneration report.

**Long-term Sustainable Instrument (LSI)**

In order to meet regulatory requirements, the LSI for risk takers (employees whose professional activities have a material impact on the operations of institutions) was introduced in financial year 2014 (see note 28). LSI shares are generally settled in cash. Regarding the 2014 tranche, the respective companies have the option to fulfil their obligations by delivering shares of Deutsche Börse AG. The remaining tranches will be settled in cash. Deutsche Börse Group thus measures the LSI shares as cash-settled share-based payment transactions. The options are measured using an option pricing model (fair value measurement). Any right to payment of a stock bonus only vests after the expiration of the one-year service period on which the plan is based, taking certain waiting periods into account.

**Restricted Stock Units (RSU)**

Like the LSI plan, the RSU plan applies to risk takers within Deutsche Börse Group. RSU shares are settled in cash; Deutsche Börse Group thus measures the RSU shares as cash-settled share-based payment transactions. The options are measured using an option pricing model (fair value measurement). Any right to payment of a stock bonus only vests after the expiration of the one-year service period on which the plan is based, taking a three-year retention period and a one-year waiting period into account.

### Deferred tax assets and liabilities

Deferred tax assets and liabilities are computed using the balance sheet liability approach. The deferred tax calculation is based on temporary differences between the carrying amounts of assets and liabilities in the IFRS financial statements and their tax base that will lead to a future tax liability or benefit when assets are used or sold or liabilities are settled.

The deferred tax assets or liabilities are measured using the tax rates that are currently expected to apply when the temporary differences reverse, based on tax rates that have been enacted or substantively enacted by the reporting date. Deferred tax assets are recognised for the unused tax loss carryforwards only to the extent that it is probable that future taxable profit will be available. Deferred tax assets and deferred tax liabilities are offset where a legally enforceable right to set off current tax assets against current tax liabilities exists, and the deferred tax assets and deferred tax liabilities relate to income taxes levied by the same taxation authority.

### Leases

Leases are classified as operating leases or finance leases. A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership of the asset from the lessor to the lessee. All other leases are classified as operating leases.

Leased assets and the associated liabilities are recognised at the lower of the fair value and present value of the minimum lease payments if the criteria for classification as a finance lease are met. The leased asset is depreciated or amortised using the straight-line method over its useful life or the lease term, if shorter. In subsequent periods, the liability is measured using the effective interest method.

Expenses incurred in connection with operating leases are recognised as an expense on a straight-line basis over the lease term.

For details regarding changes to the accounting of leases as of 1 January 2019, see note 1.

### Consolidation

Deutsche Börse AG and all subsidiaries directly or indirectly controlled by Deutsche Börse AG are included in the consolidated financial statements. Deutsche Börse AG controls a company if it is exposed to variable returns resulting from its involvement with the company in question or has rights to such returns and is able to influence them by using its power over the company.

Initial consolidation of subsidiaries in the course of business combinations uses the purchase method. The acquiree’s identifiable assets, liabilities and contingent liabilities are recognised at their acquisition date fair values. Any excess of cost over the acquirer’s interest in the fair value of the subsidiary’s net identifiable assets is recognised as goodwill. Goodwill is reported in subsequent periods at cost less accumulated impairment losses.

Intra-Group assets and liabilities are eliminated. Income arising from intra-Group transactions is eliminated against the corresponding expenses. Intermediate profits or losses arising from deliveries of intra-Group goods and services, as well as dividends distributed within the Group, are eliminated. Deferred taxes for consolidation adjustments are recognised where these are expected to reverse in subsequent years.

Interests in equity attributable to non-controlling interest shareholders are carried under “non-controlling interests” within equity. Where these are classified as “puttable instruments”, they are reported under “liabilities”.

## Currency translation

Transactions denominated in a currency other than a company’s functional currency are translated into the functional currency at the spot exchange rate applicable at the transaction date. At the reporting date, monetary balance sheet items in foreign currency are measured at the exchange rate at the reporting date, while non-monetary balance sheet items recognised at historical cost are measured at the exchange rate on the transaction date. Non-monetary balance sheet items measured at fair value are translated at the exchange rate prevailing at the valuation date. Exchange rate differences are recorded as other operating income or expenses in the period in which they arise unless the underlying transactions are hedged. Gains and losses from a monetary item that forms part of a net investment in a foreign operation are recognised directly in “accumulated profit”.

The annual financial statements of companies whose functional currency is not the euro are translated into the reporting currency as follows: assets and liabilities are translated into euros at the closing rate. The items in the consolidated income statement are translated at the average exchange rates for the reporting period. Resulting exchange differences are recognised directly in “accumulated profit”. When the relevant subsidiary is sold, these exchange rate differences are recognised in the net profit for the period in which the deconsolidation gain or loss is realised.

The following euro exchange rates of consequence to Deutsche Börse Group were applied:

### Exchange rates

| | | Average rate 2018 | Average rate 2017 | Closing price as at 31 Dec 2018 | Closing price as at 31 Dec 2017 |
|---|---|---|---|---|---|
| Swiss francs | CHF | 1.1512 | 1.1155 | 1.1264 | 1.1680 |
| US dollars | USD (US$) | 1.1801 | 1.1360 | 1.1433 | 1.1969 |
| Czech koruna | CZK | 25.6605 | 26.2997 | 25.7315 | 25.5683 |
| Singapore dollar | SGD | 1.5907 | 1.5605 | 1.5577 | 1.5990 |
| British pound | GBP (£) | 0.8863 | 0.8750 | 0.8978 | 0.8860 |

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amounts of assets and liabilities arising from initial consolidation are reported in the functional currency of the foreign operation and translated at the closing rate.

## Estimates, measurement uncertainties and discretionary judgements

The application of accounting policies, the presentation of assets and liabilities, and the recognition of income and expenses requires the Executive Board to make discretionary judgements and estimates. Adjustments in this context are taken into account in the period the change was made, as well as in subsequent periods, where necessary.

**Impairment of non-financial assets**
Deutsche Börse Group tests goodwill, as well as intangible assets with indefinite useful lives, and intangible assets not yet available for use for impairment at least once a year. Certain assumptions have to be made to determine the recoverable amount, which is calculated regularly using discounted cash flow models. This is based on the relevant business plans with a detailed planning period of up to five years. These plans, in turn, contain assumptions about the future financial performance of the assets and cash-generating units. If their actual financial performance differs from these assumptions then corresponding adjustments may be necessary. For further information on the effects of changes in the discount rate, as well as on further assumptions, please see note 11.

**Financial instruments**
Since financial instruments are measured at fair value, there is discretion in the determination of the fair value of unlisted instruments. In this context, Deutsche Börse Group makes partial use of internal measurement models where the parameters and assumptions may deviate from the actual results in the future.

**Pensions and other employee benefits**
Pensions and other employee benefits are measured using the projected unit credit method, which calculates the actuarial present value of the accumulated benefit obligation. Calculating the present value requires certain actuarial assumptions (e.g. discount rate, staff turnover rate, salary and pension trends) to be made. The current service cost and the net interest expense or income for the subsequent period are calculated on the basis of these assumptions. Any departures from these assumptions, for example, because of changes in the macroeconomic environment, are recognised in other comprehensive income in the following financial year. A sensitivity analysis of the key factors is presented in note 17.

**Income taxes**
Deutsche Börse Group is subject to the tax laws of those countries in which it operates and generates income. Considerable discretion has to be exercised in determining the tax provisions. For a large number of transactions and calculations, no definitive tax-relevant information is available at the time these figures are determined. Deutsche Börse Group recognises corresponding provisions for risks expected from external tax audits. If the final results of these external audits differ from the estimates, the resulting effects on current and deferred taxes are recognised in the period in which they become known.

**Legal risks**
The companies of Deutsche Börse Group are subject to litigation. Such litigation may lead to orders to pay against the entities of the Group. If it is more likely than not that an outflow of resources will occur, a provision will be recognised based on an estimate of the most probable amount necessary to settle the obligation if such amount is reasonably estimable. The management of the entity affected must judge whether the possible obligation results from a past event, as well as evaluate the probability of a cash outflow and estimate its amount. As the outcome of litigation is usually uncertain, the judgement is reviewed continuously. For further information on other risks please see note 26.

**Share-based payments**
Note 28 contains disclosures on the valuation model used for the stock options and subscription rights. Adjustments are necessary to the extent that the estimates of the valuation parameters originally applied differ from the actual values at the time the options or subscription rights were exercised; such adjustments are based on cash-settled share-based payment transactions recognised in the consolidated income statement in the respective reporting period.

**Provisions**
When recognising provisions for expected losses from rental agreements the probability of utilisation is estimated (see note 19). In recognising personnel-related restructuring provisions, certain assumptions were made, for example, with regard to the fluctuation rate, the discount rate and salary trends. Adjustments may be necessary if the actual values were to deviate from these assumptions.

# Consolidated income statement disclosures

## 4. Net revenue

### Composition of net revenue (part 1)

| | Sales revenue | | Net interest income from banking business | |
|---|---|---|---|---|
| | 2018<br>€m | 2017<br>(restated)<br>€m | 2018<br>€m | 2017<br>€m |
| **Xetra (cash equities)** | | | | |
| Trading and clearing | 187.6 | 182.3 | 0 | 0 |
| Listing | 17.5 | 15.5 | 0 | 0 |
| Other | 40.3 | 41.7 | 0 | 0 |
| | **245.4** | **239.5** | **0** | **0** |
| **Eurex (financial derivatives)** | | | | |
| Equity index derivatives | 514.2 | 433.1 | 0 | 0 |
| Interest rate derivatives | 233.6 | 209.7 | 0 | 0 |
| Equity derivatives | 49.8 | 41.9 | 0 | 0 |
| OTC clearing | 23.6 | 9.1 | 0 | 0 |
| Margin fees | 13.4 | 12.5 | 40.2 | 25.2 |
| Infrastructure | 74.2 | 73.1 | 0 | 0 |
| Other | 26.8 | 21.2 | –0.1 | 0 |
| | **935.6** | **800.6** | **40.1** | **25.2** |
| **EEX (commodities)** | | | | |
| Power derivatives | 88.2 | 69.0 | 5.9 | 0.6 |
| Power spot | 67.3 | 63.0 | 0 | 0 |
| Gas | 44.9 | 38.8 | 0 | 0 |
| Other | 71.0 | 59.2 | 3.0 | 0.5 |
| | **271.4** | **230.0** | **8.9** | **1.1** |
| **360T (foreign exchange)** | | | | |
| Trading | 70.1 | 57.0 | 0 | 0 |
| Other | 6.6 | 10.0 | 0 | 0 |
| | **76.7** | **67.0** | **0** | **0** |

| | Other operating income | | Volume-related costs | | Net revenue | |
|---|---|---|---|---|---|---|
| | 2018<br>€m | 2017 (restated)<br>€m | 2018<br>€m | 2017<br>€m | 2018<br>€m | 2017<br>€m |
| | 5.3 | 6.3 | −22.3 | −27.5 | 170.6 | 161.1 |
| | 0.8 | 0.4 | −0.5 | −0.5 | 17.8 | 15.4 |
| | 0 | 0.1 | 0 | 0 | 40.3 | 41.8 |
| | **6.1** | **6.8** | **−22.8** | **−28.0** | **228.7** | **218.3** |
| | | | | | | |
| | 0.1 | 0.2 | −48.1 | −43.6 | 466.2 | 389.7 |
| | 0.1 | 0.1 | −1.8 | −1.7 | 231.9 | 208.1 |
| | 0 | 0 | −6.0 | −5.5 | 43.8 | 36.4 |
| | 3.6 | 2.0 | −1.6 | −0.3 | 25.6 | 10.8 |
| | −3.6 | −2.0 | 0 | 0 | 50.0 | 35.7 |
| | 0 | 0 | 0 | 0 | 74.2 | 73.1 |
| | 21.4 | 23.7 | −3.7 | −2.2 | 44.4 | 42.7 |
| | **21.6** | **24.0** | **−61.2** | **−53.3** | **936.1** | **796.5** |
| | | | | | | |
| | 0 | 0 | −12.0 | −9.7 | 82.1 | 59.9 |
| | 0 | 0 | −0.2 | −0.5 | 67.1 | 62.5 |
| | 0 | 0 | −8.3 | −8.0 | 36.6 | 30.8 |
| | 1.3 | 0.5 | −4.5 | −1.2 | 70.8 | 59.0 |
| | **1.3** | **0.5** | **−25.0** | **−19.4** | **256.6** | **212.2** |
| | | | | | | |
| | 0 | 0 | −3.4 | −0.5 | 66.7 | 56.5 |
| | 5.5 | 0 | 0 | 0 | 12.1 | 10.0 |
| | **5.5** | **0** | **−3.4** | **−0.5** | **78.8** | **66.5** |

## Composition of net revenue (part 2)

| | Net revenue | | Net interest income from banking business | |
|---|---|---|---|---|
| | 2018 €m | 2017 (restated) €m | 2018 €m | 2017 €m |
| **Clearstream (post-trading)** | | | | |
| Custody | 514.9 | 515.9 | 0 | 0 |
| Settlement | 113.2 | 114.4 | 0 | 0 |
| Net interest income from banking business | 0 | 0 | 155.5 | 106.3 |
| Third-party services | 32.5 | 29.2 | 0 | 0 |
| Other | 97.4 | 91.9 | 0 | 0 |
| | **758.0** | **751.4** | **155.5** | **106.3** |
| **GSF (collateral management)** | | | | |
| Repo | 44.2 | 43.0 | 0 | 0 |
| Securities lending | 91.8 | 90.1 | 0 | 0 |
| | **136.0** | **133.1** | **0** | **0** |
| **IFS (investment fund services)** | | | | |
| Custody | 68.5 | 62.7 | 0 | 0 |
| Settlement | 52.6 | 48.8 | 0 | 0 |
| Other | 41.2 | 33.5 | 0 | 0 |
| | **162.3** | **145.0** | **0** | **0** |
| **Data** | | | | |
| Cash and derivatives | 127.8 | 122.6 | 0 | 0 |
| Regulatory services | 19.8 | 13.2 | 0 | 0 |
| Other | 49.7 | 43.1 | 0 | 0 |
| | **197.3** | **178.9** | **0** | **0** |
| **STOXX (index business)** | | | | |
| ETF licences | 47.3 | 45.4 | 0 | 0 |
| Exchange licences | 34.2 | 30.6 | 0 | 0 |
| Other licences | 77.1 | 65.3 | 0 | 0 |
| | **158.6** | **141.3** | **0** | **0** |
| | | | | |
| **Total** | **2,941.3** | **2,686.8** | **204.5** | **132.6** |
| | | | | |
| **Consolidation of internal revenue** | **–47.4** | **–43.2** | **0** | **0** |
| | | | | |
| **Group** | **2,893.9** | **2,643.6** | **204.5** | **132.6** |

| | Other operating income | | Volume-related costs | | Net revenue | |
|---|---|---|---|---|---|---|
| | 2018<br>€m | 2017<br>(restated)<br>€m | 2018<br>€m | 2017<br>€m | 2018<br>€m | 2017<br>€m |
| | | | | | | |
| | 1.7 | 0.7 | –133.8 | –131.5 | 382.8 | 385.1 |
| | 0 | 0 | –37.2 | –34.9 | 76.0 | 79.5 |
| | 0 | 0 | 0 | 0 | 155.5 | 106.3 |
| | 0 | 0 | –0.4 | –0.5 | 32.1 | 28.7 |
| | 11.1 | 6.5 | –27.6 | –30.3 | 80.9 | 68.1 |
| | **12.8** | **7.2** | **–199.0** | **–197.2** | **727.3** | **667.7** |
| | | | | | | |
| | 0 | 0 | –0.9 | –0.6 | 43.3 | 42.4 |
| | 0 | 0 | –52.0 | –50.9 | 39.8 | 39.2 |
| | **0** | **0** | **–52.9** | **–51.5** | **83.1** | **81.6** |
| | | | | | | |
| | 0 | 0.1 | –2.6 | –1.5 | 65.9 | 61.3 |
| | 0 | 0 | –3.2 | –3.6 | 49.4 | 45.2 |
| | 0 | 0 | –2.2 | –2.4 | 39.0 | 31.1 |
| | **0** | **0.1** | **–8.0** | **–7.5** | **154.3** | **137.6** |
| | | | | | | |
| | 0 | 0 | – 14.2 | – 13.8 | 113.6 | 108.8 |
| | 0 | 0 | –2.0 | –2.5 | 17.8 | 10.7 |
| | 0.4 | 1.0 | –11.2 | –9.4 | 38.9 | 34.7 |
| | **0.4** | **1.0** | **–27.4** | **–25.7** | **170.3** | **154.2** |
| | | | | | | |
| | 0 | 0 | –3.5 | –3.9 | 43.8 | 41.5 |
| | 0 | 0 | –2.9 | –3.5 | 31.3 | 27.1 |
| | 0.1 | 0.3 | –7.8 | –6.5 | 69.4 | 59.1 |
| | **0.1** | **0.3** | **–14.2** | **–13.9** | **144.5** | **127.7** |
| | | | | | | |
| | **47.8** | **39.9** | **–413.9** | **–397.0** | **2,779.7** | **2,462.3** |
| | | | | | | |
| | –13.8 | –13.6 | 61.2 | 56.8 | 0 | 0 |
| | | | | | | |
| | 34.0 | 26.3 | –352.7 | –340.2 | 2,779.7 | 2,462.3 |

## Composition of net interest income from banking business

| | 2018 €m | 2017 (restated)[1] €m |
|---|---|---|
| **Interest income from positive interest environment** | **216.3** | **129.1** |
| Financial instruments measured at amortised cost | 161.6 | 90.7 |
| Financial assets or liabilities measured at fair value through profit or loss | 54.7 | 38.4 |
| **Interest expenses from positive interest environment** | **– 64.9** | **– 36.1** |
| Financial liabilities measured at amortised cost | – 53.4 | – 31.5 |
| Financial assets or liabilities measured at fair value through profit or loss | – 11.5 | – 4.6 |
| **Interest income from negative interest environment** | **224.7** | **224.8** |
| Financial instruments measured at amortised cost | 219.5 | 217.2 |
| Financial assets or liabilities measured at fair value through profit or loss | 5.2 | 7.6 |
| **Interest expenses from negative interest environment** | **– 171.6** | **– 185.2** |
| Financial liabilities measured at amortised cost | – 169.9 | – 182.9 |
| Financial assets or liabilities measured at fair value through profit or loss | – 1.7 | – 2.3 |
| **Total** | **204.5** | **132.6** |

1) Due to changes in the presentation of balance-sheet positions in accordance with IFRS 9, prior-year figures have been restated. For details, see note 3.

## Composition of other operating income

| | 2018 €m | 2017 (restated)[1] €m |
|---|---|---|
| Income from exchange rate differences | 4.6 | 2.6 |
| Income from impaired receivables | 0.6 | 1.2 |
| Rental income from subleases | 1.1 | 0.8 |
| Income from agency agreements | 0.5 | 1.7 |
| Miscellaneous | 27.2 | 20.0 |
| **Total** | **34.0** | **26.3** |

1) €5.1 million from other operating income were reclassified as sales revenue for the 2017 financial year. For details, see note 3.

For details of expected rental income from subleases see note 27.

Miscellaneous other operating income includes income from cooperation agreements, training and services rendered according to progress made on a project as well as valuation adjustments.

As part of a comprehensive analysis of customer contracts due to the first-time adoption of IFRS 15 as at 1 January 2018, reporting of connectivity and maintenance fees within Deutsche Börse Group has been harmonised. In this context, €5.1 million from other operating income were reclassified as sales revenue for the 2017 financial year. Prior-year figures were restated accordingly.

## 5. Staff costs

### Composition of staff costs

| | 2018<br>€m | 2017<br>(restated)<br>€m |
|---|---|---|
| Wages and salaries | 660.1 | 528.0 |
| Social security contributions, retirement and other benefits | 163.9 | 122.5 |
| **Total** | **824.0** | **650.5** |

Staff costs include costs of €158.2 million (2017: €26.4 million) recognised in connection with efficiency programmes as well as costs of €2.0 million (2017: €3.1 million) for Nodal Exchange Holdings, LLC, Tysons Corner, Virginia, USA, (Nodal Exchange, which has been consolidated since 3 May 2017), of €3.0 million (2017: nil) for 360TGTX Inc., New York, USA (which has been consolidated since 29 June 2018) and of €1.0 million (2017: nil) for Clearstream Funds Centre Ltd. (which has been consolidated since 1 October 2018).

Since 1 January 2018, personnel-related costs for continuing professional development, food and drink have been reported under “staff costs” in order to improve transparency. Before then, such costs were contained in other operating expenses. Prior-year figures were restated accordingly.

## 6. Other operating expenses

### Composition of other operating expenses

| | 2018<br>€m | 2017<br>(restated)<br>€m |
|---|---|---|
| Costs for IT service providers and other consulting services | 164.9 | 162.5 |
| IT costs | 123.0 | 108.3 |
| Premises expenses | 80.0 | 75.6 |
| Non-recoverable input tax | 44.3 | 47.1 |
| Travel, entertainment and corporate hospitality expenses | 22.7 | 23.4 |
| Advertising and marketing costs | 22.6 | 19.8 |
| Insurance premiums, contributions and fees | 15.8 | 13.0 |
| Voluntary social benefits | 5.6 | 4.1 |
| Cost of exchange rate differences | 5.2 | 4.3 |
| Supervisory Board remuneration | 4.5 | 4.2 |
| Cost of agency agreements | 0.3 | 0.5 |
| Miscellaneous | 27.3 | 18.3 |
| **Total** | **516.2** | **481.1** |

Costs for IT service providers and other consulting services relate mainly to expenses in conjunction with software development. An analysis of development costs is presented in note 7. These costs also contain costs of strategic and legal consulting services as well as of audit activities. Prior-year figures were restated in order to improve transparency. For details, see note 5.

### Composition of fees paid to the auditor

| | 2018 | | 2017 | |
|---|---|---|---|---|
| | **Total** €m | **Germany** €m | **Total** €m | **Germany** €m |
| Statutory audit services | 4.3[1)] | 2.6 | 4.0[3)] | 2.3 |
| Other assurance or valuation services | 1.2[2)] | 0.8 | 0.7[4)] | 0.6 |
| Tax advisory services | 0.3 | 0.2 | 0.9 | 0.2 |
| Other services | 0 | 0 | 0.1 | 0 |
| **Total** | **5.8** | **3.6** | **5.7** | **3.1** |

1) Thereof €0.1 million for 2017
2) Thereof €0.2 million for 2017
3) Thereof €0.3 million for 2016
4) Thereof €0.2 million for 2016

Fees paid for “statutory audit services” rendered by KPMG AG Wirtschaftsprüfungsgesellschaft mainly comprise the audit of the consolidated financial statements of Deutsche Börse AG according to IFRS, of the annual financial statements of Deutsche Börse AG according to the Handelsgesetzbuch (HGB, German Commercial Code) and of the annual financial statements of various subsidiaries according to the respective local GAAP and IFRS. This item also includes statutory additions to the audit scope as well as key points of audit agreed with the Supervisory Board. Services rendered during the reporting year also included reviews of the interim financial statements.

“Other assurance and valuation services” comprise fees paid in connection with ISAE 3402 and ISAE 3000 reports. Fees for “tax advisory services” include support services rendered in connection with completing tax returns as well as value-added tax advice on individual matters. The item “other services” comprises fees paid for training and quality-assurance services.

## 7. Research and development costs

Own expenses capitalised relate solely to development costs of internally developed software, involving the following systems and projects in the individual segments:

### Research and development costs (part 1)

| | Total expense for software development | | of which capitalised | |
|---|---|---|---|---|
| | 2018 €m | 2017 (restated)[1] €m | 2018 €m | 2017 (restated)[1] €m |
| **Eurex (financial derivatives)** | | | | |
| T7 derivatives trading platform | 7.2 | 5.3 | 5.1 | 4.0 |
| C7 | 8.6 | 6.7 | 5.2 | 5.4 |
| OTC Clear | 9.1 | 3.3 | 5.7 | 1.2 |
| Eurex Clearing Prisma | 0.6 | 0 | 0.4 | 0 |
| Securities Lending | 5.0 | 4.5 | 2.3 | 1.6 |
| F7 | 1.8 | 0 | 1.3 | 0 |
| Other Eurex software | 3.6 | 8.8 | 0.4 | 2.6 |
| | **35.9** | **28.6** | **20.4** | **14.8** |
| **EEX (commodities)** | | | | |
| XBID / M7 | 1.7 | 7.5 | 0.7 | 2.1 |
| Other EEX software | 11.2 | 11.7 | 8.5 | 4.7 |
| | **12.9** | **19.2** | **9.2** | **6.8** |
| **360T (foreign exchange)** | | | | |
| Trading platform of 360T group | 3.9 | 9.7 | 3.0 | 4.9 |
| | **3.9** | **9.7** | **3.0** | **4.9** |
| **Xetra (cash equities)** | | | | |
| T7 trading platform for the cash market | 4.3 | 5.1 | 2.7 | 2.6 |
| CCP releases | 0 | 1.8 | 0 | 0 |
| Other Xetra software | 0.6 | 6.3 | 0 | 1.3 |
| | **4.9** | **13.2** | **2.7** | **3.9** |
| **Clearstream (post-trading)** | | | | |
| Local Market Partnership (LMP) | 3.5 | 4.2 | 2.9 | 3.7 |
| 1CAS Custody | 4.2 | 16.6 | 3.1 | 14.8 |
| CSDR | 21.6 | 12.6 | 21.2 | 10.1 |
| TARGET2-Securities (T2S) | 2.4 | 11.9 | 0.9 | 8.4 |
| One CLS Settlement Reporting (One CSR) | 0 | 3.0 | 0 | 2.2 |
| Customer onboarding | 6.6 | 0 | 5.7 | 0 |
| Other Clearstream software | 4.8 | 4.1 | 1.9 | 1.7 |
| | **43.1** | **52.4** | **35.7** | **40.9** |

## Research and development costs (part 2)

| | Total expense for software development 2018 €m | 2017 (restated)[1] €m | of which capitalised 2018 €m | 2017 (restated)[1] €m |
|---|---|---|---|---|
| **IFS (investment fund services)** | | | | |
| IFS Arrow | 2.0 | 0.6 | 1.5 | 0.5 |
| IFS Unity | 3.8 | 0 | 2.9 | 0 |
| IFS Swift | 0 | 2.8 | 0 | 2.2 |
| Other IFS software | 0.5 | 0 | 0 | 0 |
| | **6.3** | **3.4** | **4.4** | **2.7** |
| **GSF (collateral management)** | | | | |
| One CMS | 0.2 | 1.3 | 0.2 | 1.0 |
| Customer onboarding | 0.7 | 0 | 0.6 | 0 |
| One SecLend | 0 | 1.7 | 0 | 1.6 |
| Other GSF software | 0.6 | 0 | 0.2 | 0 |
| | **1.5** | **3.0** | **1.0** | **2.6** |
| **STOXX (index business)** | | | | |
| Other STOXX software | 3.0 | 3.9 | 0 | 0 |
| | **3.0** | **3.9** | **0** | **0** |
| **Data** | | | | |
| Regulatory Reporting Hub | 16.3 | 12.7 | 3.6 | 10.5 |
| Other Data software | 0.6 | 6.5 | 0.2 | 0 |
| | **16.9** | **19.2** | **3.8** | **10.5** |
| | | | | |
| **Research expense** | **2.4** | **1.8** | **0** | **0** |
| | | | | |
| **Total** | **130.8** | **154.4** | **80.2** | **87.1** |

1) Prior-year figures were restated due to changes in the segment structure. For details, see note 24.

## 8. Net income from strategic investments

### Composition of net income from strategic investments

| | 2018<br>€m | 2017<br>€m |
|---|---|---|
| **Equity method-accounted result of associates** | | |
| China Europe International Exchange AG | –2.0 | –2.5 |
| Deutsche Börse Commodities GmbH | 0.8 | 0.7 |
| Digital Vega FX Ltd | 0.1 | 0 |
| enermarket GmbH | –0.2 | 0 |
| HQLAx S.à r.l. | –0.5 | 0 |
| LuxCSD S.A. | –0.2 | 0 |
| R5FX Ltd | 0 | –1.1 |
| RegTek Solutions Inc. | –0.1 | –0.2 |
| Switex GmbH | –0.1 | 0.1 |
| Tradegate AG Wertpapierhandelsbank | 4.9 | 4.6 |
| **Total income from equity method measurement**[1] | **2.7** | **1.6** |
| | | |
| **Net income from other strategic investments** | **1.5** | **196.2** |
| | | |
| **Net income from strategic investments** | **4.2** | **197.8** |

1) Including impairment losses

Net income from associates includes an impairment loss amounting to €0.6 million attributable to the investment in Switex GmbH (2017: impairment loss of €1.1 million attributable to the investment in R5FX Ltd). The investment was written down to the value of the selling price received. The impairment loss was allocated to the Data segment. The impairment loss was offset by net income from the equity method measurement of Switex GmbH amounting to €0.5 million.

During the year under review, the company received dividends amounting to €3.8 million (2017: €2.8 million) from investments in associates.

For the development of net income from other strategic investments please refer to note 13.2.

## 9. Financial result

Due to the changes to the accounting method in the context of the first-time application of IFRS 9, financial income and expenses for the reporting year and the previous year are shown in separate tables. Prior-year figures have not been restated to reflect the new accounting method.

### Composition of financial income in 2018

| | 2018<br>€m |
|---|---|
| Income from other financial assets measured at fair value through profit or loss | 0.3 |
| Interest income from financial assets measured at amortised cost | 1.0 |
| Interest income on tax refunds | 6.0 |
| Other interest income and similar income | 0.1 |
| **Total** | **7.4** |

### Composition of financial income in 2017

| | 2017<br>€m |
|---|---|
| Interest income on tax refunds | 3.1 |
| Income from valuation of derivatives classified as “held for trading” | 2.0 |
| Other interest income on receivables classified as “loans and receivables” | 0.5 |
| Interest on bank balances classified as “loans and receivables” | 0.4 |
| Income from available-for-sale securities | 0.4 |
| Other interest and similar income | 0.2 |
| **Total** | **6.6** |

### Composition of financial expense in 2018

| | 2018<br>€m |
|---|---|
| Interest expense from financial liabilities measured at amortised cost | 47.5 |
| Interest expense on taxes | 26.7 |
| Interest expense from financial assets measured at amortised cost | 3.1 |
| Expense of the unwinding of the discount on pension provisions | 2.5 |
| Transaction cost of financial liabilities measured at amortised cost | 1.8 |
| Other interest expense | 1.4 |
| Interest-equivalent expenses for derivatives held as hedging instruments | 0.7 |
| Expense from other financial liabilities measured at fair value through profit or loss | 0.1 |
| **Total** | **83.8** |

### Composition of financial expense in 2017

| | 2017 €m |
|---|---|
| Interest expense on non-current loans[1] | 47.5 |
| Interest expense on taxes | 21.2 |
| Other interest expense[1] | 5.3 |
| Interest expense from financial assets[1] | 3.6 |
| Transaction costs of non-current liabilities[1] | 3.1 |
| Interest-equivalent expenses for derivatives held as hedging instrument[1] | 2.8 |
| Expenses from the unwinding of the discount on pension provisions | 2.7 |
| Interest expense on current liabilities[1] | 0.1 |
| **Total** | **86.3** |

1) Measured at amortised cost

## 10. Income tax expense

### Composition of income tax expense

| | 2018 €m | 2017 €m |
|---|---|---|
| **Current income tax expense** | **339.7** | **412.0** |
| for the current year | 320.5 | 376.2 |
| for previous years | 19.2 | 35.8 |
| **Deferred income tax expense/(income)** | **–36.0** | **–20.6** |
| due to temporary differences | –12.0 | –18.4 |
| due to tax loss carryforwards | –1.6 | 0.1 |
| due to changes in tax legislation and/or tax rates | –22.4 | –2.7 |
| for previous years | 0 | 0.4 |
| **Total** | **303.7** | **391.4** |

### Allocation of income tax expense to Germany and foreign jurisdictions

| | 2018 €m | 2017 €m |
|---|---|---|
| **Current income tax expense** | **339.7** | **412.0** |
| Germany | 237.7 | 213.8 |
| Foreign jurisdictions | 102.0 | 198.2 |
| **Deferred income tax expense/(income)** | **–36.0** | **–20.6** |
| Germany | –5.9 | –51.4 |
| Foreign jurisdictions | –30.1 | 30.8 |
| **Total** | **303.7** | **391.4** |

Tax rates of 27.4 to 31.9 per cent (2017: 27.4 to 31.9 per cent) were used in the reporting period to calculate income tax for the German companies of Deutsche Börse Group. These reflect trade income tax at rates of 11.6 to 16.1 per cent (2017: 11.6 to 16.1 per cent), corporation tax of 15 per cent (2017: 15 per cent) and the 5.5 per cent solidarity surcharge (2017: 5.5 per cent) on corporation tax.

A tax rate of 26.0 per cent (2017: 27.1 per cent) was used for the Luxembourgian Group companies, reflecting trade income tax at a rate of 6.7 per cent (2017: 6.7 per cent) and corporation tax at 19.3 per cent (2017: 20.4 per cent).

Tax rates of 10.0 to 34.0 per cent (2017: 12.5 to 46.0 per cent) were applied to the Group companies in the remaining countries; see note 2.

In the year under review, Deutsche Börse Group did not utilise any previously unrecognised tax loss carryforwards (2017: decline in current tax expenses of €0.1 million).

Deferred tax income increased by €0.7 million (2017: nil) due to previously unrecognised tax losses.

The following table shows the carrying amounts of deferred tax assets and liabilities as at the reporting date by line item or loss carryforward:

## Composition of deferred taxes

| | Deferred tax assets | | Deferred tax liabilities | |
|---|---|---|---|---|
| | 31 Dec 2018<br>€m | 31 Dec 2017[1]<br>€m | 31 Dec 2018<br>€m | 31 Dec 2017[1]<br>€m |
| **Intangible assets** | **50.3** | **56.0** | **–210.9** | **–238.8** |
| Internally developed software | 43.0 | 48.4 | –31.8 | –41.7 |
| Other intangible assets | 7.3 | 7.6 | –179.1 | –197.1 |
| Financial assets | 0.3 | 0 | –2.3 | –3.7 |
| Other assets | 3.7 | 5.0 | –2.4 | 0 |
| Provisions for pensions and other employee benefits | 61.4 | 59.8 | –8.7 | –12.4 |
| Other provisions | 13.9 | 8.4 | –0.1 | –0.7 |
| Liabilities | 3.8 | 0.9 | –2.0 | –1.4 |
| Tax loss carryforwards | 2.8 | 1.2 | 0 | 0 |
| **Deferred taxes (before netting)** | **136.2** | **131.3** | **–226.4** | **–257.0** |
| Thereof recognised in profit or loss | 87.3 | 85.5 | –224.5 | –253.2 |
| Thereof recognised in other comprehensive income[2] | 48.9 | 45.8 | –1.9 | –3.8 |
| Deferred taxes set off | –31.9 | –30.2 | 31.9 | 30.2 |
| **Total** | **104.3** | **101.1** | **–194.5** | **–226.8** |

1) The presentation of items was modified compared to the previous year. Prior-year figures were restated accordingly. Deferred taxes were restated as at 1 January 2018 due to the first-time adoption of IFRS 9 and IFRS 15; see note 3.
2) See note 15 for further information on deferred taxes recognised in other comprehensive income.

Short-term elements of deferred taxes are recognised in non-current assets and liabilities, in line with IAS 1 "Presentation of Financial Statements".

At the end of the reporting period, accumulated unused tax losses amounted to €30.5 million (2017: €33.7 million), for which no deferred tax assets were recognised. The unused tax losses are attributable to domestic losses totalling €0.2 million and to foreign tax losses totalling €30.3 million (2017: domestic tax losses €0.9 million, foreign tax losses €32.8 million).

The losses can be carried forward indefinitely in Germany subject to the minimum taxation rules. In the US, losses may be carried forward for a maximum period of 20 years, provided they were incurred before 1 January 2018. In accordance with the latest tax reform in the US, adopted at the end of December 2017, losses incurred after 31 December 2017 may be carried forward indefinitely, taking into account newly introduced minimum taxation rules. In all other countries, losses can be carried forward indefinitely.

There were no unrecognised deferred tax liabilities on future dividends of subsidiaries and associates or on gains from the disposal of subsidiaries and associates in the reporting period (2017: nil).

### Reconciliation of expected with reported tax expense

| | 2018<br>€m | 2017<br>€m |
|---|---|---|
| Earnings before tax (EBT) | 1,156.8 | 1,288.9 |
| Expected tax expense | 312.3 | 348.0 |
| Effects of different tax rates | –20.5 | 17.2 |
| Effects of non-deductible expenses | 13.1 | 13.7 |
| Effects of tax-exempt income | –9.4 | –7.7 |
| Tax effects from loss carryforwards | 1.0 | 1.6 |
| Changes in valuation allowance for deferred tax assets | 0 | –0.5 |
| Effects from changes in tax rates | –5.1 | –2.7 |
| Effects from intra-Group restructuring | –10.9 | –21.2 |
| Other | 4.0 | 6.8 |
| **Income tax expense arising from the current year** | **284.5** | **355.2** |
| Income taxes for previous years | 19.2 | 36.2 |
| **Income tax expense** | **303.7** | **391.4** |

To determine the expected tax expense, earnings before tax have been multiplied by the composite tax rate of 27 per cent assumed for 2018 (2017: 27 per cent).

As at 31 December 2018, the reported tax rate stood at 26.3 per cent (2017: 30.4 per cent).

# Consolidated balance sheet disclosures

## 11. Intangible assets

### Intangible assets (part 1)

| | Purchased software €m | Internally developed software €m | Goodwill €m | Payments on account and construction in progress[1] €m | Other intangible assets €m | Total €m |
|---|---|---|---|---|---|---|
| **Historical cost as at 1 Jan 2017** | **260.6** | **782.4** | **2,721.1** | **184.3** | **931.5** | **4,879.9** |
| Acquisitions from business combinations | 0 | 3.5 | 56.5 | 2.2 | 84.4 | 146.6 |
| Additions | 17.7 | 37.1 | 0 | 50.1 | 1.2 | 106.1 |
| Disposals | –2.0 | 0 | 0 | –0.9 | 0 | –2.9 |
| Reclassifications | 0.8 | 144.7 | 0 | –145.5 | 0 | 0 |
| Exchange rate differences | 0.8 | –1.8 | –6.7 | –0.2 | –7.5 | –15.4 |
| **Historical cost as at 31 Dec 2017** | **277.9** | **965.9** | **2,770.9** | **90.0** | **1,009.6** | **5,114.3** |
| Acquisitions through business combinations[2] | 5.0 | 0 | 90.6 | 0 | 66.2 | 161.8 |
| Disposals due to changes to the basis of consolidation | 0 | –0.5 | 0 | 0 | 0 | –0.5 |
| Additions | 13.2 | 36.4 | 0 | 44.8 | 0.4 | 94.8 |
| Disposals | –107.2 | 0 | 0 | –0.3 | –1.4 | –108.9 |
| Reclassifications | 0 | 74.0 | 0 | –74.0 | 0 | 0 |
| Exchange rate differences | 0 | 0.3 | 4.1 | 0 | 4.3 | 8.7 |
| **Historical cost as at 31 Dec 2018** | **188.9** | **1,076.1** | **2,865.6** | **60.5** | **1,079.1** | **5,270.2** |

1) Additions to payments on account and construction in the previous year relate exclusively to internally developed software.
2) This relates primarily to additions within the scope of initial consolidation of 360TGTX Inc. and Clearstream Funds Centre Ltd., see note 2.

## Intangible assets (part 2)

| | Purchased software €m | Internally developed software €m | Goodwill €m | Payments on account and construction in progress[1] €m | Other intangible assets €m | Total €m |
|---|---|---|---|---|---|---|
| Transfer historical cost as at 31 Dec 2018 | 188.9 | 1,076.1 | 2,865.6 | 60.5 | 1,079.1 | 5,270.2 |
| **Amortisation and impairment losses as at 1 Jan 2017** | **225.1** | **608.5** | **0** | **2.7** | **71.6** | **907.9** |
| Amortisation | 17.5 | 72.3 | 0 | 0 | 26.8 | 116.6 |
| Impairment losses | 0 | 0 | 0 | 1.3 | 0 | 1.3 |
| Disposals | –1.8 | 0 | 0 | –0.8 | 0 | –2.6 |
| Exchange rate differences | 0.5 | –0.4 | 0 | 0 | 0 | 0.1 |
| **Amortisation and impairment losses as at 31 Dec 2017** | **241.3** | **680.4** | **0** | **3.2** | **98.4** | **1,023.3** |
| Amortisation | 18.6 | 79.4 | 0 | 0 | 29.4 | 127.4 |
| Impairment losses | 0 | 31.5 | 0 | 5.2 | 0 | 36.7 |
| Disposals due to changes to the basis of consolidation | 0 | –0.4 | 0 | 0 | 0 | –0.4 |
| Disposals | –106.8 | 0 | 0 | –0.2 | –1.4 | –108.4 |
| **Amortisation and impairment losses as at 31 Dec 2018** | **153.1** | **790.9** | **0** | **8.2** | **126.4** | **1,078.6** |
| Carrying amount as at 31 Dec 2017 | 36.6 | 285.5 | 2,770.9 | 86.8 | 911.2 | 4,091.0 |
| **Carrying amount as at 31 Dec 2018** | **35.8** | **285.2** | **2,865.6** | **52.3** | **952.7** | **4,191.6** |

1) Additions to payments on account and construction in progress in the previous year relate exclusively to internally developed software.

## Software, payments on account and construction in progress

Additions to software mainly relate to the implementation of the European Central Securities Depositories Regulation (CSDR) in the Clearstream (post-trading) segment and the development of the foreign-exchange trading platform in the 360T (foreign exchange) segment.

Carrying amounts of material software and construction in progress as well as remaining amortisation periods of software applications

| | Carrying amount[1] as at | | Remaining amortisation period as at | |
|---|---|---|---|---|
| | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 years | 31 Dec 2017 years |
| **Eurex (financial derivatives)** | | | | |
| C7 | 36.9 | 38.9 | 2.5 – 4.9 | 3.5 – 5.4 |
| T7 trading platform for derivatives | 20.5 | 23.4 | 0.9 – 4.9 | 0.9 – 4.9 |
| Eurex Clearing Prisma | 16.8 | 23.4 | 1.3 – 4.7 | 2.3 – 4.9 |
| OTC CCP | 11.9 | 10.5 | 0.3 – 4.9 | 0.4 – 4.9 |
| | | | | |
| **Clearstream (post-trading)** | | | | |
| TARGET2-Securities (T2S) | 71.8 | 85.7 | 3.9 – 5.1 | 4.9 – 6.1 |
| 1CAS Custody & Portal | 37.9 | 39.5 | 6.2 | n.a. |
| CSDR | 31.3 | 10.1 | n.a. | n.a. |
| One CLS Settlement Reporting (One CSR) | 10.8 | 12.8 | 5.1 – 6.2 | 6.1 |
| Single Network | 7.4 | 8.8 | 5.1 | 6.1 |
| | | | | |
| **360T (foreign exchange)** | | | | |
| Trading platform of 360T group | 18.5 | 14.3 | 1.8 – 6.9 | 2.8 – 6.9 |
| | | | | |
| **Xetra (cash equities)** | | | | |
| T7 trading platform for the cash markets | 8.4 | 6.7 | 3.9 – 5.5 | 4.9 – 6.5 |
| TARGET2-Securities (T2S)[2] | 5.7 | 8.5 | 2.0 | 4.1 |

1) Individual releases of a software application are combined and reported as a single asset.
2) TARGET2-Securities is the interface between the CCP system of Deutsche Börse Group and the TARGET2-Securities system of the European Central Bank. Due to a new estimate as at the end of the 2018 financial year, the remaining useful life of TARGET2-Securities was shortened by one year.

All intangible assets are subject to event-driven impairment testing procedures. In addition, intangible assets that are not yet ready for use are tested for impairment at least annually. Based on this, impairment losses totalling €36.7 million (2017: €1.3 million) were recognised in 2018. They are disclosed in the “depreciation, amortisation and impairment losses” item and relate mainly to the following assets or cash-generating units (CGUs):

- An impairment loss of €16.0 million (recoverable amount: negative) in the second quarter of 2018 relates to the carrying amount of the Regulatory Reporting Hub IT platform. This was due to significant adjustments to the platform made to meet changed requirements. As a response to this, Deutsche Börse Group has been continuously readjusting its software since the third quarter of 2018 to accommodate the changed requirements.

- An impairment loss of €9.4 million in the fourth quarter of 2018 relates to the post-trading area (recoverable amount: €29.5 million) on the level of the "Future Market Access" CGU. This was mainly due to market participants' lower than expected acceptance of subordinate services offered by Clearstream (e.g. segregated accounts). The impairment loss was proportionally allocated to the intangible assets of the CGU. Due to an internal restructuring of Clearstream's product portfolio and in order to distinguish it more clearly from other business areas, the CGU was considered at a more granular level compared to the previous year.
- Further impairment losses totalling €5.4 million in the fourth quarter of 2018 (recoverable amount: each negative) relate to three assets from the securities financing business: One SecLend, One CMS and LH Connect. For each of these assets, actual revenue fell short of expectations. Concerning One SecLend and One CMS, the company had expected that the migration to the TARGET2-Securities platform would materially increase demand – especially from larger customers – for services in the areas of interoperability, collateral pooling and CeBM Triparty Services. However, this has not materialised and is not expected to materialise in 2019. The impairment loss for LH Connect was mainly caused by reduced demand for the liquidity pool, which is offered by Clearstream's agent banks.
- An additional impairment loss of €4.0 million (recoverable amount: negative) in the fourth quarter of 2018 relates to capitalised development costs for the IFS Arrow project. This was also due to a lack of demand.

The recoverable amount for the above-mentioned software or CGUs was determined based on fair value less costs of disposal, using a discounted cash flow model (level 3 inputs). The applied maturity-specific discounts range from 5.8 to 7.2 per cent. For details on the allocation of the impairment losses to Deutsche Börse Group's reporting segments, see note 24.

### Goodwill and other intangible assets from business combinations

Given the change in Deutsche Börse Group's segment structure, effective 1 January 2018, and the corresponding split of (groups of) CGUs, including the respective goodwill allocation, the Group reallocated the corresponding carrying amounts. The reallocation was made on the basis of the ratio between the fair value of the new (group of) CGU(s) to the fair value of the existing (group of) CGU(s). The following table provides details on the reallocation of goodwill to the corresponding (group of) CGU(s), as well as its development:

Changes in goodwill classified by (groups of) CGUs in 2018

| | Eurex €m | Clear-stream €m | 360T €m | GSF €m | EEX €m | IFS €m | Data €m | Index €m | Xetra €m | Total €m |
|---|---|---|---|---|---|---|---|---|---|---|
| **Balance as at 1 Jan 2018** | **1,293.4** | **969.0** | **189.2** | **142.1** | **113.2** | **19.6** | **19.3** | **18.4** | **6.7** | **2,770.9** |
| Acquisitions through business combinations | 0 | 0.1 | 54.0 | 0 | 0 | 36.5 | 0 | 0 | 0 | 90.6 |
| Exchange rate differences | 0.1 | 0 | 0.9 | 0 | 2.4 | 0.5 | 0.1 | 0.1 | 0 | 4.1 |
| **Balance as at 31 Dec 2018** | **1,293.5** | **969.1** | **244.1** | **142.1** | **115.6** | **56.6** | **19.4** | **18.5** | **6.7** | **2,865.6** |

## Changes in goodwill classified by (groups of) CGUs in 2017

| | Eurex Core €m | Clearstream Core €m | 360T €m | EEX €m | MD+S segment €m | Fund Services €m | Börse Frankfurt Zertifikate €m | Total €m |
|---|---|---|---|---|---|---|---|---|
| **Balance as at 1 Jan 2017** | **1,279.9** | **1,111.1** | **189.2** | **61.6** | **55.1** | **19.6** | **4.6** | **2,721.1** |
| Acquisitions through business combinations | 0 | 0 | 0 | 56.5 | 0 | 0 | 0 | 56.5 |
| Exchange rate differences | 0 | 0 | 0 | –5.0 | –1.7 | 0 | 0 | –6.7 |
| **Balance as at 31 Dec 2017** | **1,279.9** | **1,111.1** | **189.2** | **113.1** | **53.4** | **19.6** | **4.6** | **2,770.9** |

Other intangible assets are divided into the following categories:

## Changes in other intangible assets by category

| | Exchange licences €m | Trade names €m | Member and customer relationships €m | Miscellaneous intangible assets €m | Total €m |
|---|---|---|---|---|---|
| **Balance as at 1 Jan 2017** | **0.7** | **453.8** | **400.9** | **4.5** | **859.9** |
| Acquisitions through business combinations | 24.5 | 4.9 | 55.0 | 0 | 84.4 |
| Additions | 0 | 0 | 0.4 | 0.8 | 1.2 |
| Amortisation | 0 | –0.1 | –25.7 | –1.0 | –26.8 |
| Exchange rate differences | –2.2 | –0.4 | –4.9 | 0 | –7.5 |
| **Balance as at 31 Dec 2017** | **23.0** | **458.2** | **425.7** | **4.3** | **911.2** |
| Acquisitions through business combinations | 0 | 1.7 | 64.1 | 0.4 | 66.2 |
| Exchange rate differences | 0 | 0 | 0 | 0.4 | 0.4 |
| Amortisation | 0 | –0.1 | –28.2 | –1.1 | –29.4 |
| Exchange rate differences | 1.0 | 0.2 | 3.1 | 0 | 4.3 |
| **Balance as at 31 Dec 2018** | **24.0** | **460.0** | **464.7** | **4.0** | **952.7** |

An impairment test is carried out, at least annually, concerning goodwill and certain other intangible assets with an indefinite useful life. Since these assets do not generate any cash inflows that are largely independent of those from other assets, the recoverable amount is determined for the (group of) CGUs that the respective asset is allocated to. Impairment tests for (group of) CGUs with allocated goodwill are carried out on 30 September every financial year. Due to the acquisition of Swisscanto Funds Centre Ltd. in the fourth quarter of 2018, the IFS (investment fund services) CGU was subject to another impairment test, effective 31 December 2018. The recoverable amount of the (groups of) CGUs was determined based on the fair value less costs to sell. Only if the fair value less costs to sell did not exceed the carrying amount, the value in use was determined. Given that no active market was available for the (groups of) CGUs, the determination of fair values less costs to sell was based on the discounted cash flow method (level 3 input factors). The detailed planning period covers a respective time period of five years; for (groups of) CGUs, which have been allocated an asset with an indefinite useful life, such time period ends in perpetuity. The material assumptions used to determine the recoverable amount depend on the respective (group of) CGU(s); please refer to the following table for details:

## Key assumptions used for impairment tests in 2018

| (Group of) CGUs | Allocated carrying amount €m | Risk-free interest rate % | Market risk premium % | Discount rate % | Perpetuity growth rate % | CAGR[1] Net revenue % | CAGR[1] Operating costs % |
|---|---|---|---|---|---|---|---|
| **Goodwill** | | | | | | | |
| Eurex | 1,293.5 | 0.9 | 6.5 | 7.2 | 1.0 | 8.0 | 3.9 |
| Clearstream | 969.1 | 0.9 | 6.5 | 7.4 | 1.0 | 4.7 | 0.8 |
| 360T | 244.1 | 0.9 | 6.5 | 8.7 | 2.5 | 13.0 | 9.0 |
| GSF | 142.1 | 0.9 | 6.5 | 8.5 | 1.5 | 3.1 | 1.8 |
| EEX | 115.6 | 0.9 | 6.5 | 7.7 | 1.5 | 9.2 | 6.3 |
| IFS | 56.6 | 0.9 | 6.5 | 7.4 | 1.5 | 10.2 | 6.7 |
| Data | 19.4 | 0.9 | 6.5 | 7.5 | 1.5 | 6.5 | 4.2 |
| STOXX | 18.5 | 0.9 | 6.5 | 7.5 | 1.5 | 8.6 | 7.4 |
| Xetra | 6.7 | 0.9 | 6.5 | 7.3 | 1.0 | 3.2 | –0.5 |
| | | | | | | | |
| **Trade names and exchange licences** | | | | | | | |
| STOXX | 420.0 | 0.8 | 6.5 | 7.6 | 1.5 | 7.9 | 8.0 |
| Nodal | 28.0 | 2.9 | 6.5 | 9.4 | 1.5 | 13.6 | 10.0 |
| 360T[2] | 19.9 | 0.8 | 6.5 | 7.9 | 2.5 | 11.5 | 6.5 |
| EEX[3] | 13.9 | 0.8 | 6.5 | 7.3 | 1.5 | 7.1 | 4.5 |
| 360TGTX | 1.7 | 2.9 | 6.5 | 9.9 | 2.5 | 12.4 | 9.4 |
| Structured products | 0.2 | 0.8 | 6.5 | 7.3 | 1.0 | 3.9 | 3.6 |

1) CAGR = compound annual growth rate
2) Excluding 360TGTX
3) Excluding Nodal

## Key assumptions used for impairment tests in 2017

| | Allocated carrying amount €m | Risk-free interest rate % | Market risk premium % | Discount rate % | Perpetuity growth rate % | CAGR[1] Net revenue % | CAGR[1] Operating costs % |
|---|---|---|---|---|---|---|---|
| **Goodwill** | | | | | | | |
| Eurex Core | 1,279.9 | 0.9 | 6.5 | 8.6[3] | 1.0 | 7.1 | 2.9 |
| Clearstream Core | 1,111.1 | 0.9 | 6.5 | 11.6[2] | 1.0 | 8.6 | 2.7 |
| 360T | 189.2 | 0.9 | 6.5 | 8.2[3] | 2.5 | 16.4 | 11.9 |
| EEX | 113.1 | 0.9 | 6.5 | 9.1[3] | 1.5 | 1.7 | 4.7 |
| MD+S segment | 53.4 | 1.0 | 6.5 | 8.5[3] | 2.0 | 6.1 | 4.1 |
| Fund Services | 19.6 | 0.9 | 6.5 | 13.1[3] | 2.0 | 1.4 | 1.4 |
| Börse Frankfurt Zertifikate | 4.6 | 1.0 | 6.5 | 12.2[3] | 2.0 | 1.4 | 1.6 |
| | | | | | | | |
| **Trade names and exchange licences** | | | | | | | |
| STOXX | 420.0 | 0.9 | 6.5 | 9.8[3] | 2.0 | 7.5 | 6.4 |
| Nodal | 26.8 | 2.6 | 6.5 | 8.8[3] | 2.0 | 15.5 | 8.7 |
| 360T | 19.9 | 0.8 | 6.5 | 8.2[3] | 2.5 | 16.4 | 11.9 |
| EEX | 13.9 | 0.9 | 6.5 | 9.1[3] | 1.5 | 1.7 | 4.7 |
| Börse Frankfurt Zertifikate | 0.2 | 1.0 | 6.5 | 12.2[3] | 2.0 | 1.4 | 1.6 |

1) CAGR = compound annual growth rate
2) Before tax
3) After tax

Individual costs of capital are determined for each (group of) CGU(s), for the purpose of discounting projected cash flows. These capital costs are based on data incorporating beta factors, borrowing costs, as well as the capital structure of the respective peer group. Pricing, trading volumes, assets under custody, market share assumptions or general business development assumptions are based on past experience or market research. Other key assumptions are mainly based on external factors and generally correspond to internal management planning. Significant macroeconomic indicators include, for instance, equity index levels, volatility of equity indices, as well as interest rates, exchange rates, GDP growth, unemployment levels and government debt. When calculating the value in use, the projections are adjusted for the effects of future restructurings and performance investments, if appropriate.

Even in case of a reasonably possible change of one of the parameters, assuming none of the other parameters change, none of the above-mentioned (groups of) CGUs would be impaired.

## 12. Property, plant and equipment

### Property, plant and equipment

| | Fixtures and fittings €m | Computer hardware, operating and office equipment €m | Payments on account and construction in progress €m | Total €m |
|---|---|---|---|---|
| **Historical costs as at 1 Jan 2017** | **79.6** | **357.8** | **2.2** | **439.6** |
| Acquisitions through business combinations | 0 | 0.1 | 0 | 0.1 |
| Additions | 6.4 | 35.6 | 1.1 | 43.1 |
| Disposals | −1.3 | −3.4 | −1.1 | −5.8 |
| Reclassifications | 0 | 0.1 | −0.1 | 0 |
| Exchange rate differences | −0.4 | 0.5 | 0.1 | 0.2 |
| **Historical costs as at 31 Dec 2017** | **84.3** | **390.7** | **2.2** | **477.2** |
| Acquisitions through business combinations | 0.3 | 0.6 | 0 | 0.9 |
| Disposals from change in scope of consolidation | 0 | −0.1 | 0 | −0.1 |
| Additions | 5.4 | 46.7 | 13.1 | 65.2 |
| Disposals | −6.5 | −167.5 | 0 | −174.0 |
| Reclassifications | 0 | 0.5 | −0.5 | 0 |
| Exchange rate differences | 0 | 0.2 | 0 | 0.2 |
| **Historical costs as at 31 Dec 2018** | **83.5** | **271.1** | **14.8** | **369.4** |
| | | | | |
| **Depreciation and impairment losses as at 1 Jan 2017** | **43.7** | **282.4** | **0** | **326.1** |
| Amortisation | 7.2 | 34.8 | 0 | 42.0 |
| Disposals | −1.3 | −3.3 | 0 | −4.6 |
| Exchange rate differences | −0.1 | 0.4 | 0 | 0.3 |
| **Depreciation and impairment losses as at 31 Dec 2017** | **49.5** | **314.3** | **0** | **363.8** |
| Amortisation | 8.5 | 37.9 | 0 | 46.4 |
| Disposals from change in scope of consolidation | 0 | −0.1 | 0 | −0.1 |
| Disposals | −5.8 | −165.8 | 0 | −171.6 |
| **Depreciation and impairment losses as at 31 Dec 2018** | **52.2** | **186.3** | **0** | **238.5** |
| | | | | |
| Carrying amount as at 31 Dec 2017 | 34.8 | 76.4 | 2.2 | 113.4 |
| **Carrying amount as at 31 Dec 2018** | **31.3** | **84.8** | **14.8** | **130.9** |

# 13. Financial instruments

## 13.1 Overview of financial instruments

Deutsche Börse Group holds the following financial instruments:

### Overview of financial instruments

| | Notes | 31 Dec 2018 €m | 31 Dec 2017 (restated) €m |
|---|---|---|---|
| **Non-current assets** | | | |
| Financial investments measured at FVOCI[1] | 13.3 | 108.8 | – |
| Financial assets measured at amortised cost | 13.4 | 1,057.1 | – |
| Financial assets measured at FVPL[2] | | | |
| Financial instruments of the central counterparties | 13.7 | 9,985.4 | 4,837.2 |
| Derivatives | 13.8 | 0 | 0.1 |
| Other financial assets measured at FVPL | 13.9 | 17.3 | 1.2 |
| Available-for-sale financial assets | 13.5 | – | 1,692.0 |
| Loans and receivables | | – | 4.9 |
| **Current assets** | | | |
| Financial assets measured at amortised cost | | | |
| Trade receivables | 13.4 | 397.5 | 331.8 |
| Other financial assets measured at amortised cost | 13.4 | 19,722.6 | – |
| Financial assets measured at FVPL | | | |
| Financial instruments of the central counterparties | 13.7 | 94,280.3 | 79,510.7 |
| Derivatives | 13.8 | 4.7 | 5.2 |
| Other financial assets measured at FVPL | 13.9 | 0.4 | 0 |
| Available-for-sale financial assets | 13.5 | – | 254.5 |
| Loans and receivables | | – | 12,922.9 |
| Restricted bank balances | 13.10 | 29,833.6 | 29,392.0 |
| Other cash and bank balances | | 1,322.3 | 1,297.6 |
| **Non-current liabilities** | | | |
| Financial liabilities measured at amortised cost | 13.6 | 2,283.2 | 1,688.4 |
| Financial liabilities measured at FVPL | | | |
| Financial instruments of the central counterparties | 13.7 | 9,985.4 | 4,837.2 |
| Other financial liabilities measured at FVPL | 13.9 | 0.2 | 0.8 |
| **Current liabilities** | | | |
| Financial liabilities measured at amortised cost | | | |
| Trade payables | 13.6 | 195.0 | 150.1 |
| Other financial liabilities measured at amortised cost | 13.6 | 19,024.7 | 13,976.2 |
| Financial liabilities measured at FVPL | | | |
| Financial instruments of the central counterparties | 13.7 | 94,068.3 | 78,798.6 |
| Derivatives | 13.8 | 3.0 | 32.0 |
| Cash deposits from market participants | 13.11 | 29,559.2 | 29,215.3 |

1) FVOCI = fair value through other comprehensive income
2) FVPL = fair value through profit or loss

Deutsche Börse Group's exposure to various risks associated with the financial instruments is discussed in note 25. The maximum exposure to credit risk at the end of the reporting period is the carrying amount of each class of financial assets mentioned above.

## 13.2 Recognised fair value measurements

The financial assets and liabilities that are measured at fair value are required to be allocated to the following three hierarchy levels: financial assets and liabilities are allocated to level 1 if there is a quoted price for identical assets and liabilities in an active market that can be accessed by the entity. They are allocated to level 2 if the inputs on which fair value measurement is based are observable either directly or indirectly; these inputs must be based on market expectations. Financial assets and liabilities are allocated to level 3 if fair value is determined on the basis of unobservable inputs. There were no transfers between levels for recurring fair value measurements during the year under review.

As at 31 December 2018, the financial assets and liabilities measured at fair value were allocated to the following levels of the fair value hierarchy:

### Fair value hierarchy

| | Fair value as at 31 Dec 2018 | thereof attributable to: | | |
|---|---|---|---|---|
| | | Level 1 | Level 2 | Level 3 |
| | €m | €m | €m | €m |
| **Recurring fair value measurements** | | | | |
| ASSETS | | | | |
| **Financial assets measured at FVOCI[1]** | | | | |
| Equity investments measured at FVOCI | 108.8 | 19.1 | 0 | 89.7 |
| **Total** | **108.8** | **19.1** | **0** | **89.7** |
| **Financial assets measured at FVPL[2]** | | | | |
| Non-current financial instruments of the central counterparties | 9,985.4 | 0 | 9,985.4 | 0 |
| Other non-current financial assets measured at FVPL | 17.3 | 8.6 | 0 | 8.7 |
| Current financial instruments of the central counterparties | 94,280.3 | 0 | 94,280.3 | 0 |
| Current derivatives | 4.7 | 0 | 4.7 | 0 |
| Other current financial assets measured at FVPL | 0.4 | 0 | 0 | 0.4 |
| **Total** | **104,288.1** | **8.6** | **104,270.4** | **9.1** |
| **Total assets** | **104,396.9** | **27.7** | **104,270.4** | **98.8** |
| | | | | |
| LIABILITIES | | | | |
| **Financial liabilities measured at FVPL** | | | | |
| Non-current financial instruments of the central counterparties | –9,985.4 | 0 | –9,985.4 | 0 |
| Non-current financial liabilities measured at FVPL | –0.2 | 0 | 0 | –0.2 |
| Current financial instruments of the central counterparties | –94,068.3 | 0 | –94,068.3 | 0 |
| Current derivatives | –3.0 | 0 | –3.0 | 0 |
| **Total liabilities** | **–104,056.9** | **0** | **–104,056.7** | **–0.2** |

1) FVOCI = fair value through other comprehensive income
2) FVPL = fair value through profit or loss

By comparison, the financial assets and liabilities measured at fair value as at 31 December 2017 were allocated as follows to the hierarchy levels:

## Fair value hierarchy

| | Fair value as at 31 Dec 2017 | thereof attributable to: | | |
|---|---|---|---|---|
| | | Level 1 | Level 2 | Level 3 |
| | €m | €m | €m | €m |
| **Recurring fair value measurements** | | | | |
| ASSETS | | | | |
| **Financial assets available for sale** | | | | |
| Equity investments available for sale | 40.4 | 33.8 | 0 | 6.6 |
| Non-current financial assets available for sale | 1,587.5 | 1,587.5 | 0 | 0 |
| Current financial assets available for sale | 254.5 | 254.5 | 0 | 0 |
| **Total** | **1,882.4** | **1,875.8** | **0** | **6.6** |
| **Financial assets held for trading** | | | | |
| Non-current financial instruments of the central counterparties | 4,837.2 | 0 | 4,837.2 | 0 |
| Current financial instruments of the central counterparties | 79,238.7 | 0 | 79,238.7 | 0 |
| Non-current derivatives | 0.1 | 0 | 0 | 0.1 |
| Current derivatives | 5.2 | 0 | 5.2 | 0 |
| Non-current financial assets measured at FVPL[1] | 1.2 | 0 | 0 | 1.2 |
| **Total** | **84,082.4** | **0** | **84,081.1** | **1.3** |
| **Total assets** | **85,964.8** | **1,875.8** | **84,081.1** | **7.9** |
| | | | | |
| LIABILITIES | | | | |
| **Financial liabilities held for trading** | | | | |
| Non-current financial liabilities measured at FVPL | –0.8 | 0 | 0 | –0.8 |
| Non-current financial instruments of the central counterparties | –4,837.2 | 0 | –4,837.2 | 0 |
| Current financial instruments of the central counterparties | –78,526.6 | 0 | –78,526.6 | 0 |
| Non-current derivatives | 0 | 0 | 0 | 0 |
| Current derivatives | –32.0 | 0 | –29.1 | –2.9 |
| **Total liabilities** | **–83,396.6** | **0** | **–83,392.9** | **–3.7** |

1) FVPL = fair value through profit or loss

Financial assets and liabilities listed in levels 2 and 3 as at 31 December 2018 are measured as follows:

- The derivatives listed in level 2 comprise forward foreign-exchange transactions. The fair value of the forward foreign-exchange transactions is determined on the basis of the forward exchange rates for the remaining period to maturity as at the reporting date. They are based on observable market prices.
- The fair value of the financial instruments held by central counterparties allocated to level 2 is determined by market transactions for identical or similar assets in markets that are not active and by option pricing models based on observable market prices.

As at the reporting date, the items allocated to level 3 and their measurements were as follows:

## Changes in level 3 financial instruments

| | Assets | | | Liabilities | | Total |
|---|---|---|---|---|---|---|
| | Equity investments €m | Financial assets measured at FVPL[1] €m | Derivatives €m | Financial liabilities measured at FVPL €m | Derivatives €m | €m |
| **Balance as at 1 Jan 2017** | **6.5** | **0** | **0.4** | **–0.2** | **–8.2** | **–1.5** |
| Additions | 0 | 1.2 | 0 | –0.4 | 0 | 0.8 |
| Disposals | –0.4 | 0 | –0.3 | 0 | 1.4 | 0.7 |
| Realised capital gains/(losses) | 0 | 0 | 0 | 0 | 3.4 | 3.4 |
| Other operating income | 0 | 0 | 0 | 0 | 3.4 | 3.4 |
| Unrealised capital gains/(losses) recognised in profit or loss | 0 | 0 | 0 | –0.2 | 0.5 | 0.3 |
| Other operating expenses | 0 | 0 | 0 | –0.2 | 0 | –0.2 |
| Other operating income | 0 | 0 | 0 | 0 | 0.5 | 0.5 |
| Changes recognised in the revaluation surplus | 0.5 | 0 | 0 | 0 | 0 | 0.5 |
| **Balance as at 31 Dec 2017** | **6.6** | **1.2** | **0.1** | **–0.8** | **–2.9** | **4.2** |
| Adjustments according to IFRS 9 | 61.2 | 6.3 | 0 | –0.3 | 2.9 | 70.1 |
| **Balance as at 1 Jan 2018** | **67.8** | **7.5** | **0.1** | **–1.1** | **0** | **74.3** |
| Acquisitions from business combinations | 0.1 | 0 | 0 | 0 | 0 | 0.1 |
| Additions | 13.6 | 3.1 | 0 | 0 | 0 | 16.7 |
| Disposals | –0.3 | –1.8 | 0 | 0.3 | 0 | –1.8 |
| Unrealised capital gains/(losses) recognised in profit or loss | 0 | 0.3 | –0.1 | 0.6 | 0 | 0.8 |
| Financial results | 0 | 0 | 0 | –0.1 | 0 | –0.1 |
| Other operating expenses | 0 | 0 | –0.1 | 0 | 0 | –0.1 |
| Other operating income | 0 | 0.4 | 0 | 0.7 | 0 | 1.1 |
| Net income from strategic investments | 0 | –0.1 | 0 | 0 | 0 | –0.1 |
| Changes recognised in the revaluation surplus | 7.5 | 0 | 0 | 0 | 0 | 7.5 |
| Unrealised gains/(losses) from currency translation recognised in equity | 1.0 | 0 | 0 | 0 | 0 | 1.0 |
| **Balance as at 31 Dec 2018** | **89.7** | **9.1** | **0** | **–0.2** | **0** | **98.6** |

1) FVPL = fair value through profit or loss

The value of level 3 equity investments is reviewed on a quarterly basis using internal valuation models. During the year under review, fair value measurement resulted in positive effects of €11.3 million and negative effects of €3.8 million, both recognised directly in equity.

Financial instruments measured at fair value through profit or loss include investment fund units. Their fair value measurement is based on the net asset value determined by the issuer and yielded negative effects of €0.2 million recognised in net income from strategic investments. This item also comprised a convertible bond and a convertible loan, whose market values are determined using internal valuation models. Measurement at fair value had an effect on profit or loss amounting to €0.1 million reported in net income from strategic investments.

Furthermore, the item “financial assets measured at fair value through profit or loss” included financial instruments from an incentive programme of Eurex Frankfurt AG with a carrying amount of €0.4 million as at 31 December 2018. The financial instruments are regularly measured at fair value through profit or loss using internal models at the quarterly reporting dates. During the year under review, subsequent measurement of the financial instruments led to gains of €0.4 million disclosed under “other operating income”. Since these are internal models, the parameters can differ from those at the settlement date. However, the derivatives will not exceed an amount of €0.8 million. These amounts arise if all beneficiaries of the incentive programme fulfil the conditions and a repayment of the contribution is not taken into consideration.

The fair value of a call option included in derivatives was derived using a Black-Scholes model based on unobservable market data. The fair value stood at nil as at the reporting date, yielding an unrealised loss of €0.1 million recognised in other operating expense.

At the beginning of the 2018 financial year, financial liabilities at fair value through profit or loss comprised two contingent purchase price components in the aggregate amount of €0.8 million. These two purchase price components are measured on the basis of internal discounted cash flow models, which discount the expected future payment obligations to the measurement date, using interest rates appropriate to the risk.

The bonds issued by Deutsche Börse Group have a fair value of €2,422.9 million (31 December 2017: €2,451.5 million) and are disclosed under liabilities measured at amortised cost. The fair value of such instruments is based on the debt instruments’ quoted prices. Due to insufficient market liquidity, the liabilities were allocated to level 2.

Fixed-income securities held by Deutsche Börse Group have a fair value of €1,627.0 million. They are recognised as part of debt instruments measured at amortised cost. The fair value of the securities was determined by reference to published price quotations in an active market. The securities were allocated to level 1.

The carrying amounts of the following items represent a reasonable approximation of their fair value:

- Other financial assets reported under (non-)current debt financial instruments measured at amortised cost
- Restricted bank balances
- Cash and other bank balances
- Cash deposits by market participants
- Trade receivables
- Trade payables
- Other financial liabilities reported under current financial liabilities measured at amortised cost

## 13.3 Financial investments measured at fair value through other comprehensive income

Financial investments measured at fair value through other comprehensive income (FVOCI) comprise equity investments which are not held for trading and which Deutsche Börse Group has irrevocably elected to recognise in this category at initial recognition. As these instruments are strategic investments of Deutsche Börse Group, the classification at fair value through other comprehensive income is in line with the business rationale.

Equity investments measured at fair value through other comprehensive income comprise the following investments:

Equity investments measured at fair value through other comprehensive income

| | 2018 €m |
|---|---|
| **Listed securities** | |
| Bombay Stock Exchange Ltd.[1] | 19.1 |
| **Total listed securities** | **19.1** |
| **Unlisted securities** | |
| Taiwan Futures Exchange Corp[1] | 42.6 |
| Digital Asset Holdings LLC[1] | 6.2 |
| figo GmbH[1] | 3.3 |
| Trifacta Inc. [1] | 5.4 |
| Trumid Holdings, LLC[1] | 12.8 |
| LMRKTS LLC | 9.2 |
| S.W.I.F.T. SCRL[1] | 10.2 |
| **Total unlisted securities** | **89.7** |
| **Total** | **108.8** |

1) In financial year 2017, Deutsche Börse Group classified equity investments as “available for sale”; see note 13.5 for further details.

In 2018, Deutsche Börse Group disposed of parts of its investment in S.W.I.F.T. SCRL as a result of transactions initiated by the issuer. The shares disposed of had a fair value of €0.3 million, and the Group realised a gain of €0.2 million, which had initially been included in other comprehensive income. The gain has been transferred to retained earnings upon disposal.

None of the equity investments have been pledged as collateral by Deutsche Börse Group.

During the year under review, the following gains/(losses) were recognised in profit or loss and in other comprehensive income in connection with the investments:

## Amounts recognised in profit or loss and in other comprehensive income

| | 2018<br>€m | 2017[1]<br>€m |
|---|---|---|
| Gains/(losses) recognised in other comprehensive income | –7.2 | 101.6 |
| Gains/(losses) reclassified from other comprehensive income to profit or loss | – | 192.5[2] |
| Dividends from equity investments held at FVOCI[3] | | |
| Related to investments derecognised during the reporting period | 0 | 3.9 |
| Related to investments held as at the end of the reporting period | 2.9 | 2.1 |
| **Total** | **–4.3** | **300.1** |

1) The figures for the 2017 financial year relate to available-for-sale financial assets.
2) Relates primarily to income generated from the disposal of shares in BATS Global Markets, Inc. as well as of an additional equity investment in the 2017 financial year
3) FVOCI = fair value through other comprehensive income

## 13.4 Financial assets measured at amortised cost

Financial assets measured at amortised cost include the following debt instruments:

### Composition of fair value of financial assets measured at amortised cost

| | 31 Dec 2018 | | | 31 Dec 2017[1] | | |
|---|---|---|---|---|---|---|
| | Non-current €m | Current €m | Total €m | Non-current €m | Current €m | Total €m |
| Listed debt securities | 1,052.0 | 572.4 | 1,624.4 | n.a. | n.a. | n.a. |
| Expected loss on listed debt securities | | | | | | |
| Stage 1 | 0 | 0 | 0 | n.a. | n.a. | n.a. |
| Total expected loss on listed debt securities | 0 | 0 | 0 | n.a. | n.a. | n.a. |
| **Listed debt securities net of expected loss** | **1,052.0** | **572.4** | **1624.4** | **n.a.** | **n.a.** | **n.a.** |
| | | | | | | |
| Trade receivables | 0 | 403.2 | 403.2 | 0 | 331.8 | 331.8 |
| Expected loss on trade receivables | | | | | | |
| Stage 2 | 0 | –4.8 | –4.8 | n.a. | n.a. | n.a. |
| Stage 3 | 0 | –0.9 | –0.9 | n.a. | n.a. | n.a. |
| Total expected loss on trade receivables | 0 | –5.7 | –5.7 | n.a. | n.a. | n.a. |
| **Trade receivables net of expected loss** | **0** | **397.5** | **397.5** | **0** | **331.8** | **331.8** |
| | | | | | | |
| Other financial assets measured at amortised cost[2] | | | | | | |
| Reverse repurchase agreements | 0 | 6,516.2 | 6,516.2 | 0 | 4,843.5 | 4,843.5 |
| Balances on nostro accounts | 0 | 2,244.7 | 2,244.7 | 0 | 1,287.2 | 1,287.2 |
| Money market lendings | 0 | 6,435.9 | 6,435.9 | 0 | 5,859.9 | 5,859.9 |
| Margin calls | 0 | 18.5 | 18.5 | 0 | 14.8 | 14.8 |
| Overdrafts from settlement business | 0 | 2,253.3 | 2,253.3 | 0 | 754.7 | 754.7 |
| Receivables from related parties | 0.4 | 0.1 | 0.5 | 0.3 | 0.1 | 0.4 |
| Interest receivables | 0 | 45.2 | 45.2 | 0 | 41.3 | 41.3 |
| Receivables from deposits | 4.6 | 3.8 | 8.4 | 4.6 | 2.9 | 7.5 |
| Central counterparty balances | 0 | 1,608.9 | 1,608.9 | 0 | 112.4 | 112.4 |
| Other | 0.1 | 23.6 | 23.7 | 0 | 6.1 | 6.1 |
| Total other financial assets measured at amortised cost | 5.1 | 19,150.2 | 19,155.3 | 4.9 | 12,922.9 | 12,927.8 |
| **Other financial assets measured at amortised cost, net of expected loss** | **5.1** | **19,150.2** | **19,155.3** | **4.9** | **12,922.9** | **12,927.8** |
| | | | | | | |
| **Total** | **1,057.1** | **20,120.1** | **21,177.2** | **4.9** | **13,254.7** | **13,259.6** |

1) If comparable prior-year figures do not exist due to the first-time adoption of IFRS 9 in the year under review, this is marked as "n.a."
2) 2017: loans and receivables

Financial assets measured at amortised cost include securities with an amount of €5.1 million pledged to the Industrie- und Handelskammer (IHK, the Chamber of Commerce) Frankfurt/Main.

All of the debt instruments held as at 31 December 2018 were listed and issued by sovereign or sovereign-guaranteed issuers.

As in the previous year, there were no trade receivables due after more than one year as at 31 December 2018.

Overdrafts from settlement business represent short-term loans up to a duration of two days that are usually secured by collateral. The potential concentration of credit risk is monitored for counterparty credit limits; see note 25).

### 13.5 Financial assets previously classified as available-for-sale financial assets

Available-for-sale financial assets included the following classes of financial assets in 2017:

Financial assets classified as “available for sale” in 2017

| | 31 Dec 2017 (restated) €m |
|---|---|
| **Non-current assets** | |
| **Listed securities** | |
| Equity investments | 33.8 |
| Debt securities and corporate bonds | 1,577.5 |
| ETFs and other funds | 15.1 |
| **Total** | **1,626.4** |
| **Unlisted securities** | |
| Equity investments | 65.6 |
| **Total** | **65.6** |
| Total non-current assets | 1,692.0 |
| **Current assets** | |
| Listed debt securities | 254.5 |
| **Total current assets** | **254.5** |
| **Total** | **1,946.5** |

As the category “available for sale” no longer exists under the requirements introduced by IFRS 9 on 1 January 2018, no comparable figures for 2018 have been disclosed within this note.

Following the requirements of IFRS 9, listed debt instruments for 2018 are shown under financial instruments measured at amortised cost in note 13.4, whereas equity investments (listed and unlisted) have been classified as equity instruments measured at fair value through other comprehensive income as disclosed in note 13.3. Investments in funds are shown in note 13.9 as they had been classified as debt instruments measured at fair value through profit or loss.

## 13.6 Financial liabilities measured at amortised cost

Financial liabilities measured at amortised cost are comprised as follows:

### Composition of financial liabilities measured at amortised cost

| | 31 Dec 2018 Carrying amount | | | 31 Dec 2017 Carrying amount | | |
|---|---|---|---|---|---|---|
| | Non-current €m | Current €m | Total €m | Non-current €m | Current €m | Total €m |
| Bonds issued | 2,283.2 | 0 | 2,283.2 | 1688.4 | 599.7 | 2,288.1 |
| Trade payables | 0 | 195.0 | 195.0 | 0 | 150.1 | 150.1 |
| Deposits from securities settlement business | 0 | 16,796.8 | 16,796.8 | 0 | 12,436.5 | 12,436.5 |
| Deposits from customers | 0 | 16,166.5 | 16,166.5 | 0 | 12,411.8 | 12,411.8 |
| Deposits from credit institutions | 0 | 630.3 | 630.3 | 0 | 24.7 | 24.7 |
| Commercial paper issued | 0 | 402.2 | 402.2 | 0 | 274.7 | 274.7 |
| Money market lendings | 0 | 36.6 | 36.6 | 0 | 508.3 | 508.3 |
| Bank overdrafts | 0 | 0 | 0 | 0 | 7.3 | 7.3 |
| Margin deposits | 0 | 17.9 | 17.9 | 0 | 15.4 | 15.4 |
| Interest liabilities | 0 | 36.6 | 36.6 | 0 | 29.3 | 29.3 |
| Liabilities from CCP positions | 0 | 1,714.9 | 1,714.9 | 0 | 101.7 | 101.7 |
| Associate payables | 0 | 0.1 | 0.1 | 0 | 0.3 | 0.3 |
| Miscellaneous | 0 | 19.6 | 19.6 | 0 | 3.0 | 3.0 |
| Total | 2,283.2 | 19,219.7 | 21,502.9 | 1,688.4 | 14,126.3 | 15,814.7 |

The financial liabilities recognised on the balance sheet were not secured by liens or similar rights as at 31 December 2017 or as at 31 December 2018.

### 13.7 Financial instruments of the central counterparties

Composition of financial instruments of the central counterparties

| | 31 Dec 2018 €m | 31 Dec 2017 €m |
|---|---|---|
| Repo transactions | 63,147.3 | 62,914.9 |
| Options | 40,428.1 | 20,140.0 |
| Other | 690.3 | 1,293.0 |
| **Total** | **104,265.7** | **84,347.9** |
| thereof non-current | 9,985.4 | 4,837.2 |
| thereof current | 94,280.3 | 79,510.7 |

1) FFVPL = fair value through profit or loss

The aggregate financial instruments held by central counterparties are classified into current and non-current in the consolidated balance sheet. Receivables and liabilities that may be offset against a clearing member are reported on a net basis. Financial liabilities of €212.0 million (2017: €712.1 million) were eliminated because of intra-Group GC Pooling transactions.

The following table gives an overview of the effects of offsetting the financial instruments held by the central counterparties:

Gross presentation of offset financial instruments held by the central counterparties

| | Gross amount of financial instruments | | Gross amount of offset financial instruments | | Net amount of financial instruments | |
|---|---|---|---|---|---|---|
| | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m |
| Financial assets from repo transactions | 98,083.3 | 83,297.8 | −34,936.0 | −20,382.9 | 63,147.3 | 62,914.9 |
| Financial liabilities from repo transactions | −97,871.3 | −82,585.7 | 34,936.0 | −20,382.9 | −62,935.3 | −62,202.8 |
| Financial assets from options | 76,089.8 | 65,735.2 | −35,661.7 | −45,595.2 | 40,428.1 | 20,140.0 |
| Financial liabilities from options | −76,089.8 | −65,735.2 | 35,661.7 | 45,595.2 | −40,428.1 | −20,140.0 |

## 13.8 Derivative financial instruments

Derivatives are only used for economic hedging purposes and not as speculative investments. However, where derivatives do not meet the hedge accounting criteria, they are classified as “held for trading” for accounting purposes and are accounted for at fair value through profit or loss. Deutsche Börse Group uses derivative financial instruments to hedge existing or expected transactions in order to reduce interest rate risks or foreign-exchange risks. As at the reporting date, the following transactions have been recognised:

Derivative financial instruments

| | Notional amount 31 Dec 2018 €m | Carrying amount 31 Dec 2018 €m | Notional amount 31 Dec 2017 €m | Carrying amount 31 Dec 2017 €m |
|---|---|---|---|---|
| ASSETS | | | | |
| Non-current assets | | | | |
| Options to acquire equity investments | 2.0 | 0 | 2.0 | 0.1 |
| Foreign currency derivatives not designated in hedges | 0 | 0 | 0 | 0 |
| **Total non-current assets** | **2.0** | **0** | **2.0** | **0.1** |
| Current assets | | | | |
| Foreign currency derivatives not designated in hedges | 2,094.8 | 4.7 | 788.0 | 4.5 |
| Foreign currency derivatives qualifying as cash flow hedges | 0 | 0 | 75.2 | 0.7 |
| **Total current assets** | **2,094.8** | **4.7** | **863.2** | **5.2** |
| **Total assets** | **2,096.8** | **4.7** | **865.2** | **5.3** |
| | | | | |
| LIABILITIES | | | | |
| Current liabilities | | | | |
| Foreign currency derivatives not designated in hedges | 1,289.5 | 3.0 | 1,711.9 | 29.1 |
| Embedded derivatives | 0 | 0 | 2.9 | 2.9 |
| **Total current liabilities** | **1,289.5** | **3.0** | **1,714.8** | **32.0** |
| **Total liabilities** | **1,289.5** | **3.0** | **1,714.8** | **32.0** |

**Derivatives that do not qualify as hedges**

Deutsche Börse Group has entered into transactions involving derivatives to economically reduce the foreign-exchange rate risk. These transactions have not been designated as hedging relationships:

As at 31 December 2018, currency swaps expiring in less than six months had a notional value of €3,383.2 million (2017: €2,494.6 million) as well as a negative fair value of €2.9 million and a positive fair value amounting to €4.7 million (2017: negative fair value of €29.0 million and positive fair value amounting to €4.5 million). These swaps were entered into to convert foreign currencies resulting from the commercial paper programme into euros and to economically hedge short-term foreign currency receivables and liabilities in euros.

As at 31 December 2018 and as at 31 December 2017, European Energy Exchange AG had entered into forward transactions in order to economically hedge the foreign-exchange risk associated with forecast net cash outflows in British pounds for the following year. As at 31 December 2018, these derivatives had a notional value of €1.1 million (£1.0 million) and a remaining maturity of less than twelve months. The fair value of these instruments amounted to nil. As at 31 December 2017, the forward contracts with a notional value of €4.6 million (£4.0 million) had a negative fair value of €0.1 million. A US dollar swap with a notional value of €0.8 million had a fair value of nil as of 31 December 2017. All contracts concluded in 2017 settled in 2018 without any material impact on net profit for the period attributable to Deutsche Börse AG shareholders.

**Cash flow hedges**

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognised in the cash flow hedge reserve within revaluation surplus. The gain or loss relating to the ineffective portion is recognised immediately in profit or loss. Amounts are subsequently transferred to profit or loss. For the development of the revaluation surplus, please refer to note 15.

The effectiveness of a hedging relationship is determined at the inception of the hedging relationship and through periodic effectiveness assessments to ensure that there is an economic relationship between hedged item and hedging instrument. In order to hedge foreign currency risk, the Group enters into hedging relationships where the critical terms of the hedging instrument match exactly the terms of the hedged item.

The cash flow hedges developed as follows:

### Changes in cash flow hedges

| | 2018<br>€m | 2017<br>€m |
|---|---|---|
| Cash flow hedges as at 1 January | 0.7 | 0 |
| Amount recognised in other comprehensive income during the year | 0 | –3.4 |
| Amount recognised in profit or loss during the year | –0.7 | 0 |
| Closed-out | 0 | 4.1 |
| **Cash flow hedges as at 31 December** | **0** | **0.7** |

In 2017, Clearstream Banking S.A. had entered into a cash flow hedge to reduce the impact of fluctuations in the euro/US dollar exchange rate on its US dollar-based net interest income for the 2018 financial year. The US dollar-related net interest income is derived from US dollar placements from customer cash balances less the corresponding compensation for customers. Twelve forward foreign-exchange contracts – one contract for the end of each of the twelve months in 2018 – were concluded on 16 November 2017. The hedge is considered 100 per cent effective as the hedging foreign-exchange transactions can be set off directly against the US dollar-based net interest income. At the end of each month, the change in fair value of the forward foreign-exchange contracts will be recognised in equity, and the gain or loss realised on the maturing foreign-exchange contract will be classified as interest income. As at 31 December 2017, the fair value of the hedging instruments amounted to €0.7 million. To hedge the US dollar risk for financial year 2019, Clearstream Banking S.A. concluded similar transactions in 2019; as at the reporting date, no derivatives had been designated as cash flow hedges.

### 13.9 Other financial instruments measured at fair value through profit or loss

The financial instruments measured at fair value through profit or loss (FVPL) are comprised as follows:

Composition of other financial instruments measured at fair value through profit or loss

| | 31 Dec 2018 €m | 31 Dec 2017 €m |
|---|---|---|
| ASSETS | | |
| Non-current assets | | |
| Convertible bonds and loans | 2.7 | 1.2 |
| Investment in ETFs and equity funds | 14.6 | 15.1 |
| Total | 17.3 | 16.3 |
| Current assets | | |
| Incentive programmes | 0.4 | 0 |
| Total | 1.0 | 0 |
| **Total assets** | **17.7** | **16.3** |
| | | |
| LIABILITIES | | |
| Non-current liabilities | | |
| Contingent purchase price components | 0.2 | 0.8 |
| **Total liabilities** | **0.2** | **0.8** |

During the year under review, the following gains/(losses) were recognised in profit or loss:

Amounts recognised in profit or loss

| | 2018 €m | 2017 €m |
|---|---|---|
| Fair value (losses)/gains on other financial assets at FVPL[1] | –1.5 | 0 |
| Distributions from ETFs | 0.3 | 0.4 |
| Fair value gains/(losses) on contingent purchase price components | 0.6 | –0.2 |
| **Total** | **–0.6** | **0.2** |

1) FVPL = fair value through profit or loss

### 13.10 Restricted bank balances

Amounts reported separately under liabilities as cash deposits by market participants are restricted. Such amounts are mainly invested via bilateral or triparty reverse repurchase agreements and in the form of overnight deposits at banks (restricted bank balances). Government and government-guaranteed bonds with an external rating of at least AA– are accepted as collateral for the reverse repurchase agreements. Reported restricted bank balances total €29,833.6 million (2017: €29,392.0 million).

### 13.11 Cash deposits by market participants

Composition of cash deposits by market participants

| | 31 Dec 2018<br>€m | 31 Dec 2017<br>€m |
|---|---|---|
| Liabilities from margin payments | | |
| made to Eurex Clearing AG by clearing members | 23,673.9 | 26,555.0 |
| made to European Commodity Clearing AG by clearing members | 5,502.2 | 2,268.8 |
| made to Nodal Clear, LLC by clearing members | 372.7 | 387.2 |
| made to European Energy Exchange AG by clearing members | 0.3 | n.a. |
| Liabilities from cash deposits by participants in equity trading | 10.1 | 4.3 |
| **Total** | **29,559.2** | **29,215.3** |

## 14. Other current assets

Composition of other current assets

| | 31 Dec 2018<br>€m | 31 Dec 2017<br>€m |
|---|---|---|
| Other receivables from CCP transactions | 543.9 | 364.4 |
| Tax receivables (excluding income taxes) | 41.6 | 49.8 |
| Prepaid expenses | 50.4 | 32.0 |
| Miscellaneous | 3.9 | 5.5 |
| **Total** | **639.8** | **451.7** |

## 15. Equity

Changes in equity are presented in the consolidated statement of changes in equity. As at 31 December 2018, the number of no-par value registered shares of Deutsche Börse AG in issue was 190,000,000 (31 December 2017: 193,000,000).

Subject to the agreement of the Supervisory Board, the Executive Board is authorised to increase the subscribed share capital by the following amounts:

## Composition of authorised share capital

| | Amount in € | Date of authorisation by the shareholders | Expiry date | Existing shareholders' pre-emptive rights may be disapplied for fractioning and/or may be disapplied if the share issue is: |
|---|---|---|---|---|
| Authorised share capital I[1] | 13,300,000 | 11 May 2016 | 10 May 2021 | n.a. |
| Authorised share capital II[1] | 19,300,000 | 13 May 2015 | 12 May 2020 | ▪ for cash at an issue price not significantly lower than the stock exchange price, up to a maximum amount of 10 per cent of the nominal capital. |
| | | | | ▪ against non-cash contributions for the purpose of acquiring companies, parts of companies, interests in companies, or other assets. |
| Authorised share capital III[1] | 38,600,000 | 13 May 2015 | 12 May 2020 | n.a. |
| Authorised share capital IV[1] | 6,000,000 | 17 May 2017 | 16 May 2022 | n.a |

1) Shares may only be issued, excluding shareholders' pre-emptive subscription rights, provided that the aggregate amount of new shares issued excluding shareholders' pre-emptive rights during the term of the authorisation (including under other authorisations) does not exceed 20 per cent of the issued share capital.

## Contingent capital

In accordance with the resolution by the Annual General Meeting on 15 May 2014, the Executive Board was authorised, subject to the approval of the Supervisory Board, to issue on one or more occasions in the period up to 14 May 2019 convertible bonds and/or bonds with warrants or a combination of such instruments in a total nominal amount of up to €2,500,000,000 with or without maturity restrictions. The Executive Board was also authorised to grant the holders or creditors of these bonds conversion or option rights to new no-par value registered shares of Deutsche Börse AG with a proportionate interest in the share capital totalling up to €19,300,000, as specified in more detail in the terms and conditions of the convertible bonds or in the terms and conditions of the warrants attaching to the bonds with warrants.

The Executive Board is authorised, subject to the approval of the Supervisory Board, to exclude shareholders' pre-emptive rights to bonds with conversion or option rights to shares of Deutsche Börse AG in the following cases: (i) to avoid fractional amounts, (ii) when the issue price of a bond is not materially below the theoretical fair value determined in accordance with recognised financial techniques and the total number of shares attributable to these bonds does not exceed 10 per cent of the share capital, (iii) to grant the holders of conversion or option rights to shares of Deutsche Börse AG subscription rights to offset any dilutive effects to the same extent as they would be entitled to receive after exercising these rights.

The bonds may also be issued by companies based in Germany or abroad that are affiliated with Deutsche Börse AG within the meaning of sections 15ff. of the Aktiengesetz (AktG, German Stock Corporation Act). Accordingly, the share capital was contingently increased by up to €19,300,000 (contingent capital 2014). To date, the authorisation to issue convertible bonds and/or bonds with warrants has not been exercised.

There were no further subscription rights to shares as at 31 December 2018 or 31 December 2017.

## Revaluation surplus

The development of the revaluation surplus is as follows:

Revaluation surplus

| | Recognition of hidden reserves from fair value measurement €m | Available-for-sale investments €m | Equity investments measured at FVOCI[1] €m |
|---|---|---|---|
| **Balance as at 1 Jan 2017 (gross)** | **103.7** | **111.4** | **0** |
| Changes from defined benefit and similar obligations | 0 | 0 | 0 |
| Fair value measurement | 0 | 101.6 | 0 |
| Reclassifications | 0 | 0 | 0 |
| Reversal to profit or loss | 0 | –192.5 | 0 |
| **Balance as at 31 Dec 2017 (gross)** | **103.7** | **20.5** | **0** |
| First-time adoption of IFRS 9 at 1 Jan 2018 | 0 | –20.5 | 23.7 |
| Changes from defined benefit obligations | 0 | 0 | 0 |
| Fair value measurement | 0 | 0 | –7.2 |
| **Balance as at 31 Dec 2018 (gross)** | **103.7** | **0** | **16.5** |
| | | | |
| **Deferred taxes** | | | |
| **Balance as at 1 Jan 2017** | **0** | **–44.2** | **0** |
| Additions | 0 | 77.4 | 0 |
| Reversals | 0 | –34.3 | 0 |
| **Balance as at 31 Dec 2017** | **0** | **–1.1** | **0** |
| First-time adoption of IFRS 9 at 1 Jan 2018 | 0 | 1.1 | –1.7 |
| Additions | 0 | 0 | 0.1 |
| Reversals | 0 | 0 | –0.3 |
| **Balance as at 31 Dec 2018** | **0** | **0** | **–1.9** |
| | | | |
| **Balance as at 1 Jan 2017 (net)** | **103.7** | **67.2** | **0** |
| **Balance as at 31 Dec 2017 (net)** | **103.7** | **19.4** | **0** |
| **Balance as at 31 Dec 2018 (net)** | **103.7** | **0** | **14.6** |

1) FFVOCI = fair value through other comprehensive income

| | Available-for-sale debt instruments €m | Cash flow hedges €m | Defined benefit obligations €m | Other €m | Total €m |
|---|---|---|---|---|---|
| | 9.1 | – 3.5 | – 183.8 | 0 | 36.9 |
| | | | | | |
| | 0 | 0 | 30.6 | 0 | 30.6 |
| | 1.2 | 0.7 | 0 | 0 | 103.5 |
| | – 0.1 | 0 | 0 | 0 | – 0.1 |
| | 0.3 | 2.8 | 0 | 0 | – 189.4 |
| | 10.5 | 0 | – 153.2 | 0 | – 18.5 |
| | – 10.5 | 0 | 0 | 0 | – 7.3 |
| | 0 | 0 | – 23.9 | – 0.3 | – 24.2 |
| | 0 | 0 | 0 | 0 | – 7.2 |
| | 0 | 0 | – 177.1 | – 0.3 | – 57.2 |
| | | | | | |
| | | | | | |
| | – 2.5 | 1.0 | 50.3 | 0 | 4.6 |
| | 0 | 0 | 0 | 0 | 77.4 |
| | – 0.2 | – 1.0 | – 8.4 | 0 | – 43.9 |
| | – 2.7 | 0 | 41.9 | 0 | 38.1 |
| | 2.7 | 0 | 0 | 0 | 2.1 |
| | 0 | 0 | 6.9 | 0.1 | 7.1 |
| | 0 | 0 | 0 | 0 | – 0.3 |
| | 0 | 0 | 48.9 | 0 | 47.0 |
| | | | | | |
| | 6.6 | – 2.5 | – 133.5 | 0 | 41.5 |
| | 7.8 | 0 | – 111.3 | 0 | 19.6 |
| | 0 | 0 | – 128.3 | – 0.2 | – 10.2 |

## Accumulated profit

The “accumulated profit” item includes exchange rate differences amounting to €–6.8 million (2017: €–16.4 million). €8.2 million (2017: €–14.4 million) were added due to currency translation for foreign subsidiaries in the reporting period as well as €1.4 million (2017: €–7.1 million) relating to transactions used to hedge against currency risk.

## Regulatory capital requirements and regulatory capital ratios

As in the past, Clearstream Banking S.A., Clearstream Banking AG and Eurex Clearing AG, in their capacity as credit institutions, are subject to solvency supervision by the German or Luxembourg banking supervisory authorities (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin, and Commission de Surveillance du Secteur Financier, CSSF, respectively). The same applies to the Clearstream Holding at a regulatory group level. Eurex Repo GmbH and 360 Treasury Systems AG are also subject to specific provisions applicable to certain investment firms under BaFin solvency supervision. Until it ceased its business operations effective 31 December 2017, Eurex Bonds GmbH had also been subject to BaFin supervision.

Following the return of its licence as an “Approved Clearing House” (ACH) in March 2018, Eurex Clearing Asia Pte. Ltd. is no longer subject to any capital requirements under the Securities and Futures Act (Singapore) or to other specific requirements of the Monetary Authority of Singapore (MAS). Eurex Clearing Asia Pte. Ltd. is presently being liquidated.

Since the authorisation of both Eurex Clearing AG and European Commodity Clearing AG as central counterparties under the provisions of Regulation (EU) No 648/2012 (European Market Infrastructure Regulation, EMIR) in 2014, these companies have been subject to the capital requirements under Article 16 of EMIR. These requirements apply to Eurex Clearing AG in parallel to the solvency supervision requirements applicable to credit institutions. In each concrete case, the more stringent requirement has to be met. Irrespective of its status as a specialist credit institution according to German law, European Commodity Clearing AG is only subject to EMIR capital requirements.

Clearstream Banking AG, Clearstream Banking S.A. and LuxCSD S.A. are central securities depositories (CSDs) within the meaning of Article 2 Paragraph 1 Number 1 of the Regulation (EU) No. 909/2014 (Central Securities Depositories Regulation, CSDR). While the review of the submitted applications for authorisation by the respective supervisory authorities is ongoing, the companies operate under existing transitional provisions. Upon authorisation as CSD pursuant to Article 16 of the CSDR, the affected central securities depository will be subject to the capital requirements set forth in Article 47 of the CSDR. In addition and parallel to such capital requirements, going forward, Clearstream Banking AG and Clearstream Banking S.A. will also be subject to a capital surcharge for credit institutions applicable for the provision of intra-day credit pursuant to Article 54 Paragraph 3 Letter d of the CSDR.

Nodal Clear, LLC is a Derivatives Clearing Organisation (DCO) subject to regulation by the US Commodity Futures Trading Commission (CFTC). Given its DCO status, Nodal Clear, LLC is obliged to maintain sufficient financial resources to cover all current costs for a minimum period of twelve months; moreover, Nodal Clear, LLC must provide sufficient highly liquid assets to cover all current costs for at least six months.

REGIS-TR S.A., as trade repository according to EMIR, is subject to supervision exercised by the European Securities and Markets Authority (ESMA) pursuant to Article 21 (b) of Delegated Regulation (EU) No 150/2013.

Powernext SAS is a regulated market in France, and is hence subject to supervision exercised by the Autorité des marchés financiers (AMF); furthermore, Powernext SAS is obliged to fulfil the regulatory capital requirements set forth in the "Arrêté du 2 juillet 2007 relatif au capital minimum, aux fonds propres et au contrôle interne des entreprises de marché".

The EMIR capital requirements for central counterparties are in large part based on the EU own funds requirements for credit institutions (see below), but the details differ in relation to the capital components, the capital requirement components and capital deduction items. Moreover, EMIR does not specify any capital buffers such as those introduced by the Directive (EU) No 36/2013 (Capital Requirements Directive, CRD IV) and the Regulation (EU) No 575/2013 (Capital Requirements Regulation, CRR) for banks.

Since 1 January 2014, the own funds requirements for credit institutions have been primarily subject to the EU-wide requirements of the CRR as well as the supplementary national regulations implementing CRD IV, which transposed the "Basel III" rules into European law.

All companies that are directly or indirectly (i.e. by means of EMIR requirements) subject to the CRR own funds requirements are exempted from compliance with trading book requirements. Market risk exposures consist only of relatively small open foreign currency positions. The companies concerned uniformly apply the standardised approach for credit risk. As a result of the specific business of the credit institutions and central counterparties belonging to Deutsche Börse Group, their recognised assets are subject to sharp fluctuations. This leads to correspondingly volatile total capital ratios at the Clearstream companies. The volatility of the ratio is subject to major fluctuations on a day-to-day basis in the course of the year. Due to a high degree of collateralised or zero-weighted cash investments, the own funds requirements for credit and market risk exposures of Eurex Clearing AG and European Commodity Clearing AG are relatively stable despite volatile total assets in the course of the year.

To calculate operational risk, Eurex Clearing AG and European Commodity Clearing AG use the basic indicator approach, while the Clearstream companies apply the advanced measurement approach (AMA).

Due to the specific arrangements for the two investment firms, Eurex Repo GmbH and 360 Treasury Systems AG, no explicit own funds requirements for operational risk are determined in accordance with Article 95 of the CRR. Instead, the total own funds requirement is determined either as the own funds requirement amount for credit and market risk or as 25 per cent of fixed overhead costs, depending on which is higher. Since credit and market risks are low, the relevant criterion for both companies is the own funds requirement on the basis of overhead costs.

None of the Group companies subject to solvency supervision has Tier 2 supplementary capital.

A minimum total capital ratio of 8 per cent generally applies to credit institutions subject to the CRR. The credit institutions that are subject to the provisions of the CRR fall into two groups: those designated as not systemically important, which includes Clearstream Banking AG, Clearstream Holding group and Eurex Clearing AG; and those designated as "Other Systemically Important Institution (O-SII)", which includes Clearstream Banking S.A. as of 1 January 2018. CRD IV introduced various capital buffers, which the supervised (credit) institutions generally have to meet over and above the minimum total capital ratio of 8 per cent, although they may temporarily fall below these levels. The capital buffers were introduced in stages up until 1 January 2019, depending on the economic environment and systemic risk components: since 2014, CSSF has imposed a standard capital conservation buffer of 2.5 per cent of Tier 1 capital on all Luxembourg credit institutions; this arrangement represents a departure from the general transitional provisions of CRD IV. This means that the minimum total capital ratio is 10.5 per cent. Besides the capital buffers imposed by CSSF for all Luxembourg credit institutions, an additional capital conservation buffer of 1.875 per cent (2.5 per cent starting in 2019) is applied to all regulated Group companies subject to CRR regulations. Taking these effects into account, the minimum total capital ratio was 9.875 per cent. Similarly, an anticyclical capital buffer is required to be available in order to ensure that banks accumulate a buffer during a period in which a specific region experiences economic growth while such buffer may fall to a lower level during an economic downturn in such region. The respective percentage is generally determined by the competent authority of the country in which the (credit) risk positions are located. Therefore, a bank's individual percentage is a combined rate, which takes into account the total volume of credit transactions in the various countries. As at 31 December 2018, the bank-specific anticyclical capital buffer requirements for Clearstream Banking S.A. stood at 0.12 per cent of risk-weighted assets. In addition, a buffer for systemically relevant institutions and a systemic risk buffer must be applied if required by the competent authority. As at 31 December 2018, the systemic risk buffer was not yet required in Luxembourg. However, according to Regulation CSSF No. 18-06, Clearstream Banking S.A. is required to apply a buffer for O-SIIs amounting to 0.375 per cent, which increased to 0.5 per cent, effective 1 January 2019.

The individual companies' capital resources sufficiently reflect the fluctuation in risk-weighted assets. Stress considerations are used to determine the capital required for expected peaks, and additional reserves for unexpected events are added. In addition, buffers are taken into account that cover the recovery indicators specified in the recovery plans and thus prevent recovery scenarios from being triggered even for peak own funds and capital requirements. The own funds and capital requirements determined in this way will be met on the basis of medium-term capital planning. As the actual own funds and capital requirements are below the expected peaks – significantly so under normal circumstances – this may lead to a very high total capital ratio or EMIR capital cover, especially at the closing date.

The own funds requirements of the Clearstream companies remained almost stable in the reporting period. However, changes occurred regarding own funds requirements for operational risks as well as credit and market risks, both at the single entity and Group levels. As of September 2016, the Clearstream Holding group has applied a different method, the AMA, for the calculation of operational risk own funds requirements. Since then, the calculation has been made using the so-called Direct VaR.

The Clearstream Holding group has already responded to the (expected) higher own funds requirements by launching a programme to strengthen its capital base; this programme continued in 2017. Further measures are planned for the coming years in the context of medium-term capital planning. In the year under review, the Clearstream Holding group's capital base was boosted by retaining profits at different companies.

In the medium to long term, the Clearstream Holding group expects moderately increasing own funds requirements at a regulatory group level for the following reasons:

- The successively increasing capital buffers under CRD IV
- The future applicability of own funds requirements based on the Central Securities Depositories Regulation (CSDR)
- The establishment of own funds requirements resulting from the introduction of minimum requirements for equity and eligible liabilities (MREL) as a result of Directive (EU) No 59/2014
- The implementation of the so-called CRR II package and other amendments under Basel III (presumably applicable not before the third quarter of 2019)

Eurex Clearing AG's own funds requirements increased compared with the previous year. Given the increase in revenue, own funds requirements for operational risk rose according to our model; own funds requirements for credit and market risk also increased markedly.

The own funds requirements calculated with Eurex Clearing AG's internal risk model are higher than the own funds requirements derived from the basic indicator approach, which follows regulatory stipulations and is based on the balance sheet. Hence, Eurex Clearing AG always applies additional capital buffers for such risks, surpassing regulatory minimum requirements. Against this background, banking supervisors requested in 2011 that Eurex Clearing AG increase the basis for the calculation of regulatory own funds requirements by considering an appropriate share of clearing-related fees received for the account of operating entities. The own funds requirements for operational risk are calculated once a year based on a three-year average of historical income, including the assumed clearing fees, and are therefore not subject to daily fluctuations. Compliance with the minimum regulatory ratio is maintained at all times due to the sufficient capital buffer for uncollateralised cash investments.

Eurex Clearing AG's capital requirements according to EMIR are currently significantly above CRD IV capital buffer requirements. For this reason, Eurex Clearing AG does not currently expect the CRD IV capital buffers to have any material impact on its capital requirements. Independently of this, the capital resources of Eurex Clearing AG are reviewed on an ongoing basis and monitored as part of medium-term capital planning. Eurex Clearing AG received contributions to its capital reserve in an amount of €100.0 million in 2017 and a further €50.0 million in 2018 from parent company Eurex Frankfurt AG. Further contributions are scheduled for the coming years, in order to continuously strengthen Eurex Clearing AG's capital base.

## Composition of own funds requirements

| | Own funds requirements for operational risk | | Own funds requirements for credit and market risk | | Total capital requirements | |
|---|---|---|---|---|---|---|
| | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m |
| Clearstream Holding group | 409.9 | 420.1 | 146.9 | 67.7 | 556.6 | 487.8 |
| | | | | | | |
| Clearstream Banking S.A. | 312.5 | 306.2 | 93.5 | 49.9 | 406.0 | 356.1 |
| Clearstream Banking AG | 97.4 | 113.8 | 5.9 | 3.6 | 103.2 | 117.4 |
| | | | | | | |
| Eurex Clearing AG | 75.2 | 70.9 | 26.1 | 3.9 | 101.3 | 74.8 |
| | | | | | | |
| European Commodity Clearing AG | 19.4 | 8.1 | 3.7 | 1.6 | 23.1 | 9.7 |

## Regulatory capital ratios[1]

| | Own funds requirements | | Regulatory equity | | Total capital ratio | |
|---|---|---|---|---|---|---|
| | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 % | 31 Dec 2017 % |
| Clearstream Holding group | 556.6 | 487.7 | 1,525.5 | 1,289.7 | 21.9 | 21.2 |
| | | | | | | |
| Clearstream Banking S.A. | 406.0 | 356.1 | 1,112.0 | 1,061.3 | 21.9 | 23.8 |
| Clearstream Banking AG | 103.2 | 117.4 | 369.3 | 308.9 | 28.6 | 21.0 |
| | | | | | | |
| Eurex Clearing AG | 101.3 | 74.8 | 514.8 | 464.8 | 40.6 | 49.7 |

1) Regulatory capital ratios according to Regulation (EU) No. 575/2013 (CRR)

The capital requirements under Article 16 of EMIR do not stipulate a specific ratio. Instead, the total amount of share capital, retained earnings and reserves, less certain items (including the central counterparty's own contribution to the default fund), is compared with the capital requirements. This total has to be at least equal to these requirements. In other words, EMIR requires a capital cover of at least 100 per cent. A reporting requirement to the competent authority – in this case BaFin – is triggered when this ratio falls below 110 per cent. €50.0 million of the €100.0 million contribution made to the capital reserve of Eurex Clearing AG was added to Eurex Clearing AG's own contribution to the default fund in 2017. In 2018, €50.0 million were added to the capital reserve of Eurex Clearing AG. Eurex Clearing AG's own contribution to the default fund remained unchanged.

The capital resources of European Commodity Clearing AG are currently well above the regulatory requirements. As at the reporting date, total equity as disclosed in the statement of financial position was not fully available to cover the risks according to Article 16 of EMIR, given that parts of this equity do not fulfil the required liquidity standards. Similar to the other companies, the capital base is consistently monitored. Given the increase in the regulatory minimum requirements for contributions to the default fund, European Commodity Clearing AG's default fund contribution was increased. As at 31 December 2018, European Commodity Clearing AG's total default fund contribution amounted to €11.5 million, and thus exceeded regulatory minimum requirements. A further increase in the contribution is planned for 2019. Depending on future business performance, and in particular on changes in the regulatory framework, the capital resources will be adjusted as needed; this is expected for the first half of 2019.

## Capital adequacy requirements under EMIR

| | Eurex Clearing AG | | European Commodity Clearing AG | |
|---|---|---|---|---|
| | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m |
| Own funds requirement for operational, credit and market risk | 101.3 | 74.8 | 23.2 | 9.7 |
| Other EMIR capital requirements | 77.9 | 78.7 | 42.0 | 27.2 |
| **Total EMIR capital requirements under Article 16 of EMIR** | **179.2** | **153.5** | **65.2** | **36.9** |
| | | | | |
| Equity | 514.8 | 464.8 | 108.9 | 88.9 |
| EMIR deductions | 0 | 0 | –7.4 | –8.3 |
| Own contribution to default fund | –150.0 | –150.0 | –11.5 | –10.0 |
| **EMIR capital adequacy ratio** | **364.8** | **314.8** | **90.0** | **70.6** |

In connection with the merger of Eurex Repo GmbH into Eurex Bonds GmbH and the subsequent name change of the latter to Eurex Repo GmbH as at 15 August 2018, the capital resources of Eurex Repo GmbH increased significantly and now markedly exceed regulatory requirements. Therefore, further contributions to capital are not expected to be required in the medium term.

## Composition of own funds/capital requirements

| | Own funds requirements for credit and market risk | | Own funds requirements on the basis of fixed overheads | | Own funds requirements to be met | |
|---|---|---|---|---|---|---|
| | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m |
| Eurex Bonds GmbH[1)] | – | 0.2 | – | 0.7 | – | 0.9 |
| Eurex Repo GmbH | 0.5 | 0.3 | 2.8 | 3.5 | 3.3 | 3.8 |
| 360 Treasury Systems AG | 7.4 | 4.6 | 1.0 | 3.8 | 8.4 | 8.4 |

1) Eurex Bonds GmbH ceased its business operations as at 31 December 2017.

## Compliance with own funds requirements

| | Own funds requirements | | Regulatory equity | | Equity ratio | |
|---|---|---|---|---|---|---|
| | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 % | 31 Dec 2017 % |
| Eurex Bonds GmbH[1)] | – | 0.9 | – | 10.4 | – | 1,200.0 |
| Eurex Repo GmbH | 3.3 | 3.8 | 18.0 | 7.0 | 545.5 | 184.2 |
| 360 Treasury Systems AG | 8.4 | 8.4 | 28.8 | 28.5 | 342.9 | 339.3 |

1) Eurex Bonds GmbH ceased its business operations as at 31 December 2017.

According to Delegated Regulation (EU) No 150/2013, REGIS-TR S.A. is required to maintain equity in the amount of at least 50 per cent of annual operating costs.

According to the MAS, Cleartrade Exchange Pte. Limited is required to maintain own funds at the rate of either 18 per cent of annual operating revenue or 50 per cent of annual operating costs, depending on which is higher. Powernext SAS is obliged to maintain own funds in the amount of operating costs for the next six months. Regarding the anticipated upswing in the business development of Powernext SAS and Cleartrade Exchange Pte. Limited, own funds requirements for both entities are expected to increase slightly going forward. While the capital base of Powernext SAS is considered appropriate for the anticipated upswing, Cleartrade Exchange Pte. Limited's capital base will be adjusted, if required.

Compliance with own funds requirements

| | Own funds requirements | | Regulatory equity | |
|---|---|---|---|---|
| | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m |
| REGIS-TR S.A. | 5.2 | 3.9 | 9.9 | 6.4 |
| Cleartrade Exchange Pte. Limited | 0.9 | 0.7 | 1.6 | 1.2 |
| Powernext SAS | 9.3 | 9.7 | 33.5 | 33.5 |
| Nodal Clear, LLC | 5.9 | 3.6 | 26.4 | 26.0 |

The regulatory minimum requirements were complied with at all times by all companies during the reporting period and in the period up to the preparation of the consolidated financial statements.

## 16. Shareholders' equity and appropriation of net profit of Deutsche Börse AG

The annual financial statements of the parent company Deutsche Börse AG, prepared as at 31 December 2018 in accordance with the provisions of the Handelsgesetzbuch (HGB, the German Commercial Code), report net profit for the period of €532.2 million (2017: €615.7 million) and shareholders' equity of €2,526.5 million (2017: €2,800.9 million). In 2018, Deutsche Börse AG distributed €453.3 million (€2.45 per eligible share) from the unappropriated surplus of the previous year.

Net profit for the period 2018 is lower than last year.

Proposal on the appropriation of the unappropriated surplus

| | 31 Dec 2018 €m |
|---|---|
| Net profit for the period | 532.2 |
| Appropriation to other retained earnings in the annual financial statements | –17.2 |
| **Unappropriated surplus** | **515.0** |
| Proposal by the Executive Board: | |
| Distribution of a regular dividend to the shareholders of €2.70 per share for 183,347,045 no-par value shares carrying dividend rights | 495.0 |
| Appropriation to retained earnings | 20.0 |

### No-par value shares carrying dividend rights

| | Number |
|---|---|
| **Number of shares issued as at 31 December 2017** | **193,000,000** |
| Shares retired in November 2018 | –3,000,000 |
| **Number of shares issued as at 31 December 2018** | **190,000,000** |
| Number of treasury shares as at the reporting date | –6,652,955 |
| **Number of shares outstanding as at 31 December 2018** | **183,347,045** |

The proposal on the appropriation of the unappropriated surplus reflects treasury shares held directly or indirectly by the company that do not carry dividend rights under section 71b of the Aktiengesetz (AktG, the German Stock Corporation Act). The number of shares carrying dividend rights can change until the Annual General Meeting through the repurchase or sale of further treasury shares. In this case, with a dividend of €2.70 per eligible share, an amended resolution for the appropriation of the unappropriated surplus will be proposed to the Annual General Meeting.

## 17. Provisions for pensions and other employee benefits

### Defined benefit pension plans

The defined benefit obligations of the companies of Deutsche Börse Group relate primarily to final salary arrangements and pension plans based on capital components, which guarantee employees a choice of either lifelong pensions or capital payments on the basis of the final salary paid. In Switzerland, there are guaranteed defined contribution plans. Deutsche Börse Group uses external trust solutions to cover some of its pension obligations.

### Net liability of defined benefit obligations

| | Germany €m | Luxembourg €m | Other €m | Total 31 Dec 2018 €m | Total 31 Dec 2017 €m |
|---|---|---|---|---|---|
| Present value of defined benefit obligations that are at least partially funded | 441.1 | 72.3 | 18.5 | 531.9 | 503.3 |
| Fair value of plan assets | –308.1 | –47.1 | –16.9 | –372.1 | –363.4 |
| **Funded status** | **133.0** | **25.2** | **1.6** | **159.8** | **139.9** |
| Present value of unfunded obligations | 3.6 | 0.6 | 0.1 | 4.3 | 4.3 |
| **Net liability of defined benefit obligations** | **136.6** | **25.8** | **1.7** | **164.1** | **144.2** |
| Impact of minimum funding requirement/ asset ceiling | 0 | 0 | 0 | 0 | 0 |
| **Amount recognised in the balance sheet** | **136.6** | **25.8** | **1.7** | **164.1** | **144.2** |

The defined benefit plans comprise a total of 2,768 beneficiaries (2017: 2,744). The present value of defined benefit obligations can be allocated to the beneficiaries as follows:

Allocation of the present value of the defined benefit obligation to the beneficiaries

| | Germany €m | Luxembourg €m | Other €m | Total 31 Dec 2018 €m | Total 31 Dec 2017 €m |
|---|---|---|---|---|---|
| Eligible current employees | 206.0 | 70.6 | 18.3 | 294.9 | 271.7 |
| Former employees with vested entitlements | 147.9 | 1.6 | 0.3 | 149.8 | 141.2 |
| Pensioners or surviving dependants | 90.8 | 0.7 | 0 | 91.5 | 94.7 |
| | **444.7** | **72.9** | **18.6** | **536.2** | **507.6** |

Essentially, the retirement benefits encompass the following retirement benefit plans:

**Executive boards of Group companies (Germany and Luxembourg)**

Individual commitment plans exist for executive board members of certain Group companies; they are based on the plan for executives described in the second paragraph below, i.e. in each calendar year the company provides an annual contribution to a capital component calculated in accordance with actuarial principles. The benefit assets equal the total of the acquired capital components of the individual years and are converted into a lifelong pension once the benefits fall due. In addition, retirement benefit agreements are in place with members of the executive boards of Group companies, under which they are entitled to pension benefits upon reaching the age of 63 and following reappointment. When the term of office began, the replacement rate was 30 per cent of individual pensionable income. It rose by 5 percentage points with each reappointment, up to a maximum of 50 per cent of pensionable income. Details of the pension commitments for members of Deutsche Börse AG's Executive Board can be found in the remuneration report.

**Germany**

There has been an employee-funded deferred compensation plan for employees of certain Deutsche Börse Group companies in Germany since 1 July 1999. This plan gives employees the opportunity to convert parts of their future remuneration entitlements into benefit assets of equal value. The benefits consist of a capital payment upon reaching the age of 65 or earlier, if applicable, in the case of disability or death; when due, the payment is made in equal annual payments over a period of three years. The benefit assets earn interest at a rate of 6 per cent p.a. As a rule, new commitments are entered into on the basis of this deferred compensation plan; employees with pension commitments under retirement benefit arrangements in force before 1 July 1999 were given an option to participate in the deferred compensation plan by converting their existing pension rights.

In the period from 1 January 2004 to 30 June 2006, executives in Germany were offered the opportunity to participate in the following pension system based on capital components: the benefit is based on annual income received, composed of fixed annual salary and the variable remuneration. Every year, participating Group companies provide for an amount that corresponds to a certain percentage of the pensionable income. This amount is multiplied by a capitalisation factor depending on age, resulting in the “annual capital component”. The benefit assets equal the total of the acquired capital components of the individual years and are converted into a lifelong pension once the benefits fall due. This benefit plan was closed to new staff on 30 June 2006; the executives who were employed in the above period can continue to earn capital components.

As part of adjustments to the remuneration systems to bring them into line with supervisory requirements contracts were adjusted for some executives in prior years. For senior executives affected, whose contracts only provided for the inclusion of income received and variable remuneration over and above the upper limit of the contribution assessment (Beitragsbemessungsgrenze) of the statutory pension insurance provisions as pensionable income to date, pensionable income was fixed on the basis of annual income received in 2016. This income is adjusted on an annual basis, to reflect the increase in the cost of living, based on the consumer price index for Germany published by the German Federal Statistical Office. For executives affected, whose capital components were calculated on the basis of income received, without observing the upper limit of the contribution assessment, an amount has been determined that will be reviewed annually, and adjusted if necessary, by the Supervisory Board, taking any changes in circumstances in terms of income and purchasing power into account.

**Luxembourg**
The Clearstream subgroup, based in Luxembourg, operates separate defined benefit plans. The only defined benefit pension plan still in operation to the benefit of Luxembourg employees of Clearstream International S.A., Clearstream Banking S.A. and Clearstream Services S.A. is funded by means of cash contributions to an “association d’épargne pension” (ASSEP) organised in accordance with Luxembourg law. The benefits consist of a one-off capital payment, which is generally paid upon reaching the age of 65. The benefit plan does not cover disability or death in service. Contributions to the ASSEP are funded in full by the participating companies. The contributions are determined annually on the basis of actuarial opinions, and the amount of the obligation is calculated in accordance with Luxembourg law.

For other employees, a group plan has been entered into with Swiss Life (Luxembourg) S.A., which covers pensions as well as disability and death. The contributions are paid annually by the employer. Benefits depend on the length of employment at the Group company and consist of quarterly payments starting upon the employee reaching the age of 65. In the case of disability or death, differing provisions apply. The contributions are determined annually on the basis of actuarial reports.

**Switzerland**
A separate pension plan (basic pension plan) and a supplementary benefits plan (bonus plan) exist for employees in Switzerland; both plans are based on insurance policies and, in addition to retirement benefits, comprise disability benefits and dependants’ pensions. The contributions to the basic pension plan are paid by the employee and the employer based on progressive percentages of the insured wage (annual wage less coordination deduction). For the bonus plan, which is also funded by contributions from the employer and employees, the contributions are determined as a percentage of the bonus. The retirement age is 65 for men and 64 for women. The beneficiaries can choose between pension payments or a one-off payment.

The present value of defined benefit obligations can be reconciled as follows with the provisions reported in the consolidated balance sheet:

## Changes in net defined benefit obligations

| | Present value of obligations €m | Fair value of plan assets €m | Total €m |
|---|---|---|---|
| **Balance as at 1 Jan 2017** | **492.6** | **–324.7** | **167.9** |
| Current service cost | 26.9 | – | 26.9 |
| Interest expense/(income) | 8.3 | –5.5 | 2.8 |
| | **35.2** | **–5.5** | **29.7** |
| **Remeasurements** | | | |
| Return on plan assets, excluding amounts already recognised in interest income | – | –24.3 | –24.3 |
| Losses from changes in financial assumptions | –1.0 | – | –1.0 |
| Experience gains | –5.1 | – | –5.1 |
| Effect of exchange rate differences | –0.1 | –0.1 | –0.2 |
| | **–6.2** | **–24.4** | **–30.6**[1)] |
| Effect of exchange rate differences | –1.4 | 1.3 | –0.1 |
| Contributions: | | | |
| Employers | – | –23.4 | –23.4 |
| Plan participants | 0.8 | –0.8 | 0 |
| Benefit payments | –13.2 | 13.2 | 0 |
| Settlements | 0.6 | –0.5 | 0.1 |
| Tax and administration costs | –0.8 | 1.4 | 0.6 |
| **Balance as at 31 Dec 2017** | **507.6** | **–363.4** | **144.2** |
| Current service cost | 27.4 | – | 27.4 |
| Interest expense/(income) | 8.9 | –6.5 | 2.4 |
| Past service cost and gains and losses on settlements | 2.7 | – | 2.7 |
| | **39.0** | **–6.5** | **32.5** |
| **Remeasurements** | | | |
| Losses on plan assets, excluding amounts already recognised in interest income | – | 22.9 | 22.9 |
| Return from changes in demographic assumptions | –0.5 | – | –0.5 |
| Losses from changes in financial assumptions | 3.7 | – | 3.7 |
| Experience gains | –2.3 | – | –2.3 |
| Effect of exchange rate differences | – | – | 0 |
| | **0.9** | **22.9** | **23.8**[1)] |
| Effect of exchange rate differences | 0.5 | –0.2 | 0.3 |
| Contributions: | | | |
| Employers | – | –37.3 | –37.3 |
| Plan participants | 0.6 | –0.6 | 0 |
| Benefit payments | –11.6 | 11.6 | 0 |
| Settlements | – | – | 0 |
| Tax and administration costs | –0.8 | 1.4 | 0.6 |
| **Balance as at 31 Dec 2018** | **536.2** | **–372.1** | **164.1** |

1) Thereof €–0.1 million (2017: nil) in the offsetting item for non-controlling interests

In financial year 2018, employees converted a total of €6.9 million (2017: €6.4 million) of their variable remuneration into deferred compensation benefits.

**Assumptions**

Provisions for pension plans and other employee benefits are measured annually at the reporting date using actuarial techniques. The assumptions for determining the actuarial obligations for the pension plans differ according to the individual conditions in the countries concerned and are shown in the following table:

### Actuarial assumptions

| | 31 Dec 2018 | | | 31 Dec 2017 | | |
|---|---|---|---|---|---|---|
| | Germany % | Luxembourg % | Switzerland % | Germany % | Luxembourg % | Switzerland % |
| Discount rate | 1.75 | 1.75 | 1.00 | 1.80 | 1.80 | 0.70 |
| Salary growth | 3.50 | 3.30 | 1.00 | 3.50 | 3.30 | 1.00 |
| Pension growth | 2.00 | 1.80 | 0 | 2.00 | 1.80 | 0 |
| Staff turnover rate | 2.00[1] | 2.00[1] | n.a.[2] | 2.00[1] | 2.00[1] | n.a.[2] |

1) Up to the age of 50, afterwards 0 per cent
2) Staff turnover rate in accordance with the Bundesgesetz über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge (BVG, Swiss Federal Occupational Retirement, Survivors' and Disability Pension Plans Act)

In Germany, the "2018 G" mortality tables (generation tables) developed by Prof Klaus Heubeck are used. For Luxembourg, generation tables of the Institut national de la statistique et des études économiques du Grand-Duché du Luxembourg are used. For Switzerland, the BVG 2015 generation tables are used.

**Sensitivity analysis**

The sensitivity analysis presented in the following considers the change in one assumption at a time, leaving the other assumptions unchanged from the original calculation, i.e. possible correlation effects between the individual assumptions are not taken into account.

Sensitivity analysis of defined benefit obligation

| | Change in actuarial assumption | Effect on defined benefit obligation | | Effect on defined benefit obligation | |
|---|---|---|---|---|---|
| | | 31 Dec 2018 defined benefit obligation €m | Change % | 31 Dec 2017 defined benefit obligation €m | Change % |
| Present value of the obligation[1] | | 536.2 | – | 507.6 | – |
| Discount rate | Increase by 1.0 percentage point | 460.2 | –14.2 | 433.3 | –14.6 |
| | Increase by 0.5 percentage points | 496.3 | –7.4 | 468.6 | –7.7 |
| | Reduction by 0.5 percentage points | 582.7 | 8.7 | 552.4 | 8.8 |
| | Reduction by 1.0 percentage point | 634.2 | 18.3 | 602.3 | 18.7 |
| Salary growth | Increase by 0.5 percentage points | 549.9 | 2.6 | 520.2 | 2.5 |
| | Reduction by 0.5 percentage points | 529.1 | –1.3 | 497.3 | –2.0 |
| Pension growth | Increase by 0.5 percentage points | 549.3 | 2.4 | 520.0 | 2.4 |
| | Increase by 0.25 percentage points | 542.9 | 1.2 | 513.6 | 1.2 |
| | Reduction by 0.25 percentage points | 531.7 | –0.8 | 502.1 | –1.1 |
| | Reduction by 0.5 percentage points | 525.6 | –2.0 | 496.2 | –2.2 |
| Life expectancy | Increase by one year | 537.6 | 0.3 | 521.1 | 2.7 |
| | Reduction by one year | 536.0 | 0 | 494.0 | –2.7 |

1) Present value of the obligations using assumptions in accordance with the "Actuarial assumptions" table

## Composition of plan assets

### Germany

In Germany, plan assets are held by a trustee in safekeeping for individual companies of Deutsche Börse Group and the beneficiaries. At the company's instruction, the trustee uses the funds transferred to acquire securities, without any consulting by the trustee. The contributions are invested in accordance with an investment policy, which may be amended by the companies represented in the investment committee. The trustee may refuse to carry out instructions if they are in conflict with the fund's allocation rules or the payment provisions. In accordance with the investment policy, a value preservation mechanism is applied; investments can be made in different asset classes.

### Luxembourg

In Luxembourg, the Board of Directors of the Clearstream Pension Fund is responsible for determining the investment strategy, with the aim of maximising returns in relation to a benchmark. This benchmark is 75 per cent derived from the return on five-year German federal government bonds and 25 per cent from the return on the EURO STOXX 50 Index. According to the investment policy, the fund may only invest in fixed-income and variable-rate securities, as well as listed investment fund units; it may hold cash, including in the form of money market funds.

### Switzerland

The assets of the pension funds of the affected companies have been invested with AXA Stiftung Berufliche Vorsorge and are therefore reported under “qualifying insurance policies”.

## Composition of plan assets

| | 31 Dec 2018 | | 31 Dec 2017 | |
|---|---|---|---|---|
| | €m | % | €m | % |
| **Bonds** | **299.8** | **80.5** | **258.2** | **71.0** |
| Government bonds | 217.3 | | 197.3 | |
| Multilateral development banks | 0 | | 0 | |
| Corporate bonds | 82.5 | | 60.9 | |
| **Derivatives** | **2.5** | **0.7** | **1.7** | **0.5** |
| Equity index futures | –0.3 | | –0.3 | |
| Interest rate futures | 2.8 | | 2.0 | |
| **Investment funds** | **20.7** | **5.6** | **19.5** | **5.4** |
| **Total listed** | **323.0** | **86.8** | **279.4** | **76.9** |
| | | | | |
| Qualifying insurance policies | 16.9 | 4.5 | 14.9 | 4.1 |
| Cash | 32.2 | 8.7 | 69.1 | 19.0 |
| **Total unlisted** | **49.1** | **13.2** | **84.0** | **23.1** |
| **Total plan assets** | **372.1** | **100.0** | **363.4** | **100.0** |

As at 31 December 2018, plan assets did not include any financial instruments held by Deutsche Börse Group (2017: nil), nor did they include any property occupied or other assets used by Group companies.

## Risks

In addition to the general actuarial risks, the risks associated with the defined benefit obligations relate especially to financial risks in connection with the plan assets, including in particular counterparty credit and market risks.

### Market risk

The return on plan assets is assumed to be the discount rate determined on the basis of corporate bonds with an AA rating. If the actual rate of return on plan assets is lower than the discount rate used, the net defined benefit liability increases accordingly. If volatility is low, the actual return is further expected to exceed the return on corporate bonds with a good rating in the medium to long term.

The level of the net liability is influenced by the discount rates in particular, whereby the current low interest rates contribute to a relatively high net liability. A continued decline in returns on corporate bonds will lead to a further increase in defined benefit obligations, which can be only partially offset by the positive development of the fair values of the assets included in plan assets.

Deutsche Börse Group considers the share price risk resulting from derivative positions in equity index futures in the plan assets to be appropriate. The company bases its assessment on the expectation that the overall volume of payments from the pension plans will be manageable in the next few years, that the total amount of the obligations will also be manageable and that it will be able to meet these payments in full from operating cash flows. Any amendments to the investment policy take into account the duration of the pension obligation as well as the expected payments over a period of ten years.

### Inflation risk

Possible inflation risks that could lead to an increase in defined benefit obligations exist because some pension plans are final salary plans or the annual capital components are directly related to salaries, i.e. a significant increase in salaries would lead to an increase in the benefit obligation from these plans. In Germany, however, there are no contractual arrangements with regard to inflation risk for these pension plans. An interest rate of 6 per cent p.a. has been agreed for the employee-financed deferred compensation plan; the plan does not include any arrangements for inflation, so that it has to be assumed that there will be little incentive for employees to contribute to the deferred compensation plan in times of rising inflation.

In Luxembourg, salaries are adjusted for the effects of inflation on the basis of a consumer price index no more than once a year; this adjustment leads to a corresponding increase in the benefit obligation from the pension plan. Since the obligation will be met in the form of a capital payment, there will be no inflation-linked effects once the beneficiary reaches retirement age.

In Switzerland, the benefit plan at AXA Stiftung Berufliche Vorsorge includes the provision that the board of this foundation decides annually whether the retirement pensions will be adjusted to reflect price trends. The decision takes into account, in particular, the financial capability of the foundation. There are no arrangements for automatic adjustments to price increases over and above the legal requirements that apply to certain surviving dependants' and disability pensions.

## Duration and expected maturities of the pension obligations

The weighted duration of the pension obligations was 16.1 years (2017: 16.6 years) as at 31 December 2018.

### Expected maturities of undiscounted pension payments

| | Expected pension payments[1) ] 31 Dec 2018 €m | Expected pension payments[1)] 31 Dec 2017 €m |
|---|---|---|
| Less than 1 year | 19.6 | 17.7 |
| Between 1 and 2 years | 14.5 | 15.1 |
| Between 2 and 5 years | 42.8 | 40.7 |
| More than 5 years up to 10 years | 112.4 | 99.8 |
| **Total** | **189.3** | **173.3** |

1) The expected payments in Swiss francs were translated into euros at the relevant closing rate on 31 December.

The expected costs of defined benefit plans amount to approximately €16.5 million for the 2019 financial year, including net interest expense.

### Defined contribution pension plans and multi-employer plans

During the reporting period, the costs associated with defined contribution plans, and designated multi-employer plans, amounted to €39.6 million (2017: €36.7 million).

In 2019, Deutsche Börse Group expects to make contributions to multi-employer plans amounting to around €10.2 million.

## 18. Changes in other provisions

### Changes in other provisions (part 1)

| | Restructuring and efficiency measures €m | Bonuses €m | Interest on taxes €m | Share-based payments €m | Recourse and litigation risks €m |
|---|---|---|---|---|---|
| **Balance as at 1 Jan 2018** | **57.3** | **100.8** | **66.4** | **42.1** | **3.7** |
| Reclassification[1] | 0 | –9.2 | 0.3 | –1.0 | 0 |
| Utilisation | –17.0 | –75.3 | –3.3 | –6.4 | –2.0 |
| Reversal | –4.3 | –11.8 | 0 | –1.2 | –0.3 |
| Additions | 111.9 | 114.8 | 16.2 | 36.6 | 11.2 |
| Currency translation | 0 | 0.1 | 0 | 0 | 0 |
| Interest | 0.6 | 0 | 0 | 0 | 0 |
| **Balance as at 31 Dec 2018** | **148.5** | **119.4** | **79.6** | **70.1** | **12.6** |

1) Relates primarily to reclassifications to the employee-funded deferred compensation plan (see note 17) as well as to reclassifications from liabilities

### Changes in other provisions (part 2)

| | Pension obligations to IHK[1] €m | Operational claims €m | Other personnel provisions €m | Miscellaneous €m | Total (part 1 and part 2) €m |
|---|---|---|---|---|---|
| **Balance as at 1 Jan 2018** | **9.2** | **5.1** | **14.8** | **12.5** | **311.9** |
| Reclassification[2] | 0 | 0 | 3.1 | 0.1 | – 6.7 |
| Utilisation | 0 | – 0.5 | – 8.0 | – 0.3 | – 112.8 |
| Reversal | – 1.1 | – 2.7 | – 3.4 | – 1.0 | – 25.8 |
| Additions | 0 | 1.0 | 8.7 | 9.6 | 310.0 |
| Currency translation | 0 | 0 | 0 | 0 | 0.1 |
| Interest | 0.2 | 0 | 0 | 0 | 0.8 |
| **Balance as at 31 Dec 2018** | **8.3** | **2.9** | **15.2** | **20.9** | **477.5** |

1) IHK = Industrie- und Handelskammer Frankfurt am Main (the Frankfurt/Main Chamber of Industry and Commerce)
2) Relates primarily to reclassifications to the employee-funded deferred compensation plan (see note 17) as well as to reclassifications from liabilities

Provisions for restructuring and efficiency measures include provisions for contractually agreed early retirement benefits and severance payments (€88.1 million) as well as expenses directly related to restructuring measures (€1.4 million). Furthermore, this item includes provisions amounting to €59.0 million for the implementation of the restructuring plan. A total of €108.3 million of the additions to the provisions relate to the programme resolved in 2018 to reduce structural costs (Structural Performance Improvement Programme, SPIP).

The "other personnel provisions" item as at 31 December 2018 includes, inter alia, personnel-related provisions of €5.9 million (2017: €5.8 million) for work anniversaries, and of €9.0 million (2017: €8.5 million) for other personnel costs.

The "miscellaneous" item includes, inter alia, provisions for anticipated losses of €10.7 million (2017: €7.3 million) and provisions for rent and service costs of €2.0 million (2017: €1.3 million).

For details on share-based payments, see note 28.

## 19. Other non-current provisions

Other non-current provisions have more than one year to maturity.

### Composition of other non-current provisions

| | 31 Dec 2018<br>€m | 31 Dec 2017<br>€m |
|---|---|---|
| Restructuring and efficiency measures | 84.5 | 52.4 |
| Share-based payments | 64.5 | 36.1 |
| Anticipated losses | 9.8 | 5.0 |
| Pension obligations to IHK[1] | 8.3 | 9.2 |
| Bonuses | 7.1 | 10.0 |
| Other non-current personnel provisions | 6.2 | 6.2 |
| Miscellaneous | 3.9 | 1.4 |
| **Total** | **184.3** | **120.3** |
| thereof with remaining maturity of between 1 and 5 years | 165.6 | 96.8 |
| thereof with remaining maturity of more than 5 years | 18.7 | 23.5 |

1) IHK = Industrie- und Handelskammer Frankfurt am Main (the Frankfurt/Main Chamber of Industry and Commerce)

## 20. Other current provisions

### Composition of other current provisions

| | 31 Dec 2018 €m | 31 Dec 2017 €m |
|---|---|---|
| Bonuses | 112.3 | 90.8 |
| Interest on taxes[1] | 79.6 | 66.4 |
| Restructuring and efficiency measures | 64.0 | 4.9 |
| Recourse and litigation risks | 12.6 | 3.7 |
| Other current personnel provisions | 9.0 | 8.5 |
| Share-based payments | 5.6 | 6.0 |
| Operational claims | 2.9 | 5.1 |
| Miscellaneous | 7.2 | 6.2 |
| **Total** | **293.2** | **191.6** |

1) Provisions for interest on taxes amounting to €10.8 million (2017: nil) have an estimated remaining maturity of more than one year.

## 21. Other liabilities

Deutsche Börse Group reports the following contract liabilities resulting from contracts with customers:

### Contract liabilities

| | 31 Dec 2018 €m | 31 Dec 2017 €m |
|---|---|---|
| Contract liabilities (long-term) | 10.0 | 0 |
| Contract liabilities (short-term) | 5.4 | 5.9 |
| **Total** | **15.4** | **5.9** |

The adjustment effects resulting from the change in the accounting method as at 1 January 2018 amount to €10.7 million for contract liabilities (long-term); for details, please see note 3.

Current liabilities are composed as follows:

### Composition of other current liabilities

| | 31 Dec 2018 €m | 31 Dec 2017 €m |
|---|---|---|
| Liabilities from CCP positions | 543.9 | 364.4 |
| Tax liabilities (excluding income taxes) | 36.4 | 37.7 |
| Vacation entitlements, flexitime and overtime credits | 24.5 | 21.7 |
| Social security liabilities | 6.8 | 7.6 |
| Deferred income | 0.4 | 0.6 |
| Contract liabilities | 5.4 | 5.9 |
| Special payments and bonuses | 2.8 | 2.8 |
| Liabilities to supervisory bodies | 2.7 | 2.6 |
| Miscellaneous | 5.9 | 11.7 |
| **Total** | **628.8** | **455.0** |

# Other disclosures

## 22. Consolidated cash flow statement disclosures

### Cash flows from operating activities

After adjustments to net profit for the period for non-cash items, cash flows from operating activities excluding CCP positions amounted to €1,176.5 million (2017: €1,107.2 million). After adjustment for the change in CCP positions cash flow from operating activities amounted to €1,298.2 million (2017: €1,056.2 million). For details on the adjustments see the “Financial position” section of the combined management report.

Deutsche Börse Group discloses incoming dividend payments (€6.7 million; 2017: €8.6 million) and income tax payments (€303.3 million; 2017: €308.8 million) within cash flows from operating activities. Interest payments are generally included in cash flows from operating activities unless they result from banking business. In the reporting period, interest paid amounting to €218.0 million (2017: €213.9 million) and interest received amounting to €203.6 million (2017: €192.6 million) are disclosed in cash flows from operating activities.

Other non-cash effects consist (consisted) of the following items:

Composition of other non-cash income

| | 2018<br>€m | 2017<br>€m |
|---|---|---|
| Subsequent measurement of non-derivative financial instruments | –30.5 | 89.4 |
| Reversal of discount and transaction costs from long-term financing | 2.9 | 3.4 |
| Reversal of the revaluation surplus for cash flow hedges | 0.7 | 2.8 |
| Equity method measurement | 1.0 | 1.0 |
| Impairment of financial instruments | 0.9 | 0 |
| Subsequent measurement of derivatives | 0.8 | –8.0 |
| Changes in contract liabilities | –1.2 | 0 |
| Gains on the disposal of subsidiaries and equity investments | 0 | –191.0 |
| Miscellaneous | 4.1 | 6.0 |
| **Total** | **–21.3** | **–96.4** |

### Cash flows from investing activities

Cash flows from investing activities amounted to €792.0 million (2017: €181.9 million). In the 2018 financial year, it reflected in particular cash inflows from banking business. Changes in receivables and liabilities which relate to the banking business of the Clearstream subgroup and which have an original maturity of more than three months are disclosed within cash flows from investing activities. Receivables from banking business decreased by €655.1 million (2017: increase in receivables amounting to €47.7 million) while the respective liabilities increased by €250.3 million (2017: nil).

In addition, cash flows from investing activities reflected the acquisition of Swisscanto Funds Centre Ltd., London, United Kingdom, (renamed Clearstream Funds Centre Ltd.), as well as the acquisition of the significant assets and liabilities of the GTX Electronic Communication business (GTX ECN) as part of a business combination. As part of the acquisition of the shares in Swisscanto Funds Centre Ltd. effective 1 October 2018, outflows cash and cash equivalents amounting to €83.3 million (after deduction of cash and cash equivalents acquired amounting to €9.4 million) were recorded. The acquisition of the GTX ECN business on 29 June 2018 resulted in an outflow of cash and cash equivalents amounting to €85.9 million.

Investments in intangible assets and property, plant and equipment amounted to €160.0 million (2017: €149.2 million). Among the investments in intangible assets and property, plant and equipment, the measures undertaken under the strategic growth initiatives and infrastructure projects are classified as expansion investments, while all remaining investments are reported as replacement investments. The investments in intangible assets and property, plant and equipment are broken down by segment as follows:

### Payment to acquire intangible assets and property, plant and equipment

| | 2018 €m | 2017 (restated)[1] €m |
|---|---|---|
| **Expansion investments** | | |
| Eurex (financial derivatives) | 20.4 | 17.8 |
| EEX (commodities) | 8.8 | 3.4 |
| 360T (foreign exchange) | 3.0 | 0 |
| Xetra (cash equities) | 2.7 | 3.9 |
| Clearstream (post-trading) | 35.8 | 41.0 |
| IFS (investment fund services) | 4.4 | 0.5 |
| GSF (collateral management) | 1.0 | 2.6 |
| STOXX (index business) | 0 | 0 |
| Data | 3.8 | 10.5 |
| | **79.9** | **79.7** |
| **Replacement investments** | | |
| Eurex (financial derivatives) | 14.4 | 10.9 |
| EEX (commodities) | 12.4 | 10.8 |
| 360T (foreign exchange) | 1.3 | 3.3 |
| Xetra (cash equities) | 6.1 | 2.8 |
| Clearstream (post-trading) | 22.0 | 19.2 |
| IFS (investment fund services) | 11.8 | 5.3 |
| GSF (collateral management) | 2.6 | 2.7 |
| STOXX (index business) | 3.4 | 1.6 |
| Data | 6.1 | 12.9 |
| | **80.1** | **69.5** |
| **Total investments according to segment reporting** | **160.0** | **149.2** |

1) Prior-year figures were restated due to changes in the segment structure. For details, see note 24.

Investments in long-term financial instruments totalling €38.7 million (2017: €312.4 million) included €22.2 million (2017: €292.9 million) for the purchase of floating-rate notes in the banking business. In addition, equity investments were acquired in a total amount of €13.4 million (2017: €14.5 million).

Non-current debt instruments and equity instruments totalling €259.5 million (2017: €859.1 million) matured or were sold in the 2018 financial year. The disposal of shares in BATS Global Markets, Inc., as well as of an additional equity investment, resulted in cash inflows amounting to a total of €274.7 million in the 2017 financial year.

### Cash flows from financing activities

Cash outflows from financing activities totalled €832.9 million (2017: €501.0 million).

Deutsche Börse AG paid dividends totalling €453.3 million for the 2017 financial year (dividend for the 2016 financial year: €439.0 million).

In addition, cash flows from financing activities included the acquisition of treasury shares as part of the share repurchase programme (€364.2 million; 2017: 28.2 million) as well as payments to non-controlling shareholders (€-14.9 million; 2017: €39.3 million).

In the 2018 financial year, a bond issued by Deutsche Börse AG and amounting to €600.0 million matured. Deutsche Börse AG has issued a ten-year Eurobond in the same amount.

### Reconciliation of cash and cash equivalents

Reconciliation of cash and cash equivalents

| | 31 Dec 2018<br>€m | 31 Dec 2017<br>(restated)<br>€m |
|---|---|---|
| Restricted bank balances | 29,833.6 | 29,392.0 |
| Other cash and bank balances | 1,322.3 | 1,297.6 |
| Net position of financial instruments held by central counterparties | 212.0 | 712.1 |
| Current financial instruments measured at amortised cost | 19,722.6 | 13,172.6 |
| less financial instruments with an original maturity exceeding 3 months | –2,666.6 | –1,507.1 |
| Current financial liabilities measured at amortised cost | –19,024.7 | –13,976.2 |
| less financial instruments with an original maturity exceeding 3 months | 1,999.0 | 733.5 |
| Derivatives | 0 | –29.0 |
| Current liabilities from cash deposits by market participants | –29,559.2 | –29,215.3 |
| **Cash and cash equivalents** | **1,839.0** | **580.2** |

## 23. Earnings per share

Under IAS 33, earnings per share are calculated by dividing the net profit for the period attributable to Deutsche Börse AG shareholders (net income) by the weighted average number of shares outstanding.

In order to determine diluted earnings per share, potentially dilutive ordinary shares that may be acquired under the share-based payment programmes (see also note 28) were added to the average number of shares. In order to calculate the number of potentially dilutive ordinary shares, the exercise prices were adjusted for the fair value of the services still to be provided.

In order to determine diluted earnings per share, the 2014 Long-term Sustainable Instrument (LSI) tranche, for which cash settlement has not been resolved, is assumed to be settled with equity instruments – regardless of actual accounting in accordance with IFRS 2. The following potentially dilutive rights to purchase shares were outstanding as at 31 December 2018:

### Calculation of the number of potentially dilutive ordinary shares

| Tranche | Exercise price € | Adjustment of the exercise price according to IAS 33 € | Average number of outstanding options 31 Dec 2018 | Average price for the period[1] € | Number of potentially dilutive ordinary shares 31 Dec 2018 |
|---|---|---|---|---|---|
| 2014[2] | 0 | 0 | 7,605 | 111.50 | 7,605 |
| **Total** | | | | | **7,605** |

1) Volume-weighted average price of Deutsche Börse AG shares on Xetra calculated on a daily basis for the period 1 January to 31 December 2018
2) This relates to share subscription rights within the scope of the Long-term Sustainability Instrument (LSI) for senior executives. The quantity of subscription rights under the 2014 LSI tranche may still change from the quantity reported as at the reporting date, since subscription rights will only be granted in future financial years.

As the volume-weighted average share price calculated on a daily basis was higher than the adjusted exercise price for the 2014 tranche, these stock options are considered to be dilutive under IAS 33 as at 31 December 2018.

### Calculation of earnings per share (basic and diluted)

| | 2018 | 2017 |
|---|---|---|
| Number of shares outstanding as at beginning of period | 186,610,158 | 186,805,015 |
| Number of shares outstanding as at end of period | 183,347,045 | 186,610,158 |
| Weighted average number of shares outstanding | 184,887,281 | 186,835,673 |
| Number of potentially dilutive ordinary shares | 7,605 | 17,366 |
| Weighted average number of shares used to compute diluted earnings per share | 184,894,886 | 186,853,039 |
| Net profit for the period attributable to Deutsche Börse AG shareholders (€m) | 824.3 | 874.3 |
| | | |
| Earnings per share (basic) (€) | 4.46 | 4.68 |
| Earnings per share (diluted) (€) | 4.46 | 4.68 |

As in the previous year, there were no subscription rights in 2018 that were excluded from the calculation of the weighted average of potentially dilutive shares for having a dilutive effect during the reporting year ending on the reporting date.

## 24. Segment reporting

Segment reporting is governed by the internal organisational and reporting structure. Since 1 January 2018, Deutsche Börse Group has divided its business activities into nine segments:

- The former Eurex segment was divided into three segments: Eurex (financial derivatives), EEX (commodities) and 360T (foreign exchange).
- The former Clearstream segment was divided into three segments: Clearstream (post-trading), IFS (investment fund services) and GSF (collateral management).
- The former Market Data + Services (MD+S) segment was separated into STOXX (index business) and Data. Revenues from the Infrastructure Services division, the third pillar of the former MD+S segment, have been allocated to the Eurex and Xetra segments.
- The Group continues to report on business developments in the cash market within the Xetra (cash equities) segment.

This structure serves as a basis for the Group's internal management and financial reporting (see the table entitled "Internal organisational and reporting structure" for details). This more detailed segment reporting further enhances transparency, highlighting growth areas. Recognising the growing importance of some business lines, these have been shown as independent reporting segments as of the 2018 financial year. Hence, the Group also reports these business lines' cost base and EBITDA on the segment level.

### Internal organisational and reporting structure

| Segment | Business areas |
|---|---|
| Eurex (financial derivatives) | ▪ Electronic trading of European derivatives (Eurex Exchange)<br>▪ Eurex Repo over-the-counter (OTC) trading platform<br>▪ Electronic clearing architecture C7<br>▪ Central counterparty for on- and off-exchange derivatives and repo transactions |
| EEX (commodities) | ▪ Electronic trading of power and gas products as well as emissions certificates (EEX group)<br>▪ Central counterparty for traded spot and derivatives products |
| 360T (foreign exchange) | ▪ Electronic trading of foreign exchange (360T)<br>▪ Central counterparty for on-and off-exchange traded derivatives |
| Xetra (cash equities) | ▪ Cash market with the Xetra, Börse Frankfurt and Tradegate trading venues<br>▪ Central counterparty for equities and bonds<br>▪ Admission of securities (listing) |
| Clearstream (post-trading) | ▪ Custody and settlement services for domestic and international securities |
| IFS (investment fund services) | ▪ Investment funds and hedge funds services (order routing, settlement and custody) |
| GSF (collateral management) | ▪ Global securities financing services and collateral management, repos and securities lending |
| STOXX (index business) | ▪ Development and sales of indices (STOXX and DAX) |
| Data | ▪ Distribution of licences for trading and market signals<br>▪ Technology and reporting solutions for external customers<br>▪ Trading participant connectivity |

## Segment reporting (part 1)

| | Net revenue | | Operating costs | | EBITDA | |
|---|---|---|---|---|---|---|
| | 2018 €m | 2017 (restated) €m | 2018 €m | 2017 €m | 2018 €m | 2017 €m |
| Eurex (financial derivatives) | 936.1 | 796.5 | –376.3 | –326.4 | 559.4 | 663.0 |
| EEX (commodities) | 256.6 | 212.2 | –149.2 | –124.0 | 107.2 | 88.2 |
| 360T (foreign exchange) | 78.8 | 66.5 | –49.9 | –46.5 | 28.9 | 20.0 |
| Xetra (cash equities) | 228.7 | 218.3 | –118.8 | –108.4 | 115.5 | 115.1 |
| Clearstream (post-trading) | 727.3 | 667.7 | –351.9 | –294.6 | 375.2 | 373.1 |
| IFS (investment fund services) | 154.3 | 137.6 | –108.3 | –85.7 | 46.0 | 51.7 |
| GSF (collateral management) | 83.1 | 81.6 | –48.4 | –38.7 | 34.2 | 42.9 |
| STOXX (index business) | 144.5 | 127.7 | –53.9 | –47.7 | 90.6 | 79.9 |
| Data | 170.3 | 154.2 | –83.5 | –59.6 | 86.7 | 94.6 |
| **Group** | **2,779.7** | **2,462.3** | **–1,340.2** | **–1,131.6** | **1,443.7** | **1,528.5** |

1) The EBITDA margin is calculated as EBITDA divided by net revenue.

## Segment reporting (part 2)

| | Depreciation | | EBIT | | Investments[1] | | Employees (as at 31 Dec) | |
|---|---|---|---|---|---|---|---|---|
| | 2018 €m | 2017 €m | 2018 €m | 2017 €m | 2018 €m | 2017 €m | 2018 | 2017 |
| Eurex (financial derivatives) | –48.4 | –53.3 | 511.0 | 609.7 | 34.8 | 28.8 | 1,265 | 1,223 |
| EEX (commodities) | –26.5 | –21.2 | 80.7 | 67.0 | 21.2 | 14.2 | 725 | 628 |
| 360T (foreign exchange) | –15.8 | –14.0 | 13.1 | 6.0 | 4.3 | 3.3 | 253 | 231 |
| Xetra (cash equities) | –11.3 | –9.1 | 104.2 | 106.0 | 8.8 | 6.7 | 488 | 497 |
| Clearstream (post-trading) | –50.0 | –36.4 | 325.2 | 336.7 | 57.8 | 60.2 | 1,767 | 1,741 |
| IFS (investment fund services) | –19.5 | –12.4 | 26.5 | 39.3 | 16.2 | 5.8 | 752 | 675 |
| GSF (collateral management) | –11.5 | –4.8 | 22.7 | 38.1 | 3.6 | 5.3 | 242 | 230 |
| STOXX (index business) | –5.7 | –4.9 | 84.9 | 75.0 | 3.4 | 1.6 | 197 | 172 |
| Data | –21.8 | –3.8 | 64.9 | 90.8 | 9.9 | 23.3 | 275 | 243 |
| **Group** | **–210.5** | **–159.9** | **1,233.2** | **1,368.6** | **160.0** | **149.2** | **5,964** | **5,640** |

1) Excluding goodwill

Sales revenue is presented separately by external sales revenue and internal (inter-segment) sales revenue. Inter-segment services are charged on the basis of measured quantities or at fixed prices, e.g. the provision of data by the Eurex (financial derivatives) segment to the Data segment.

Non-cash valuation allowances and bad debt losses resulted from the following segments:

**Breakdown of non-cash valuation allowances and bad debt losses**

| | 2018<br>€m | 2017<br>€m |
|---|---|---|
| Eurex (financial derivatives) | 0.2 | 0.1 |
| EEX (commodities) | 0 | 0 |
| 360T (foreign exchange) | 0.5 | 0.3 |
| Xetra (cash equities) | 1.4 | 0.5 |
| Clearstream (post-trading) | –0.3 | 0.4 |
| IFS (investment fund services) | 0 | 0 |
| GSF (collateral management) | 0.1 | 0 |
| STOXX (index business) | 1.2 | –0.1 |
| Data | 0.1 | 0 |
| **Total** | **3.2** | **1.2** |

In the year under review, there was an extraordinary impairment loss of €0.6 million in strategic investments (2017: €1.1 million, see note 8). An additional extraordinary impairment loss totalled €36.7 million (2017: €1.3 million, see note 11 and note 12). Of this amount, €7.2 million related to the Clearstream segment (for Future Market Access and Malmo), €6.1 million to GSF (for One SecLend, One CMS and LH Connect), €5.4 million to IFS (for IFS Arrow), €16.1 million to the Data segment (for the Regulatory Reporting Hub), €1.3 million to the Eurex segment, €0.4 million to Xetra, and €0.1 million related to STOXX (for a central IT application).

Deutsche Börse Group's business model – and that of its segments – is focused on an internationally operating participant base and pricing does not differ depending on the customer's location. From a price, margin and risk perspective, this means that it is not decisive whether sales revenue is generated from German or non-German participants.

The risks and returns from the activities of the subsidiaries operating within the economic environment of the European Monetary Union (EMU) do not differ significantly from each other on the basis of the factors to be considered in identifying information on geographical regions under IFRS 8. As a result, Deutsche Börse Group has designated the following regional segments: the eurozone, the rest of Europe, America and Asia-Pacific.

Sales revenue is allocated to the individual regions according to the customer's domicile, while investments and non-current assets are allocated according to the company's domicile and employees according to their location.

As described above, the analysis of sales is based on the direct customer's billing address. This means e.g. that sales to an American investor trading a product with an Asian underlying via a European clearing member are classified as European sales.

## Information on geographical regions

| | Sales revenue[1] | | Investments[2] | | Non-financial non-current assets[3] [4] | | Number of employees | |
|---|---|---|---|---|---|---|---|---|
| | 2018 €m | 2017 (restated) €m | 2018 €m | 2017 €m | 2018 €m | 2017[5] €m | 2018 | 2017 |
| Eurozone | 1,477.4 | 1,352.5 | 154.7 | 144.6 | 3,636.2 | 3,630.4 | 4,425 | 4,224 |
| Rest of Europe | 1,120.0 | 1,019.5 | 3.7 | 3.6 | 512.7 | 485.1 | 1,154 | 1,063 |
| America | 198.3 | 169.4 | 1.5 | 0.1 | 213.2 | 122.9 | 184 | 157 |
| Asia-Pacific | 145.6 | 145.4 | 0.1 | 0.9 | 2.9 | 4.7 | 201 | 196 |
| **Total of all regions** | **2,941.3** | **2,686.8** | **160.0** | **149.2** | **4,365.0** | **4,243.1** | **5,964** | **5,640** |
| Consolidation of internal net revenue | –47.4 | –43.2 | | | | | | |
| **Group** | **2,893.9** | **2,643.6** | **160.0** | **149.2** | **4,365.0** | **4,243.1** | **5,964** | **5,640** |

1) Including countries in which more than 10 per cent of sales revenue was generated: UK (2018: €887.5 million; 2017: €792.8 million) and Germany (2018: €655.0 million; 2017: €641.8 million).
2) Excluding goodwill
3) Including countries in which more than 10 per cent of non-current assets are held: Germany (2018: €3,439.2 million; 2017: €3,437.9 million) and Switzerland (2018: €425.9 million; 2017: €467.7 million).
4) These include intangible assets, property, plant and equipment, and investments in associates and joint ventures.
5) Non-financial non-current assets of Nodal Exchange group are disclosed within the "America" region; prior-year figures have been restated.

# 25. Financial risk management

Deutsche Börse Group presents the qualitative disclosures required by IFRS 7 in detail in the combined management report (see explanations in the risk report). These include the nature and extent of risks arising from financial instruments, as well as the objectives, strategies and methods used to manage risk.

Financial risks arise at Deutsche Börse Group mainly in the form of credit risk. To a smaller extent, the Group is exposed to market risk. Financial risks are quantified using the economic capital concept (please refer to the risk report for detailed disclosures). Required economic capital is assessed on a 99.98 per cent confidence level for a one-year holding period. It is compared with the Group's liable equity capital adjusted for intangible assets so as to test the Group's ability to absorb extreme and unexpected losses. Required economic capital (REC) for financial risk is calculated at the end of each month and amounted to €601.0 million as at 31 December 2018, whereby €517.0 million stem from credit risk and €84.0 million stem from market risk. Besides the monitoring for the regulated entities, financial risks are monitored on Group level and on the segment level. REC for financial risk in the Eurex (financial derivatives) and Clearstream (post-trading) segments amounts to €166.0 million and €285.0 million, which corresponds to 28 per cent and 47 per cent, respectively, of Deutsche Börse Group's total REC for financial risk.

The Group evaluates its financial risk situation on an ongoing basis. In the view of the Executive Board, no threat to the continued existence of the Group can be identified at this time.

## Credit risk

Deutsche Börse Group is exposed to credit risk arising from the following items:

### Credit risk of financial instruments (part 1)

| | Segment | Note | Carrying amounts – maximum risk exposure: Amount at 31 Dec 2018 €m | Carrying amounts – maximum risk exposure: Amount at 31 Dec 2017 (restated) €m | Collateral: Amount at 31 Dec 2018 €m | Collateral: Amount at 31 Dec 2017 (restated) €m |
|---|---|---|---|---|---|---|
| **Collateralised cash investments** | | | | | | |
| Reverse repurchase agreements | Eurex (financial derivatives)[1] | | 49.7 | 11.7 | 53.7[2] | 11.8 |
| | Clearstream (post-trading) | 13.4 | 6,516.2 | 4,843.5 | 6,616.7[3] [4] | 4,870.2[3] [4] |
| | Group[1] | | 410.0 | 610.0 | 411.0 | 611.3 |
| | | | **6,975.9** | **5,465.2** | **7,081.4** | **5,493.3** |
| **Uncollateralised cash investments** | | | | | | |
| Money market lendings – central banks | Eurex (financial derivatives)[1] | | 24,395.5 | 27,111.1 | 0 | 0 |
| | Clearstream (post-trading) | | 5,974.7 | 5,471.6 | 0 | 0 |
| Money market lendings – other counterparties | Clearstream (post-trading) | | 556.7 | 388.3 | 0 | 0 |
| Balances on nostro accounts and other bank deposits | Clearstream (post-trading) | | 2,252.5 | 1,291.2 | 0 | 0 |
| | Group[1] | | 6,197.5 | 2,952.8 | 0 | 0 |
| Securities | Clearstream (post-trading) | 13.4 | 1,610.0 | 1,817.5 | 0 | 0 |
| | Eurex (financial derivatives) | 13.4 | 9.4 | 9.5 | | |
| | Group | 13.4 | 5.1[5] | 5.0[5] | 0 | 0 |
| Fund assets | Group | 13.9 | 14.6 | 15.1 | 0 | 0 |
| | | | **41,016.0** | **39,062.1** | **0** | **0** |
| **Loans for settling securities transactions** | | | | | | |
| Technical overdraft facilities | Clearstream (post-trading) | 13.4 | 2,253.3 | 754.7 | n.a.[6] | n.a.[6] |
| Automated Securities Fails Financing[7] | Clearstream (GSF) | | 413.2[8] | 597.9[8] | 448.4 | 658.9 |
| ASLplus securities lending[7] | Clearstream (GSF) | | 42,558.3 | 52,121.9 | 42,693.7 | 52,603.0 |
| | | | **45,224.8** | **53,474.5** | **43,142.1** | **53,261.9** |
| **Total** | | | **93,216.7** | **98,001.8** | **50,223.5** | **58,755.2** |

1) Presented in the items "restricted bank balances" and "other cash and bank balances"
2) Thereof none pledged to central banks (2017: nil)
3) Thereof €162.7 million pledged to central banks (2017: nil)
4) Total of fair value of cash (2018: nil; 2017: nil) and securities collateral (2018: €6,616.7 million; 2017: €4,870.2 million) received under reverse repurchase agreements
5) The amount includes collateral totalling €5.1 million (2017: €5.0 million).
6) The portfolio of deposited collateral is not directly attributed to any utilisation but is determined by the scope of the entire business relationship and the limits granted.
7) Off-balance-sheet items
8) Meets the IFRS 9 criteria for a financial guarantee contract

## Credit risk of financial instruments (part 2)

| | Segment | Note | Carrying amounts – maximum risk exposure: Amount at 31 Dec 2018 €m | Carrying amounts – maximum risk exposure: Amount at 31 Dec 2017 (restated) €m | Collateral: Amount at 31 Dec 2018 €m | Collateral: Amount at 31 Dec 2017 (restated) €m |
|---|---|---|---|---|---|---|
| **Balance brought forward** | | | 93,216.7 | 98,001.8 | 50,223.5 | 58,755.2 |
| | | | | | | |
| Other financial instruments | | | | | | |
| Convertible notes | Group | 13.9 | 2.7 | 1.2 | 0 | 0 |
| Other loans | Group | 13.4 | 0.4 | 0.4 | 0 | 0 |
| Other assets | Group | | 23.7 | 23.7 | 0 | 0 |
| Trade receivables | Group | 13.4 | 403.2 | 331.8 | 0 | 0 |
| Other receivables | Clearstream (post-trading) | | 57.7 | 144.0 | 0 | 0 |
| | Eurex (financial derivatives) | 13.4 | 1,608.9 | 112.4 | 0 | 0 |
| | Group | | 14.4 | 14.4 | 0 | 0 |
| Other instruments at fair value | Group | 13.4 | 0.4 | 0 | 0 | 0 |
| | | | 2,111.4 | 627.9 | 0 | 0 |
| | | | | | | |
| **Financial instruments held by central counterparties** | | | 47,969.5[9] | 45,087.3[9] | 58,992.9[10] | 54,982.8[10] |
| | | | | | | |
| **Derivatives** | | 13.8 | 4.7 | 5.3 | 0 | 0 |
| **Total** | | | 143,302.3 | 143,722.3 | 109,216.4 | 113,738.0 |

1) Presented in the items "restricted bank balances" and "other cash and bank balances"
2) Thereof none pledged to central banks (2017: nil)
3) Thereof €162.7 million pledged to central banks (2017: nil)
4) Total of fair value of cash (2018: nil; 2017: nil) and securities collateral (2018: €6,616.7 million; 2017: €4,870.2 million) received under reverse repurchase agreements
5) The amount includes collateral totalling €5.1 million (2017: €5.0 million).
6) The portfolio of deposited collateral is not directly attributed to any utilisation but is determined by the scope of the entire business relationship and the limits granted.
7) Off-balance-sheet items
8) Meets the IFRS 9 criteria for a financial guarantee contract
9) Net value of all margin requirements resulting from executed trades at the reporting date as well as default fund requirements: this figure represents the risk-oriented view of Eurex Clearing AG and European Commodity Clearing AG, while the carrying amount of the "financial instruments held by central counterparties" item in the balance sheet shows the gross amount of the open trades according to IAS 32.
10) Collateral value of cash and securities collateral deposited for margins, covering the net value of all margin and default fund requirements

**Cash investments**
Deutsche Börse Group is exposed to credit risk in connection with the investment of cash funds. Clearstream (post-trading) receives cash deposits from its customers in various currencies and invests these cash deposits in money market instruments. Eurex Clearing AG (Eurex (financial derivatives) segment) receives cash collateral from its clearing members mainly in its clearing currencies euro and Swiss francs.

The Group mitigates such risks by investing short-term funds either – to the extent possible – on a collateralised basis, e.g. via reverse repurchase agreements, or by depositing them with central banks.

According to the treasury policy, mainly highly liquid financial instruments with a minimum rating of AA– (S&P Global Ratings/Fitch) or Aa3 (Moody's) issued or guaranteed by governments or supranational institutions are eligible as collateral.

Uncollateralised cash investments are permitted only for counterparties with sound creditworthiness within the framework of defined counterparty credit limits. Counterparty credit risk is monitored on the basis of an internal rating system.

The fair value of securities received under reverse repurchase agreements was €7,081.4 million (2017: €5,493.3 million). Clearstream Banking S.A. and Eurex Clearing AG are entitled to repledge the securities received to their central banks to regain liquidity.

As at 31 December 2018, Clearstream Banking S.A. has pledged €162.7 million worth of securities for reverse repurchase agreements to central banks (2017: nil).

A portion of the securities held by Clearstream in its own portfolio is pledged to central banks to collateralise the settlement facilities obtained. The fair value of pledged securities was €1,205.7 million as at 31 December 2018 (2017: €1,195.9 million). Eurex Clearing AG has pledged no securities to central banks.

**Loans for settling securities transactions**
Clearstream (post-trading) grants customers technical overdraft facilities to maximise settlement efficiency. These settlement facilities are subject to internal credit review procedures. They are revocable at the option of the Clearstream subgroup and are in general fully collateralised. Technical overdraft facilities amounted to €115.2 billion as at 31 December 2018 (2017: €106.6 billion). Of this amount, €3.3 billion (2017: €3.6 billion) is unsecured and only relates to credit lines granted to selected central banks and multilateral development banks in compliance with the CSDR exemption as per article 23 of Commission Delegated Regulation (EU) 2017/390. Actual outstandings at the end of each business day generally represent a small fraction of the facilities and amounted to €2,253.3 million as at 31 December 2018 (2017: €754.7 million); see note 13.4.

Clearstream (GSF segment, collateral management) also guarantees the risk resulting from the Automated Securities Fails Financing programme it offers to its customers, where Clearstream Banking S.A. acts
as an intermediary between borrower and lender. This risk is collateralised. Guarantees given under this programme amounted to €413.2 million as at 31 December 2018 (2017: €597.9 million). Collateral received by Clearstream Banking S.A. in connection with these loans amounted to €448.4 million (2017: €658.9 million).

Under the ASLplus securities lending programme, Clearstream Banking S.A. had securities borrowings from various counterparties totalling €42,558.3 million as at 31 December 2018 (2017: €52,121.9 million). These securities were fully lent to other counterparties. Collateral received by Clearstream Banking S.A. in connection with these loans amounted to €42,693.7 million (2017: €52,603.0 million). This collateral was pledged to the lender, while Clearstream Banking S.A. remains its legal owner.

In 2017 and 2018, no losses from credit transactions occurred in relation to any of the transaction types described.

**Financial instruments of the central counterparties**

To safeguard the Group's central counterparties against the risk of default by a clearing member, the clearing conditions require the clearing members to deposit margins in the form of cash or securities on a daily basis or an intraday basis in the amount stipulated by the respective clearing house. Additional lines of defence of the Group's central counterparties are described in detail in the risk report.

The aggregate margin calls based on the executed transactions and default fund requirements after haircuts was €47,969.5 million as at the reporting date (2017: €45,087.3 million). Collateral totalling €58,992.9 million (2017: €54,982.8 million) was actually deposited.

## Composition of collateral held by central counterparties

| | Collateral value at 31 Dec 2018 €m | Collateral value at 31 Dec 2017 €m |
|---|---|---|
| Cash collateral (cash deposits)[1) 2)] | 29,240.5 | 28,751.5 |
| Securities and book-entry securities collateral[3) 4)] | 29,752.4 | 26,231.3 |
| **Total** | **58,992.9** | **54,982.8** |

1) The amount includes the default fund totalling €2,938.3 million (2017: €2,990.0 million).
2) The collateral value is determined on the basis of the fair value less a haircut amounting to €344.4 million (2017: €438.5 million).
3) The amount includes the default fund totalling €1,789.1 million (2017: €1,466.7 million).
4) The collateral value is determined on the basis of the fair value less a haircut amounting to €4,243.9 million (2017: €3,192.2 million).

**Trade receivables and contract assets**

Trading, settlement and custody fees are generally collected without delay by direct debit. Fees for other services, such as the provision of data and information, are settled mainly by transfer. Trade receivables are analysed using an expected credit loss model based on the simplified approach as outlined in IFRS 9. To measure the expected credit loss, trade receivables and contract assets have been grouped based on the days past due. The trade receivables share the main risk characteristics. The expected loss amount has been determined by applying the lifetime expected loss approach. The expected loss rates are based on the payment profiles over a period of five years and the loss profile experienced over that period. As at 31 December 2018, no contract assets were recognised by Deutsche Börse Group.

Following that approach, the loss allowance as at 31 December 2018 and as at 1 January 2018 was calculated as follows:

Loss allowances for trade receivables
as at 31 December 2018

| | | Not more than 30 days past due | Not more than 60 days past due | Not more than 90 days past due | Not more than 120 days past due | Not more than 360 days past due | More than 360 days past due | Insolvent | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Expected loss rate** | % | 0 | 0 | 0 | 1.0 | 5.0 | 82.0 | 0 | – |
| Trade receivables | €m | 30.5 | 12.4 | 7.1 | 3.2 | 15.0 | 4.3 | 1.3 | 73.8 |
| **Loss allowance** | €m | 0 | 0.1 | 0 | 0 | 0.8 | 3.5 | 1.3 | 5.7 |

Loss allowances for trade receivables
as at 1 January 2018

| | | Not more than 30 days past due | More than 30 days past due | More than 60 days past due | More than 90 days past due | More than 120 days past due | More than 360 days past due | Insolvent | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Expected loss rate** | % | 0 | 0 | 1.0 | 1.0 | 6.0 | 74.0 | 0 | – |
| Trade receivables | €m | 10.0 | 7.7 | 9.7 | 1.2 | 7.5 | 2.0 | 1.7 | 39.8 |
| **Loss allowance** | €m | 0 | 0.1 | 0 | 0 | 0.4 | 1.5 | 1.7 | 3.7 |

Trade receivables are written off when there is no reasonable expectation of recovery (see also note 3). In 2018, no significant receivables (31 December 2017: €0.3 million) were directly written off due to customer defaults. Moreover, €0.1 million were received in 2018 for receivables which had previously been written off (2017: nil).

**Debt securities**
All of the entity's debt securities measured at amortised cost are considered to have low credit risk, and the loss allowance recognised during the period was therefore limited to twelve months' expected losses. The Group considers "low credit risk" for listed bonds to be an investment grade credit rating granted by an external rating agency. The expected loss is calculated based on a loss rate approach derived from default rates provided by a rating agency.

The development of the loss allowance for debt securities is shown below.

**Development of the loss allowance**
The loss allowance for other financial assets at amortised cost as at 31 December 2017 reconciles to the opening loss allowance on 1 January 2018 and to the closing loss allowance as at 31 December 2018 as follows:

## Development of the loss allowance

| | Debt securities Stage 1 €m | Trade receivables Stage 2 €m | Trade receivables Stage 3 €m | Total |
|---|---|---|---|---|
| **Closing loss allowance as at 31 Dec 2017 (IAS 39)** | **0** | **0** | **5.2**[1] | **5.2** |
| Amounts restated through opening accumulated profit on first-time adoption | 0.3 | 0.5 | –2.0 | – 1.2 |
| **Opening loss allowance as at 1 Jan 2018 (IFRS 9)** | **0.3** | **0.5** | **3.2** | **4.0** |
| Increase in the allowance recognised in profit or loss | 0 | 0.5 | 1.8 | 2.3 |
| Decrease in the allowance recognised in profit or loss | –0.2 | –0.1 | –0.2 | –0.5 |
| **Closing loss allowance as at 31 Dec 2018 (IFRS 9)** | **0.1** | **0.9** | **4.8** | **5.8** |

1) Loss allowance according to incurred loss model (IAS 39)

**Credit risk concentrations**
Deutsche Börse Group's business model and the resulting business relationships mean that, as a rule, credit risk is concentrated on the financial services sector. Potential concentrations of credit risk on individual counterparties are limited by application of counterparty credit limits.

Management of credit risk concentration, including collateral concentration and so-called large exposures, is conducted in compliance with applicable regulatory requirements such as those arising from, among others, Articles 387–410 of Regulation (EU) 575/2013 (Capital Requirements Regulation, CRR), Article 47 Paragraph 8 of Regulation (EU) 648/2012 (European Market Infrastructure Regulation, EMIR) and respectively applicable national requirements (see also note 15 for an explanation of regulatory capital requirements). Requirements on concentration risks arising from Regulation (EU) 909/2014 (Central Securities Depository Regulation, CSDR) are currently being implemented as part of Deutsche Börse Group's affiliated CSDs' authorisation under Article 16 CSDR.

The required economic capital (value at risk, VaR, with a 99.98 per cent confidence level) for credit risk is calculated for each business day and amounted to €517.0 million as at 31 December 2018 (2017: €467.0 million).

Deutsche Börse Group also applies additional methods in order to detect credit concentration risks. In 2018, no significant adverse credit concentrations were assessed.

## Market risk

Market risk arises from changes in interest rates, foreign-exchange rates and other market prices. Deutsche Börse Group is generally only affected to a limited extent by market risk.

The required economic capital for market risk is calculated on a monthly basis. As at 31 December 2018, the required economic capital for market risk was €84.0 million (2017: €87.0 million).

In the 2018 financial year, impairment losses amounting to €0.6 million (2017: €1.1 million) were recognised in profit or loss for strategic investments that are not included in the VaR for market risk.

### Interest rate risk

Changes in market interest rates may affect Deutsche Börse Group's net profit for the period attributable to Deutsche Börse AG shareholders. This risk arises whenever interest terms on financial assets and liabilities are different.

Interest rate sensitive assets include the Group's money market and investment portfolios, while interest rate sensitive liabilities mainly consist of short-term debt instruments. Interest rate risk from long-term liabilities of Deutsche Börse AG is mitigated through the issuance of fixed-coupon bonds.

To refinance existing long-term indebtedness, in March 2018 Deutsche Börse AG successfully placed a senior fixed-coupon bond in an aggregate principal amount of €600.0 million. For more details on the outstanding bonds issued by Deutsche Börse Group, see the "Net assets" section in the combined management report.

Cash received as deposits from market participants is mainly invested via short-term reverse repurchase agreements and in the form of overnight deposits at central banks, limiting the risk of a negative impact from a change in the interest rate environment. Negative interest rates resulting from reinvestments of these cash deposits are passed on to the respective Clearstream (post-trading) customers after applying an additional margin. For Eurex Clearing AG, interest rates on cash collateral are, in principle, calculated based on a predefined benchmark rate per currency after deducting an additional spread per currency.

Group entities may furthermore invest their own capital and portions of customer cash balances in high-quality liquid bonds. The bond portfolio consists mostly of variable-rate instruments, which leads to a comparably low interest rate risk for the Group.

The risk arising from interest-earning assets and interest-bearing liabilities is monitored on a daily basis and limited by using a system which includes mismatch limits in combination with interest rate risk limits and stop-loss limits. The interest rate risk limits determine the maximum acceptable loss caused by a hypothetical adverse yield curve shift. The stop-loss limits define the fair value of a portfolio triggering an ad hoc review and risk-reducing actions.

Interest rate swaps, as well as swaptions, are used to hedge interest rate risks. As of the reporting date, there are no hedging relationships with regards to interest rate risk in place.

**Foreign-exchange rate risk**
Measuring and managing foreign-exchange risk is important for reducing Deutsche Börse Group's exposure to exchange rate movements. The three main types of foreign-exchange risk that Deutsche Börse Group is exposed to are cash flow-, translation- and transaction-related foreign-exchange risk. Cash flow risk reflects the risk of fluctuations in Deutsche Börse Group's present value of future operating cash flows from foreign-exchange movements. Translation risk comprises effects from the valuation of the Group's assets and liabilities in foreign currencies. Finally, transaction risk is closely related to cash flow risk; it may arise through changes in the structure of Deutsche Börse Group's asset and liabilities in foreign currencies.

The Group operates internationally and is, to a limited extent, exposed to foreign-exchange risk, primarily in US$, CHF, £ and CZK. Exchange rate fluctuations may affect the Group's profit margins and the value of assets and liabilities denominated in a currency that is not the functional currency of the relevant Group entity. Respective currency risks arise mainly from operating income and expenses denominated in a currency other than the functional currency, inter alia from that portion of the Clearstream (post-trading) segment's sales revenue and net interest income from banking business that is directly or indirectly in US$. The Clearstream (post-trading) segment generated 21 per cent of its sales revenue and net interest income (2017: 17 per cent) directly or indirectly in US$.

Currency mismatches are avoided to the maximum extent possible. All types of foreign-exchange risks are measured on a regular basis and monitored on a Group as well as single entity level. Limits are defined for cash flow and translation risk. Deutsche Börse Group's treasury policy defines risk limits which take into account historical foreign-exchange rate fluctuations. Any exposure exceeding those limits must be hedged. Foreign-exchange exposures below the defined limits may also be hedged. Management of foreign-exchange risks is principally carried out at the Group level. Hedging at a single entity level may be conducted if foreign-exchange risk threatens the viability of the single entity.

To eliminate foreign-exchange risks, Deutsche Börse Group uses financial instruments to hedge existing or highly probable forecast transactions. The Group may use foreign-exchange forwards, foreign-exchange options as well as cross-currency swaps to hedge the exposure to foreign-exchange risk. Under the Group's policy, the material terms of forwards and options must coincide with those of the hedged items.

In addition, for Clearstream (post-trading), the policy stipulates that intraperiod open net foreign-exchange positions are closed out when they exceed €15.0 million. This policy was complied with, as in the previous year; as at 31 December 2018, there were no significant net foreign-exchange positions.

**Other market risks**

Moreover, market risk arises from investments in bonds, funds, futures and contractual trust arrangements (CTAs), as well as from the Clearstream Pension Fund in Luxembourg. Investments in CTAs are protected by a pre-defined floor, which reduces the risk of extreme losses for Deutsche Börse Group. In addition, there are equity price risks arising from strategic equity investments.

### Liquidity risk

For the Group, liquidity risk may arise from potential difficulties in renewing maturing financing, such as commercial paper as well as bilateral and syndicated credit facilities. In addition, financing required for unexpected events may result in a liquidity risk. Most of the Group's cash investments are short-term to ensure that liquidity is available, should such a financing need arise. At Eurex Clearing AG, the customer cash balances and investments – only some of which have maturities of up to one year – predominantly have matched maturities. The Clearstream subgroup may invest customer balances for up to a maximum of one year in secured money market products or high-quality securities with a remaining maturity of less than ten years, subject to strict monitoring of mismatch and interest rate limits. An exception to this is UK gilts, which can have maximum remaining duration of 30 years. Term investments can be transacted via reverse repurchase agreements against highly liquid collateral that can be deposited with the central bank and used as a liquidity buffer if required.

The companies of Deutsche Börse Group have the following credit lines, which were not being used as at the reporting date:

## Contractually agreed credit lines

| Company | Purpose of credit line | Currency | Amount as at 31 Dec 2018 m | Amount as at 31 Dec 2017 m |
|---|---|---|---|---|
| Deutsche Börse AG | working capital[1] | € | 605.0 | 605.0 |
| Eurex Clearing AG | settlement | € | 1,170.0 | 1,170.0 |
| | settlement | CHF | 200.0 | 200.0 |
| Clearstream Banking S.A. | working capital[1] | € | 750.0 | 750.0 |
| | settlement | € | 500.0[2] | 0.0 |
| | settlement | US$ | 2,125.0[2] | 750.0[2] |

1) €400.0 million of Deutsche Börse AG's working capital credit lines is a sub-credit line of Clearstream Banking S.A.'s €750.0 million working capital credit line.
2) Thereof three committed repo lines for a total amount of US$1,250.0 million and three committed foreign-exchange swap lines for a total amount of €500.0 million and US$875.0 million in 2018 (2017: three committed repo lines for a total amount of US$750.0 million)

For refinancing purposes, Eurex Clearing AG and the Clearstream subgroup can pledge eligible securities with their respective central banks.

Clearstream Banking S.A. has a bank guarantee (letter of credit) in favour of Euroclear Bank S.A./N.V. issued by an international consortium to secure daily deliveries of securities between Euroclear Bank S.A./N.V. and Clearstream Banking S.A. This guarantee amounted to US$3.0 billion as at 31 December 2018 (2017: US$3.0 billion). Euroclear Bank S.A./N.V. has also issued a guarantee in favour of Clearstream Banking S.A. amounting to US$3.0 billion (2017: US$3.0 billion). Furthermore, Eurex Clearing AG holds a credit facility of US$1.6 billion (2017: US$1.6 billion) granted by Euroclear Bank S.A./N.V. in order to maximise settlement efficiency.

A commercial paper programme offers Deutsche Börse AG an opportunity for flexible, short-term financing, involving a total facility of €2.5 billion in various currencies. As at year-end, there was no commercial paper outstanding (2017: nil).

Clearstream Banking S.A. also has a commercial paper programme with a programme limit of €1.0 billion, which is used to provide additional short-term liquidity. As at 31 December 2018, commercial paper with a nominal value of €402.1 million had been issued (2017: €274.7 million).

In 2018, S&P Global Ratings (S&P) confirmed Deutsche Börse AG's AA credit rating with a stable outlook. At the end of 2018, Deutsche Börse AG was one of only two DAX-listed companies that had been given an AA rating by S&P. Deutsche Börse AG's commercial paper programme was awarded the best possible short-term rating of A–1+.

The AA rating of Clearstream Banking S.A. was confirmed with a stable outlook by the rating agencies Fitch and S&P in 2018. For further details on the rating of Deutsche Börse Group, see the "Financial position" section in the combined management report.

## Maturity analysis of financial instruments (part 1)

| 31 Dec 2018 | Contractual maturity: Overnight €m | Not more than 3 months €m | More than 3 months but not more than 1 year €m | More than 1 year but not more than 5 years €m | Over 5 years €m | Reconci-liation to carrying amount €m | Carrying amount €m |
|---|---|---|---|---|---|---|---|
| **Non-derivative financial liabilities** | | | | | | | |
| Non-current financial liabilities measured at amortised cost | 0 | 0 | 0 | 1,335.3 | 1,150.0 | −202.1 | 2,283.2 |
| Non-current financial liabilities at fair value through profit or loss | 0 | 0 | 0 | 0.2 | 0 | 0 | 0.2 |
| Trade payables | 0 | 195.0 | 0 | 0 | 0 | 0 | 195.0 |
| Current financial liabilities measured at amortised cost | 18,566.3 | 203.9 | 270.9 | 0 | 0 | −16.4 | 19,024.7 |
| Cash deposits by market participants | 29,559.2 | 0 | 0 | 0 | 0 | 0 | 29,559.2 |
| **Total non-derivative financial liabilities (gross)** | **48,125.5** | **398.9** | **270.9** | **1,335.5** | **1,150.0** | **−218.5** | **51,062.3** |
| | | | | | | | |
| **Derivatives and financial instruments held by central counterparties** | | | | | | | |
| Financial liabilities and derivatives held by central counterparties | 26,256.3 | 54,796.6 | 13,015.4 | 7,347.1 | 2,638.3 | 0 | 104,053.7 |
| less financial assets and derivatives held by central counterparties | −26,256.3 | −55,008.6 | −13,015.4 | −7,347.1 | −2,638.3 | 0 | −104,265.7 |
| | | | | | | | |
| **Cash inflow – derivatives and hedges** | | | | | | | |
| Cash flow hedges | 0 | 0 | 0 | 0 | 0 | | |
| Fair value hedges | 0 | 0 | 0 | 0 | 0 | | |
| Derivatives held for trading | −1,592.6 | −137.1 | −1,642.4 | 0 | 0 | | |
| **Cash outflow – derivatives and hedges** | **0** | **0** | **0** | **0** | **0** | | |
| Cash flow hedges | 0 | 0 | 0 | 0 | 0 | | |
| Fair value hedges | 0 | 0 | 0 | 0 | 0 | | |
| Derivatives held for trading | 1,592.4 | 136.9 | 1,662.7 | 0 | 0 | | |
| **Total derivatives and hedges** | **−0.2** | **−212.2** | **20.3** | **0** | **0** | | |
| | | | | | | | |
| Financial guarantee contracts | 0 | 0 | 0 | 0 | 0 | | |

## Maturity analysis of financial instruments (part 2)

| 31 Dec 2017 | Contractual maturity<br>Overnight<br>€m | Not more than 3 months<br>€m | More than 3 months but not more than 1 year<br>€m | More than 1 year but not more than 5 years<br>€m | Over 5 years<br>€m | Reconciliation to carrying amount<br>€m | Carrying amount<br>€m |
|---|---|---|---|---|---|---|---|
| **Non-derivative financial liabilities** | | | | | | | |
| Non-current financial liabilities measured at amortised cost | 0 | 0 | 0 | 1,339.0 | 524.4 | −175.0 | 1,688.4 |
| Non-current financial liabilities measured at fair value through profit or loss | 0 | 0 | 0 | 0.8 | 0 | 0 | 0.8 |
| Trade payables | 0 | 150.1 | 0 | 0 | 0 | 0 | 150.1 |
| Current financial liabilities measured at amortised cost | 13,057.1 | 879.6 | 55.6 | 0 | 0 | −16.1 | 13,976.2 |
| Cash deposits by market participants | 29,215.3 | 0 | 0 | 0 | 0 | 0 | 29,215.3 |
| **Total non-derivative financial liabilities (gross)** | **42,272.4** | **1,029.7** | **55.6** | **1,339.8** | **524.4** | **−191.1** | **45,030.8** |
| | | | | | | | |
| **Derivatives and financial instruments held by central counterparties** | | | | | | | |
| Financial liabilities and derivatives held by central counterparties | 22,159.3 | 43,973.6 | 12,665.7 | 3,771.5 | 1,065.7 | 0 | 83,635.8 |
| less financial assets and derivatives held by central counterparties | −22,159.2 | −44,685.7 | −12,665.8 | −3,771.5 | −1,065.7 | 0 | −84,347.9 |
| | | | | | | | |
| **Cash inflow – derivatives and hedges** | | | | | | | |
| Cash flow hedges | 0 | 19.0 | 56.2 | 0 | 0 | | |
| Fair value hedges | 0 | 0 | 0 | 0 | 0 | | |
| Derivatives held for trading | 833.4 | 1,652.2 | 2.3 | 0 | 0 | | |
| **Cash outflow – derivatives and hedges** | | | | | | | |
| Cash flow hedges | 0 | −18.8 | −56.4 | 0 | 0 | | |
| Fair value hedges | 0 | 0 | 0 | 0 | 0 | | |
| Derivatives held for trading | −832.2 | −1,667.4 | −2.2 | 0 | 0 | | |
| **Total derivatives and hedges** | **1.3** | **−727.1** | **−0.2** | **0** | **0** | | |
| | | | | | | | |
| Financial guarantee contracts | 0 | 0 | 0 | 0 | 0 | | |

## 26. Financial liabilities and other risks

For the coming financial years, the Group's expenses in connection with long-term contracts relating to maintenance contracts and other contracts (excluding rental and lease agreements, see note 27) are presented in the following:

Breakdown of future financial obligations

| | 31 Dec 2018<br>€m | 31 Dec 2017<br>€m |
|---|---|---|
| Up to 1 year | 37.8 | 41.7 |
| 1 to 5 years | 21.6 | 27.2 |
| More than 5 years | 0 | 6.9 |
| **Total** | **59.4** | **75.8** |

### Other litigation and liability risks

Contingent liabilities may result from present obligations and from possible obligations arising from events in the past. Deutsche Börse Group recognises provisions for the possible incurrence of losses only if there is a present obligation arising from a past event that is likely to result in an outflow of resources and if the Group can reliably estimate the amount of the obligation (see also note 3). In order to identify the litigation for which the possibility of incurring a loss is more than unlikely, as well as how the possible loss is estimated, Deutsche Börse Group considers a large number of factors, including the nature of the claim and the facts on which it is based, the jurisdiction and course of the individual proceedings, the experience of Deutsche Börse Group, prior settlement talks (to the extent that they already taken place) as well as expert opinions and evaluations of legal advisors. However, it is also possible that no reliable estimate for a specific litigation could be determined before the approval of the consolidated financial statements, and that – as a result – no provisions are recognised.

**Peterson vs Clearstream Banking S.A., Citibank NA et al. ("Peterson I") and Heiser vs Clearstream Banking S.A.**

In its 2012 corporate report, Deutsche Börse Group disclosed information about the class action suit Peterson vs Clearstream Banking S.A. (the first Peterson proceeding), initiated by various plaintiffs seeking turnover of certain customer positions held in Clearstream Banking S.A.'s securities omnibus account with its US depository bank, Citibank NA, and asserting direct claims against Clearstream Banking S.A. for damages of US$250.0 million. That matter was settled between Clearstream Banking S.A. and the plaintiffs and the direct claims against Clearstream Banking S.A. were retracted.

In July 2013, the US court gave the order to turn over the customer positions to the plaintiffs, ruling that these were being held by Bank Markazi, the Iranian central bank. Bank Markazi appealed, and the decision was affirmed on 9 July 2014 by the Second Circuit Court of Appeals, and then by the US Supreme Court on 20 April 2016. Once the process of distribution of the funds to the plaintiffs is complete, a related case, Heiser vs Clearstream Banking S.A., which is also seeking the turnover of the same assets, should be concluded.

**Peterson vs Clearstream Banking S.A. (“Peterson II”)**
On 30 December 2013, a number of US plaintiffs from the first Peterson case, as well as other plaintiffs, filed a complaint targeting restitution of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg. In 2014, the defendants in this action, including Clearstream Banking S.A., moved to dismiss the case. On 19 February 2015, the US court issued a decision granting the defendants' motions and dismissing the lawsuit. The plaintiffs lodged an appeal against this ruling at the competent appeals court (Second Circuit Court of Appeals), which on 21 November 2017 confirmed extensive parts of the decision of the trial court. Regarding another aspect, the appellate court referred the case back to the court of first instance, which shall assess whether the assets held in Luxembourg are subject to enforcement in the U.S. In opposition to this point, Clearstream Banking S.A. filed a petition to the US Supreme Court on 8 May 2018.

**Havlish vs Clearstream Banking S.A. (“Havlish”)**
On 14 October 2016, a number of US plaintiffs filed a complaint naming Clearstream Banking S.A. and other entities as defendants. The complaint in this proceeding, Havlish vs Clearstream Banking S.A., is based on similar assets and allegations as in the Peterson proceedings. The complaint seeks the turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg.
The complaint also asserts direct claims against Clearstream Banking S.A. and other defendants and purports to seek damages of up to approximately US$6.6 billion plus punitive damages and interest. The proceedings have been suspended due to the ongoing appeal to the US Supreme Court in the Peterson II proceedings.

**Criminal investigations against Clearstream Banking S.A.**
On 2 April 2014, Clearstream Banking S.A. was informed that the United States Attorney for the Southern District of New York has opened a grand jury investigation against Clearstream Banking S.A. due to Clearstream Banking S.A.'s conduct with respect to Iran and other countries subject to US sanction laws. Clearstream Banking S.A. is cooperating with the US attorney.

**Bank Markazi vs Clearstream Banking S.A.**
In the context of the ongoing disputes regarding assets of Bank Markazi, Clearstream Banking S.A. was served with a complaint filed by Bank Markazi on 17 January 2018 naming Banca UBAE S.P.A. and Clearstream Banking S.A. as defendants. The complaint filed before the Luxembourg courts primarily seeks the restitution of assets of Bank Markazi which the complaint alleges are held in accounts of Banca UBAE S.P.A. and Bank Markazi with Clearstream Banking S.A. totalling approximately US$4.9 billion plus interest. Alternatively, Bank Markazi seeks damages in the same amount. The assets sought include assets in the amount of approximately US$1.9 billion that were turned over to US plaintiffs pursuant to a 2013 binding and enforceable US court order in a proceeding to which Bank Markazi was a party. The claim also addresses customer assets of approximately US$2 billion, which include assets that are held at Clearstream Banking S.A. and which are currently subject to US and Luxembourg litigation brought by US plaintiffs. The claim also addresses assets that were previously transferred out of Clearstream Banking S.A. to Banca UBAE S.P.A.

**Banca UBAE S.p.A. vs Clearstream Banking S.A.**
On 15 June 2018, Banca UBAE S.p.A. filed a complaint against Clearstream Banking S.A. in front of the Luxembourg courts. The complaint is a recourse action linked to the complaint that Bank Markazi filed against Clearstream Banking S.A. and Banca UBAE S.p.A. and asks that Banca UBAE S.p.A. be indemnified and held harmless by Clearstream Banking S.A. in case Banca UBAE S.p.A. were to lose in the Bank Markazi complaint and ordered by the court to pay damages to Bank Markazi.

**Levin vs Clearstream Banking S.A.**
On 26 December 2018, two US plaintiffs filed a complaint against Clearstream Banking S.A. and other legal persons; the plaintiffs hold claims amounting to approximately US$28.8 million against Iran, Iranian authorities and individuals. The complaint filed in this case (Levin vs Clearstream Banking S.A.) is based on similar assets and allegations as those in the second Peterson and Havlish proceedings. The case seeks the turnover of certain assets held by Clearstream Banking S.A., as the custodian, in Luxembourg. In addition, the case also includes direct claims made against Clearstream Banking S.A. and further defendants for damages of up to around US$28.8 million (plus punitive damages and interest).

**Fairfield vs Clearstream Banking S.A.**
Beginning in 16 July 2010, the liquidators of two investment funds domiciled in the British Virgin Islands and named Fairfield Sentry Ltd. and Fairfield Sigma Ltd. filed complaints in the US Bankruptcy Court for the Southern District of New York, asserting claims against more than 300 financial institutions for restitution of redemption payments made to investors of the funds for the redemption of shares in such funds prior to December 2008. On 14 January 2011, the liquidators of such funds asserted claims for restitution against Clearstream Banking S.A. in an amount of US$13.5 million for redemption payments made by the funds to investors using the settlement system of Clearstream Banking S.A. The proceedings, which were stayed for multiple years, are continuing.

**MBB Clean Energy AG**
Legal disputes have arisen regarding a bond issued by MBB Clean Energy AG (MBB), which is held in custody by Clearstream Banking AG. MBB issued a first tranche of the bond in April 2013 and a second tranche of the bond in December 2013. The global certificates for the two tranches of the bond were delivered into Clearstream Banking AG by the paying agent of the issuer. The legal disputes relate to the non-payment of the bond and the purported lack of validity of the bond. Clearstream Banking AG's role in the context of the purported lack of validity of the MBB bond is primarily to safekeep the global certificate as national central securities depository. Insolvency proceedings have meanwhile been opened in respect of the issuer, MBB.

**Proceedings by the Public Prosecutor's Office in Cologne**
In September 2017, Clearstream Banking AG and Clearstream Banking S.A. were made aware that the Public Prosecutor's Office in Cologne had initiated proceedings for tax evasion against an employee of Clearstream Banking AG for his alleged involvement in the settlement of transactions of market participants over dividend date (cum/ex transactions). On 22 January 2018, the Public Prosecutor's Office in Cologne addressed to Clearstream Banking AG a notification of hearing Clearstream Banking AG and Clearstream Banking S.A. as potential secondary participants (Nebenbeteiligte). Due to the early stage of the investigations, it is not possible to predict timing, scope or consequences of a potential decision. The companies are cooperating with the competent authorities.

**Lawsuit against Deutsche Börse AG**
In November 2018, a customer of a trading participant of the Frankfurt Stock Exchange filed a case against Deutsche Börse AG with the District Court of Frankfurt/Main. The plaintiff is claiming damages of approximately €2.6 million from Deutsche Börse AG. The alleged damages are said to have arisen (i) on 7 July 2016, from Deutsche Börse AG's publication of an inaccurate ex-dividend date relating to a financial instrument via the Xetra system and (ii) due to the fact that a client of the plaintiff relied on this inaccurate information to conclude transactions.

**Administrative offence proceedings of BaFin**
On 19 December 2018, the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) sent Deutsche Börse AG a formal hearing notification in a penalty proceeding, which refers to the allegation of a supposed lack of self-liberation or, alternatively, an allegedly omitted ad hoc announcement. Specifically, in the search for a successor for Carsten Kengeter, Deutsche Börse AG had omitted to qualify as a price-relevant intermediate step the fact that a few days before the appointment of Theodor Weimer in November 2017, two suitable and interested CEO candidates had been identified, and a decision about the appointment was planned. Even after consulting with external experts, Deutsche Börse AG believes this allegation is unfounded.

**Proceedings by the Public Prosecutor's Office in Frankfurt/Main**
On 21 December 2018, Deutsche Börse AG informed the public that, on that same day, the District Court of Frankfurt/Main had issued a fine order against Deutsche Börse AG as an ancillary party after the termination of the preliminary investigation against its former CEO, Carsten Kengeter. The decision provides for fines of €5 million and €5.5 million against Deutsche Börse AG for an alleged breach of the insider trading ban in December 2015 and for an alleged omission of an ad hoc announcement in January 2016. Following this decision of the District Court of Frankfurt/Main, the proceedings were concluded.

The Executive Board of Deutsche Börse AG had previously decided, after detailed consultation with the Supervisory Board, not to take action against a corresponding fine decision by the District Court. The company remains firmly convinced that the allegations were unfounded. This is supported by the results of extensive audits by several independent external experts. However, after a detailed examination and weighing all relevant aspects, Deutsche Börse AG had concluded that a termination of the proceedings based on the solution found was in the best interest of the company.

In addition to the matters described above and in prior disclosures, Deutsche Börse Group is from time to time involved in various legal proceedings that arise in the ordinary course of its business. The Group recognises provisions for litigation and regulatory matters when it has a present obligation arising from a past event, an outflow of resources with economic benefit to settle the obligation is probable, and it is able to reliably estimate the amount. In such cases, there may be an exposure to loss in excess of the amounts recognised as provisions. When the conditions are not met, the Group does not recognise a provision. As a litigation or regulatory matter develops, Deutsche Börse Group evaluates on an ongoing basis whether the requirements to recognise a provision are met. The Group may not be able to predict what the eventual loss or range of loss related to such matters will be. The Group does not believe, based on currently available information, that the results of any of these various proceedings will have a material adverse effect on its financial data as a whole.

### Tax risks

Due to its business activities in various countries, Deutsche Börse Group is exposed to tax risks. A process has been developed to recognise and evaluate these risks, which are initially recognised based on their probability of occurrence. These risks are then measured on the basis of their expected value. A tax provision is recognised in the event that it is more probable than not that the risks will occur. Deutsche Börse Group continuously reviews whether the conditions for recognising corresponding tax provisions are met.

## 27. Leases

### Finance leases

There were no minimum lease payments from finance leases for Deutsche Börse Group as at 31 December 2018 or as at 31 December 2017.

### Operating leases (as lessee)

Deutsche Börse Group has entered into leases to be classified as operating leases due to their economic substance, meaning that the leased asset is allocated to the lessor. These leases relate mainly to building rentals.

Minimum lease payments from operating leases[1)]

| | 31 Dec 2018 €m | 31 Dec 2017 €m |
|---|---|---|
| Up to 1 year | 77.7 | 63.4 |
| 1 to 5 years | 304.1 | 177.2 |
| More than 5 years | 51.4 | 84.0 |
| **Total** | **433.2** | **324.6** |

1) The expected payments in US dollars were translated into euros applying the closing rate of 31 December.

In the reporting period, minimum lease payments amounting to €71.9 million (2017: €68.8 million) were recognised as expenses. For subleases or contingent rentals, no expenses were incurred in the reporting period (2017: nil).

Operating leases for buildings, some of which are subleased, have a maximum remaining term of 30 years. The lease contracts usually terminate automatically when the lease expires. The Group has options to extend some leases.

Expected rental income from subleases[1)]

| | 31 Dec 2018 €m | 31 Dec 2017 €m |
|---|---|---|
| Up to 1 year | 1.0 | 0.7 |
| 1 to 5 years | 1.7 | 2.3 |
| **Total** | **2.7** | **3.0** |

1) The expected payments in US dollars were translated into euros applying the closing rate of 31 December.

## 28. Share-based payment

### Stock Bonus Plan (SBP)

In the reporting period, the company established an additional tranche of the SBP for senior executives who are not risk bearers. In order to participate in the SBP, a beneficiary must have earned a bonus. The number of stock options is determined by the amount of the individual and performance-based SBP bonus for the financial year, divided by the average share price (Xetra closing price) of Deutsche Börse AG's shares in the fourth quarter of the financial year in question. Neither the converted SBP bonus nor the stock options are paid at the time the bonus is determined. Rather, the entitlement is generally received three years after the grant date (the "waiting period"). Within this period, beneficiaries cannot assert shareholder rights (in particular, the rights to receive dividends and attend the Annual General Meeting). Once they have met the condition of service, the beneficiaries' claims resulting from the SBP are calculated on the first trading day following the last day of the waiting period. The current market price at that date (closing auction price of Deutsche Börse shares in electronic trading on the Frankfurt Stock Exchange) is multiplied by the number of stock options. Stock options are settled in cash.

**Evaluation of the SBP**

The company uses an adjusted Black-Scholes model (Merton model) to calculate the fair value of the stock options.

### Valuation parameters for SBP shares

| | | Tranche 2018 | Tranche 2017 | Tranche 2016 | Tranche 2015 |
|---|---|---|---|---|---|
| Term to | | 31 Mar 2022 | 28 Feb 2021 | 29 Feb 2020 | 31 Mar 2019 |
| Risk-free interest rate | % | –0.44 | –0.56 | –0.65 | –0.75 |
| Volatility of Deutsche Börse AG shares | % | 21.72 | 18.61 | 19.27 | 22.76 |
| Dividend yield | % | 2.33 | 1.56 | 1.17 | 0 |
| Exercise price | € | 0 | 0 | 0 | 0 |

The valuation model does not take into account exercise hurdles. The volatilities applied correspond to the market volatilities of comparable options with comparable maturities.

### Valuation of SBP shares

| Tranche | Balance at 31 Dec 2018<br>Number | Deutsche Börse AG share price at 31 Dec 2018<br>€ | Intrinsic value/ option at 31 Dec 2018<br>€ | Fair value/ option at 31 Dec 2018<br>€ | Settlement obligation<br>€m | Current provision at 31 Dec 2018<br>€m | Non-current provision at 31 Dec 2018<br>€m |
|---|---|---|---|---|---|---|---|
| 2015[1] | 13,674 | 104.95 | 104.95 | 98.77 to 110.65 | 1.3 | 1.3 | 0 |
| 2016 | 16,909 | 104.95 | 104.95 | 74.54 | 1.3 | 0 | 1.3 |
| 2017 | 13,868 | 104.95 | 104.95 | 47.70 | 0.6 | 0 | 0.6 |
| 2018[2] | 12,941 | 104.95 | 104.95 | 22.91 | 0.3 | 0 | 0.3 |
| **Total** | **57,392** | | | | **3.5** | **1.3** | **2.2** |

1) The number of stock options, settlement obligation, and short-term provision of the 2015 tranche includes the unsettled shares of the 2014 tranche.
2) Given that the 2018 SBP tranche stock options for senior executives will not be granted until the 2019 financial year, the number of shares applicable as at the reporting date may be adjusted during the 2019 financial year.

Average price of the exercised and forfeited share options

| Tranche | Average price of the exercised share options € | Average price of the forfeited share options € |
|---|---|---|
| 2014 | 109.40 | – |
| 2015 | 112.32 | 101.14 |
| 2016 | 111.23 | 72.13 |
| 2017 | 115.43 | 46.74 |

The stock options from the 2014 SBP tranche were exercised in the reporting period following the expiration of the waiting period. Shares of the SBP tranches 2015, 2016 and 2017 were paid to former employees as part of severance payments in the year under review.

The carrying amount of the provision for the SBP results from the measurement of the number of SBP stock options at the fair value of the closing auction price of Deutsche Börse shares in electronic trading at the Frankfurt Stock Exchange at the reporting date and its proportionate recognition over the waiting period.

Provisions for the SBP amounting to €3.5 million were recognised at the reporting date of 31 December 2018 (31 December 2017: €3.9 million). The total expense for the stock options in the reporting period was €2.1 million (2017: €2.9 million).

Change in number of SBP shares allocated

| | Balance at 31 Dec 2017 | Disposals Tranche 2015 | Disposals Tranche 2016 | Disposals Tranche 2017 | Additions Tranche 2018 | Fully settled cash options | Options forfeited | Balance at 31 Dec 2018 |
|---|---|---|---|---|---|---|---|---|
| To other senior executives | 69,298 | –1,257 | –2,055 | –1,864 | 12,941 | –17,920 | –1,751 | 57,392 |

## Long-term Sustainable Instrument (LSI) and Restricted Stock Units (RSU)

In 2014, Deutsche Börse Group introduced the Long-Term Sustainable Instrument (LSI) plan in order to provide share-based remuneration in line with regulatory requirements. This programme was extended in 2016 with the Restricted Stock Units (RSU) plan. The following disclosures relate to both plans.

The LSI remuneration model requires at least half of a part of the variable remuneration to be settled in cash and half in phantom shares of Deutsche Börse AG (LSI shares). A portion of the variable remuneration is paid in the subsequent year and another portion over a further period of three or four years. Moreover, a portion of the variable remuneration shall be converted into RSU, subject to a three-year retention period after grant and a one-year waiting period (RSU shares).

The number of LSI and RSU shares for the 2014 to 2017 tranches is calculated by dividing the proportionate LSI or RSU bonus, respectively, for the year in question by the average closing price of Deutsche Börse AG shares in the last month of a financial year. The number of LSI and RSU shares for the 2018 tranche is based on the closing auction price of Deutsche Börse shares as at the disbursement date of the upfront cash component of the 2018 tranche in 2019 or on the closing price as at the following trading day on the Frankfurt Stock Exchange. This results in individual LSI tranches for the LSI bonus, which have maturities of between one and five years. The RSU bonus is used as a basis for another four-year tranche. Payment of each tranche is made after a waiting period of one year. Neither remuneration system stipulates any condition of service. Following the expiry of the waiting period, both the LSI and the RSU shares of the 2014 to 2017 tranches are measured on the basis of the average closing price of Deutsche Börse AG shares in the last month preceding the end of the waiting period. The LSI and RSU shares of the 2018 tranche are measured at the closing auction price as at the first trading day in February of the year in which the holding period ends. Settlement is generally made in cash, although the employer has the right to settle by delivering Deutsche Börse AG shares for the 2014 tranche.

**Evaluation of the LSI and the RSU**

The company uses an adjusted Black-Scholes model (Merton model) to calculate the fair value of the LSI and RSU stock options.

Valuation parameters for LSI and RSU shares

| | | Tranche 2018 | Tranche 2017 | Tranche 2016 | Tranche 2015 | Tranche 2014 |
|---|---|---|---|---|---|---|
| Term to | | 31 Dec 2019 to 31 Dec 2023 | 31 Dec 2018 to 31 Dec 2022 | 31 Dec 2018 to 31 Dec 2021 | 31 Dec 2018 to 31 Dec 2020 | 31 Dec 2018 to 31 Dec 2019 |
| Risk-free interest rate | % | –0.7 to –0.31 | –0.75 to –0.44 | –0.75 to –0.56 | –0.75 to –0.65 | –0.75 to –0.7 |
| Volatility of Deutsche Börse AG shares | % | 18.5 to 22.47 | 0 to 22.47 | 0 to 20.52 | 0 to 19.69 | 0 to 19.69 |
| Dividend yield | % | 2.33 | 0 to 2.33 | 0 to 2.33 | 0 to 2.33 | 0 to 2.33 |
| Exercise price | € | 0 | 0 | 0 | 0 | 0 |

The valuation model does not take into account exercise hurdles. The volatilities applied correspond to the market volatilities of comparable options with comparable maturities.

Valuation of LSI and RSU shares

| Tranche | Balance as at 31 Dec 2018 Number | Deutsche Börse AG share price as at 31 Dec 2018 € | Intrinsic value/ option as at 31 Dec 2018 € | Fair value/ option as at 31 Dec 2018 € | Settlement obligation €m | Current provision as at 31 Dec 2018 €m | Non-current provision as at 31 Dec 2018 €m |
|---|---|---|---|---|---|---|---|
| 2014 | 7,657 | 104.95 | 104.95 | 102.55 – 104.95 | 0.8 | 0.6 | 0.2 |
| 2015 | 15,229 | 104.95 | 104.95 | 100.21 – 104.95 | 1.6 | 0.8 | 0.8 |
| 2016 | 70,639 | 104.95 | 104.95 | 97.92 – 104.95 | 7.2 | 1.0 | 6.2 |
| 2017 | 79,813 | 104.95 | 104.95 | 95.69 – 104.95 | 7.9 | 1.9 | 6.0 |
| 2018 | 91,872 | 104.95 | 104.95 | 93.50 – 102.55 | 9.0 | 0 | 9.0 |
| **Total** | **265,210** | | | | **26.5** | **4.3** | **22.2** |

The carrying amount of the provisions for the LSI and the RSU results from the measurement of the number of LSI and RSU stock options at the fair value of the closing auction price of Deutsche Börse shares in electronic trading at the Frankfurt Stock Exchange as at the reporting date.

Provisions amounting to €26.5 million were recognised as at 31 December 2018 (31 December 2017: €20.7 million). The total expense for LSI stock options in the reporting period amounted to €10.1 million (31 December 2017: €9.7 million).

Change in number of LSI and RSU shares allocated

| | Balance as at 31 Dec 2017 | Disposals Tranche 2014 | Disposals Tranche 2015 | Disposals Tranche 2016 | Disposals Tranche 2017 | Additions Tranche 2018 | Fully settled cash options | Options forfeited | Balance as at 31 Dec 2018 |
|---|---|---|---|---|---|---|---|---|---|
| To other senior executives | 224,652 | – 231 | – 939 | – 2,185 | – 3,962 | 91,872 | – 43,997 | 0 | 265,210 |
| **Total** | **224,652** | **– 231** | **– 939** | **– 2,185** | **– 3,962** | **91,872** | **– 43,997** | **0** | **265,210** |

## Co-Performance Investment Plan (CPIP) and Performance Share Plan (PSP)

In financial year 2015, a new remuneration programme (Co-Performance Investment Plan, CPIP) was introduced, and the former CEO of Deutsche Börse AG, Carsten Kengeter, was offered a one-time participation. The appropriate number of phantom shares was calculated based on the number of shares granted and the increase of Deutsche Börse AG's net profit for the period attributable to shareholders of Deutsche Börse AG, as well as on the relative performance of the total shareholder return (TSR) on Deutsche Börse AG's shares compared with the total shareholder return of the STOXX Europe 600 Financials Index entities. The performance period for the measurement of the performance criteria commenced on 1 January 2015 and ends on 31 December 2019. The shares are subject to a performance period of five years and a vesting period until 31 December 2019. The subsequent payment of the stock bonus will be settled in cash by 31 March 2021.

On 1 January 2016, the Group launched a share-based remuneration programme, the Performance Share Plan (PSP), for the Executive Board of Deutsche Börse AG as well as selected executives and employees of Deutsche Börse AG and participating subsidiaries. The 100 per cent stock bonus target was calculated in euros for each Executive Board member. The 100 per cent stock bonus target for selected executives and employees of Deutsche Börse AG and participating subsidiaries is defined by the responsible decision-making bodies.

Based on the PSP 100 per cent stock bonus target, the corresponding number of phantom shares for each beneficiary is calculated by dividing the stock bonus target by the average share price (Xetra closing price) of Deutsche Börse AG's shares in the last calendar month preceding the performance period. Any right to payment of a PSP stock bonus vests only at the end of a five-year performance period.

The final number of performance shares is calculated by multiplying the original number of performance shares with the level of overall target achievement. The PSP level of overall target achievement is based on two performance factors during the performance period: firstly, on the relative performance of the total shareholder return (TSR) on Deutsche Börse AG's shares compared with the total shareholder return of the STOXX Europe 600 Financials Index; and secondly, on the increase of Deutsche Börse AG's net profit for the period attributable to shareholders of Deutsche Börse AG. The two performance factors contribute 50 per cent each to calculate overall target achievement.

The payout amount is calculated by multiplying the final number of performance shares with the average share price (Xetra closing price) of Deutsche Börse AG's shares in the last calendar month preceding the performance period, plus the total of dividend payments made during the performance period based on the final number of performance shares. The plans are settled in cash.

**Evaluation of the CPIP and the PSP**
The company uses an adjusted Black-Scholes model (Merton model) to calculate the fair value of the CPIP and PSP stock options.

## Valuation parameters for CPIP and PSP shares

| | | Tranche 2019 | Tranche 2018 | Tranche 2017 | Tranche 2016 | Tranche 2015 |
|---|---|---|---|---|---|---|
| Term to | | 31 Dec 2023 | 31 Dec 2022 | 31 Dec 2021 | 31 Dec 2020 | 31 Dec 2019 |
| Risk-free interest rate | % | –0.31 | –0.44 | –0.56 | –0.65 | –0.70 |
| Volatility of Deutsche Börse AG shares | % | 0 | 22.47 | 20.52 | 18.50 | 18.70 |
| Dividend yield | % | 0 | 0 | 0 | 0 | 0 |
| Exercise price | € | 0 | 0 | 0 | 0 | 0 |
| Relative total shareholder return | % | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 |
| Net profit for the period attributable to Deutsche Börse AG shareholders | % | 200.00 | 210.00 | 192.00; 203.00 | 202.00; 213.00 | 185.00 |

The valuation model does not take into account exercise hurdles. The volatilities applied correspond to the market volatilities of comparable options with comparable maturities.

## Valuation of CPIP and PSP shares

| Tranche | Balance as at 31 Dec 2018<br>Number | Deutsche Börse AG share price as at 31 Dec 2018<br>€ | Intrinsic value/ option as at 31 Dec 2018<br>€ | Fair value/ option as at 31 Dec 2018<br>€ | Settlement obligation<br>€m | Current provision as at 31 Dec 2018<br>€m | Non-current provision as at 31 Dec 2018<br>€m |
|---|---|---|---|---|---|---|---|
| 2015 | 132,882 | 104.95 | 104.95 | 72.20 | 9.6 | 0 | 9.6 |
| 2016 | 131,285 | 104.95 | 104.95 | 67.31 | 12.5 | 0 | 12.5 |
| 2017 | 138,066 | 104.95 | 104.95 | 43.94 | 10.9 | 0 | 10.9 |
| 2018 | 122,322 | 104.95 | 104.95 | 21.49 | 5.8 | 0 | 5.8 |
| 2019[1)] | 12,506 | 104.95 | 104.95 | 107.42 | 1.3 | 0 | 1.3 |
| **Total** | **537,061** | | | | **40.1** | **0** | **40.1** |

1) The stock options of the 2019 tranche were granted as part of severance agreements.

Provisions for the CPIP and the PSP amounting to €40.1 million were recognised at the reporting date of 31 December 2018 (31 December 2017: €17.5 million). Of the provisions, €15.9 million were attributable to members of the Executive Board (2017: €14.8 million). The total expense for CPIP and PSP stock options in the reporting period was €23.3 million (2017: €12.3 million). Of that amount, an expense of €13.1 million was attributable to members of the Executive Board (2017: €10.2 million).

Change in number of CPIP and PSP shares allocated

| | Balance at 31 Dec 2017 | Additions Tranche 2015 | Additions Tranche 2016 | Additions/ (disposals) Tranche 2017 | Additions Tranche 2018 | Additions Tranche 2019 | Fully settled cash options | Options forfeited | Balance at 31 Dec 2018 |
|---|---|---|---|---|---|---|---|---|---|
| To the Executive Board | 269,370 | 7,925 | 36,918 | 6,996 | 96,682 | 12,506[1] | 0 | 0 | 430,397 |
| To other senior executives | 93,307 | 0 | 4,360 | –16,643 | 25,640 | 0 | 0 | 0 | 106,664 |
| **Total** | **362,677** | **7,925** | **41,278** | **–9,647** | **122,322** | **12,506** | **0** | **0** | **537,061** |

1) The stock options of the 2019 tranche were granted as part of severance agreements.

For further information on the number of stock options granted to Executive Board members and on the remuneration system for Executive Board members, please refer to the remuneration report.

### Group Share Plan (GSP)

Employees of Deutsche Börse Group who are not members of the Executive Board or senior executives have the opportunity to subscribe for shares of Deutsche Börse AG at a discount of 30 or 40 per cent to the issue price under the Group Share Plan (GSP). This discount is based on the employee’s length of service. Under the 2018 GSP tranche, eligible employees were able to buy up to 100 shares in the company. The purchased shares must be held for at least two years.

In the reporting period, an expense totalling €4.0 million (2017: €3.6 million) was recognised in staff expense for the GSP.

## 29. Executive bodies

The members of the company’s executive bodies are listed in the “The Executive Board” and “The Supervisory Board” chapters of this annual report.

## 30. Corporate governance

On 6 December 2018, the Executive and Supervisory Boards issued the latest version of the declaration of conformity in accordance with section 161 of the Aktiengesetz (AktG, the German Stock Corporation Act) and made it permanently available to shareholders on the company’s website (see also the combined corporate governance declaration statement and corporate governance report).

## 31. Related party disclosures

Related parties as defined by IAS 24 are members of the executive bodies of Deutsche Börse AG as well as the companies classified as associates of Deutsche Börse AG, investors and investees, and companies that are controlled or significantly influenced by members of the executive bodies.

The remuneration of the individual members of the Executive and Supervisory Boards is presented in the remuneration report.

### Executive Board

In 2018, the fixed and variable remuneration of the members of the Executive Board, including non-cash benefits, amounted to a total of €21.0 million (2017: €15.3 million).

During the year under review, expenses of €11.8 million (2017: €10.2 million) were recognised in connection with share-based payments to Executive Board members.

The actuarial present value of the pension obligations to Executive Board members was €28.8 million as at 31 December 2018 (2017: €21.2 million). Expenses of €3.1 million (2017: €1.8 million) were recognised as additions to pension provisions.

### Former members of the Executive Board or their surviving dependants

The remuneration paid to former members of the Executive Board or their surviving dependants amounted to €4.4 million in 2018 (2017: €4.3 million). The actuarial present value of the pension obligations was €67.5 million as at 31 December 2018 (2017: €69.9 million).

### Termination benefits

Expenses of €5.2 million were recognised in connection with the termination of Executive Board appointments. €4.0 million thereof are attributable to share-based payments to former Executive Board members.

### Supervisory Board

The aggregate remuneration paid to members of the Supervisory Board in financial year 2018 was €2.2 million (2017: €1.8 million).

In financial year 2018, the employee representatives on Deutsche Börse AG's Supervisory Board received remuneration (excluding Supervisory Board remuneration) amounting to €0.7 million (2017: €0.5 million). The total consists of the fixed and variable salary components for those employee representatives.

## Business relationships with related parties and key management personnel

### Business relationships with related parties

The following table shows transactions entered into within the scope of business relationships with non-consolidated companies of Deutsche Börse AG during the 2018 financial year. All transactions were concluded at prevailing market terms.

Transactions with related entities

| | Amount of the transactions: revenues | | Amount of the transactions: expenses | | Outstanding balances: receivables | | Outstanding balances: liabilities | |
|---|---|---|---|---|---|---|---|---|
| | 2018 €m | 2017 €m | 2018 €m | 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m | 31 Dec 2018 €m | 31 Dec 2017 €m |
| Associates | 11.2 | 12.6 | –19.1 | –18.5 | 1.2 | 2.9 | –1.0 | –1.5 |
| Other shareholdings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total sum of business transactions** | **11.2** | **12.6** | **–19.1** | **–18.5** | **1.2** | **2.9** | **–1.0** | **–1.5** |

### Monetary business relationships with key management personnel

Key management personnel are persons who directly or indirectly have authority and responsibility for planning, directing and controlling the activities of Deutsche Börse Group. The Group defines the members of the Executive Board and the Supervisory Board as key management personnel for the purposes of IAS 24.

European Commodity Clearing Luxembourg S. à r.l., Luxembourg, (ECC Luxembourg) – a subsidiary of European Commodity Clearing AG and therefore a member of the EEX group – entered into a managing director agreement with IDS Lux S. à r.l., Luxembourg. The subject of the agreement is to provide a natural person for the function of managing director in the management of ECC Luxembourg. In addition to this position as managing director of ECC Luxembourg, this person is also a member of the key management personnel at IDS Lux S. à r.l. In the financial year 2018, ECC Luxembourg made payments in the amount of approximately €14.0 thousand for these management services.

A member of the board of directors of STOXX Ltd., Zug, Switzerland, also holds a key management position within the law firm Lenz & Staehelin, Geneva, Switzerland. Deutsche Börse Group reported expenses to this law firm of approximately €779.9 thousand in the 2018 financial year. As at 31 December 2018, liabilities amounted to €33.9 thousand.

On the board of directors of Powernext SAS, Paris, France – one of the subsidiaries of European Energy Exchange AG, Leipzig, Germany – there are representatives of GRTgaz, Bois-Colombes, France, the parent company of 3GRT, Tarascon, France, and EDEV S.A., Courbevoie, France. During the 2018 financial year, Powernext SAS rendered development and maintenance services for customised software solutions in the area of market coupling and balancing, as well as in connection with an electronic trading platform for 3GRT. In this context, the Group generated revenue of €790.6 thousand in 2018. As at 31 December 2018, receivables amounted to €180.4 thousand.

The Board of Directors of LuxCSD S.A., Luxembourg, an associate from Deutsche Börse Group's perspective, comprises two members of management of fully consolidated subsidiaries who are maintaining a key position within these subsidiaries of Deutsche Börse Group. There were business transactions with Clearstream Banking S.A., Luxembourg, Clearstream Services S.A., Luxembourg, Clearstream International S.A., Luxembourg, Clearstream Banking AG, Frankfurt/Main, Germany, and Deutsche Börse AG, Frankfurt/Main, Germany, to LuxCSD S.A. Overall, revenue of €2,327.3 thousand as well as expenses of €1,271.3 thousand were recognised for such contracts during the 2018 financial year.

Furthermore, an Executive Board member of Clearstream Banking AG concurrently holds an executive position within Deutsche Börse Commodities GmbH, Frankfurt/Main, Germany, an associate of Deutsche Börse Group. During the 2018 financial year, Deutsche Börse Group realised revenue of €3,746.8 thousand and incurred expenses of €16,629.7 thousand based on the business relationship with Deutsche Börse Commodities GmbH.

Two Executive Board members of Deutsche Börse AG are members of the Supervisory Board of China Europe International AG, Frankfurt/Main, Germany, (CEINEX). This stock corporation is a jointly established company of Shanghai Stock Exchange Ltd., Shanghai, China; China Financial Futures Exchange, Shanghai, China; and Deutsche Börse AG. During the 2018 financial year, Deutsche Börse Group realised revenue of €73.6 thousand and incurred expenses of €100.6 thousand based on the business relationship with CEINEX.

A member of the Executive Board of Eurex Frankfurt AG holds a key position on the Supervisory Board of PHINEO gAG, a non-profit entity based in Berlin, Germany, which was an associate from Deutsche Börse Group's perspective until 4 July 2018. In the financial year 2018, expenses of €250.0 thousand were incurred, representing a donation to this non-profit entity for the year 2017.

**Other business relationships with key management personnel**

Selected executives of Deutsche Börse Group companies also hold a key management position within the Clearstream Pension Fund, an "association d'épargne pension" (ASSEP) under Luxembourg law. By means of cash contributions to this ASSEP, Clearstream International S.A., Clearstream Banking S.A., as well as Clearstream Services S.A., fund the defined benefit plan established in favour of their Luxembourg employees.

## 32. Employees

### Employees

| | 2018 | 2017 |
|---|---|---|
| Average number of employees during the year | 5,800 | 5,567 |
| Employed at the reporting date | 5,964 | 5,640 |
| | | |
| Employees (average annual FTEs) | 5,397 | 5,183 |

Of the average number of employees during the year, 30 (2017: 31) were classified as Managing Directors (excluding Executive Board members), 333 (2017: 335) as senior executives and 5,437 (2017: 5,201) as employees.

There was an average of 5,397 full-time equivalent (FTE) employees during the year (2017: 5,183). Please also refer to the “Employees” section in the combined management report.

## 33. Events after the end of the reporting period

There have been no material events after the balance sheet date.

## 34. Date of approval for publication

Deutsche Börse AG’s Executive Board approved the consolidated financial statements for submission to the Supervisory Board on 5 March 2019. The Supervisory Board is responsible for examining the consolidated financial statements and stating whether it endorses them.

Frankfurt/Main, 5 March 2019
Deutsche Börse AG

Theodor Weimer | Christoph Böhm | Thomas Book

Stephan Leithner | Gregor Pottmeyer | Hauke Stars

# Responsibility statement by the Executive Board

To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the Group, and the combined management report includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group.

Frankfurt/Main, 8 March 2019
Deutsche Börse AG

Theodor Weimer | Christoph Böhm | Thomas Book

Stephan Leithner | Gregor Pottmeyer | Hauke Stars

Deutsche Börse AG

Combined management report as at 31 December 2018

# Combined management report

This combined management report covers both Deutsche Börse Group and Deutsche Börse AG and includes the combined non-financial statements according to the CSR directive. It follows the requirements of the Handelsgesetzbuch (HGB, German Commercial Code) and the Deutscher Rechnungslegungs Standard Nr. 20 (DRS 20, German Accounting Standard No. 20). This management report also takes into account the requirements of the Practice Statement "Management Commentary" issued by the International Accounting Standards Board (IASB).

## Fundamental information about the Group

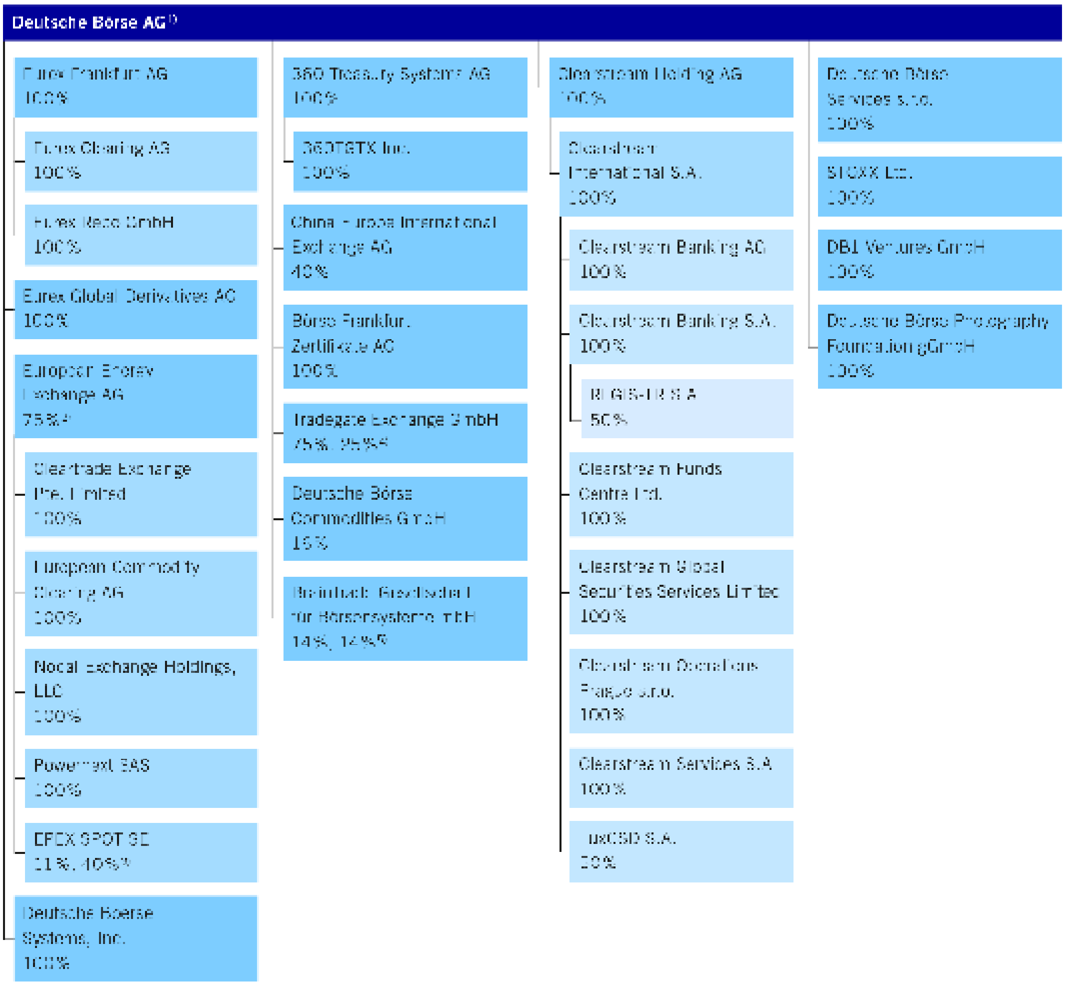
### Overview of Deutsche Börse Group

**Business operations and Group structure**
Deutsche Börse AG, which is headquartered in Frankfurt/Main, Germany, is the parent company of Deutsche Börse Group. As at 31 December 2018, the Group employed 5,964 people at 37 locations in 26 countries. As one of the largest market infrastructure providers worldwide, Deutsche Börse Group offers its customers a wide range of products and services. These cover the entire financial market transactions value creation chain – covering the dissemination of market information and provision of indices (pre-trading), services for trading and transaction clearing and settlement, securities custody, as well as services for liquidity and collateral management (post-trading). In addition, the Group develops and operates the IT systems that support all these processes.

Deutsche Börse AG markets price and reference data of Deutsche Börse Group's systems and platforms as well as other trading information; it also develops and sells indices via its subsidiary STOXX Ltd. In addition, Deutsche Börse AG operates the Eurex Exchange derivatives market via Eurex Frankfurt AG. Commodities spot and derivatives markets are operated by the Group's direct subsidiary European Energy Exchange AG (EEX). Deutsche Börse AG provides a foreign-exchange trading platform via its subsidiary 360 Treasury Systems AG (360T); the Group operates the cash market at Frankfurter Wertpapierbörse (FWB®, the Frankfurt Stock Exchange) with its fully electronic trading venue Xetra® and offers trading in structured products (certificates and warrants) in Germany via Börse Frankfurt Zertifikate AG. The Group also offers clearing services for the cash and derivatives markets (Eurex Clearing AG). All post-trading services that Deutsche Börse Group provides for securities are handled by Clearstream Holding AG and its subsidiaries (Clearstream Holding group). These include transaction settlement, the administration and custody of securities, as well as services for investment funds and global securities financing. Deutsche Börse AG and Clearstream Services S.A. develop and operate Deutsche Börse Group's technological infrastructure.

The “Shareholding structure of Deutsche Börse Group” chart gives an overview of Deutsche Börse Group’s main shareholdings; its basis of consolidation is presented in full in note 2 to the consolidated financial statements.

## Shareholding structure of Deutsche Börse Group




1) Simplified presentation of main shareholdings (rounded values), as at 1 January 2019
2) Economic participation; lower voting rights
3) Direct equity interest European Energy Exchange AG: 11%, direct equity interest Powernext SAS: 40%
4) Direct equity interest Deutsche Börse AG: 75%, direct equity interest Tradegate AG Wertpapierhandelsbank: 25%
5) Direct equity interest Deutsche Börse AG: 14%, direct equity interest Börse Frankfurt Zertifikate AG: 14%

**Reporting segments**

Since 1 January 2018, Deutsche Börse Group has divided its business activities into nine segments:

- The former Eurex segment was divided into three segments: Eurex (financial derivatives), EEX (commodities) and 360T (foreign exchange).
- The former Clearstream segment was divided into three segments: Clearstream (post-trading), IFS (investment fund services) and GSF (collateral management).
- The former Market Data + Services (MD+S) segment was separated into STOXX (index business) and Data. Revenue from the Infrastructure Services division, the third pillar of the former MD+S segment, have been allocated to the Eurex (financial derviatives) and Xetra (cash equities) segments.
- The Group continues to report on business developments in the cash market within the Xetra (cash equities) segment.

This structure serves as a basis for the Group's internal management and financial reporting (see the following table entitled "Deutsche Börse Group's reporting segments" for details). This more detailed segment reporting further enhances transparency, highlighting growth areas. Recognising the growing importance of some business areas, these have been shown as independent reporting segments as of the financial year 2018. Hence, the Group also reports the reporting segments' cost base and EBITDA on a segment level.

Deutsche Börse Group's reporting segments

| Reporting segment | Business areas |
|---|---|
| Eurex (financial derivatives) | ▪ Electronic derivatives trading (Eurex Exchange)<br>▪ Eurex Repo® over-the-counter (OTC) trading platform<br>▪ C7® electronic clearing architecture<br>▪ Central counterparty for on- and off-exchange derivatives and repo transactions |
| EEX (commodities) | ▪ Electronic trading of electricity and gas products as well as emission rights (EEX group)<br>▪ Central counterparty for cash market and derivative products |
| 360T (foreign exchange) | ▪ Electronic foreign-exchange trading (360T®)<br>▪ Central counterparty for on- and off-exchange derivatives |
| Xetra (cash equities) | ▪ Cash market with the Xetra®, Börse Frankfurt and Tradegate trading venues<br>▪ Central counterparty for equities and bonds<br>▪ Admission of securities (listing) |
| Clearstream (post-trading) | ▪ Custody and settlement services for securities |
| IFS (investment fund services) | ▪ Investment fund services (order routing, settlement and custody) |
| GFS (collateral management) | ▪ Global securities financing and collateral management services, such as collateralised money market lending, repo or securities lending transactions |
| STOXX (index business) | ▪ Development and marketing of indices (STOXX® and DAX®) |
| Data | ▪ Distribution of licences for trading and market signals<br>▪ Technology and reporting solutions for external customers<br>▪ Trading participant connectivity |

**Management**

The governing bodies of Deutsche Börse AG, which is a German stock corporation, are the Annual General Meeting, the Supervisory Board and the Executive Board, each of which has its own areas of responsibility.

The Annual General Meeting rules on the appropriation of the unappropriated surplus, appoints the shareholder representatives on the Supervisory Board and approves the actions of the Executive Board and the Supervisory Board. In addition, it rules on corporate actions and other matters governed by the Aktiengesetz (AktG, German Stock Corporation Act).

The Supervisory Board appoints, supervises and advises the Executive Board and is directly involved in key decisions affecting the company. Additionally, it approves the consolidated financial statements prepared by the Executive Board. Members of the Supervisory Board are appointed for a period of three years, although the Annual General Meeting may determine a shorter term of office when electing members. Since staffing numbers at Deutsche Börse AG in Germany have surpassed the threshold of 2,000 employees, the Supervisory Board must be composed in accordance with the provisions of the Mitbestimmungsgesetz (German Co-determination Act). Since the 2018 Annual General Meeting, Deutsche Börse AG's Supervisory Board has consisted of eight shareholder representatives and eight employee representatives. This increase accounted for the growing demands placed upon Supervisory Board members in connection with the growth of the company and the Group, particularly with regard to diversity and internationalisation of Supervisory Board work. Previously, the Supervisory Board had been comprised of twelve members: eight shareholder representatives and four employee representatives. Further details are described in the "Combined corporate governance statement and corporate governance report" section.

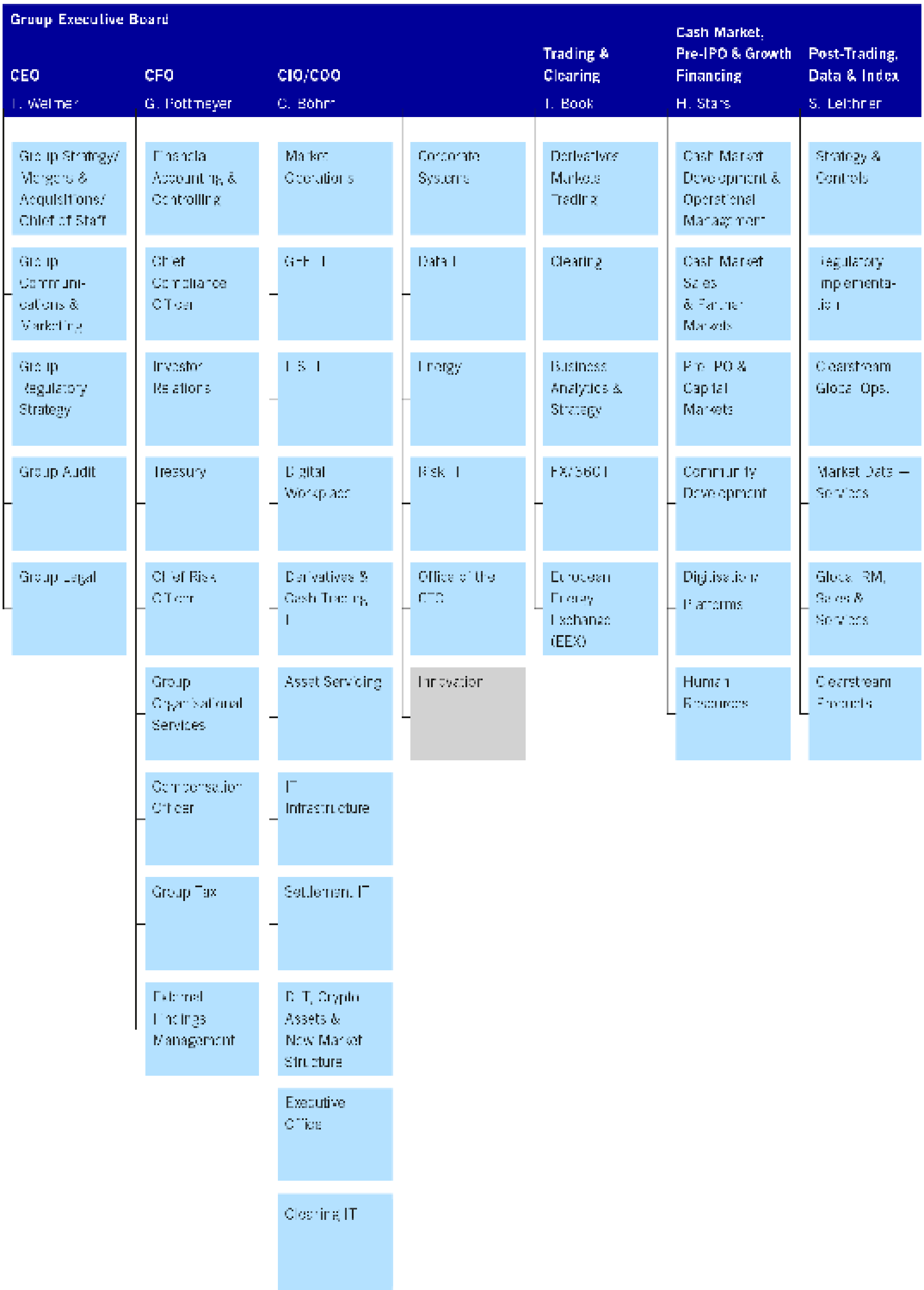
The Executive Board is responsible for the management of the company; the Chief Executive Officer (CEO) coordinates the activities of the Executive Board members. During the financial year 2018, the Executive Board of Deutsche Börse AG had five members until the end of June. Since the retirement of Jeffrey Tessler and the appointments of Thomas Book and Stephan Leithner at the beginning of July, the Executive Board has counted six members. Andreas Preuß retired from the Executive Board with effect from 31 October 2018. He was succeeded by Christoph Böhm on 1 November 2018. The remuneration system and the remuneration paid to the individual members of the Executive Board are described in detail in the remuneration report.

**Organisational structure**

The Chief Executive Officer (CEO) is, among other things, responsible for the Group's strategy and M&A activities, communication, the area of Group Legal & Regulatory Affairs and Group Audit. The portfolio of the Chief Financial Officer (CFO) includes, amongst other things, financial reporting and controlling, risk management, compliance and investor relations. The Trading & Clearing division bundles derivatives trading and the clearing houses of Deutsche Börse Group. The electronic foreign-exchange trading platform 360T®, as well as EEX group, also belong to this division. The Post-Trading, Data & Index division includes Clearstream's settlement and custody business, the reporting segments IFS (Investment Fund Services) and GSF (Collateral Management), as well as the index and data business. Deutsche Börse Group's cash market businesses – comprising the trading venues Xetra®, the Frankfurt Stock Exchange, and the certificates and warrants business – are allocated to the Cash Market, Pre-IPO & Growth Financing division. The division is also responsible for the build-up of a pre-IPO market and tools for growth financing. Human Resources completes this area of responsibility. The Chief Information Officer's / Chief Operating Officer's division combines Deutsche Börse Group's IT activities and market operations.

Technological transformation and digitalisation are key issues expedited by this division. The "Leadership structure of Deutsche Börse Group as at 1 February 2019" chart gives an overview of Deutsche Börse Group's current organisational structure.

Leadership structure of Deutsche Börse Group as of 1 February 2019



## Objectives and strategies

### Deutsche Börse Group's objectives and strategies

Deutsche Börse Group is one of the largest market infrastructure providers worldwide. The Group's business model enhances the capital markets' stability, efficiency and integrity. Issuers benefit from the low capital procurement costs it offers, while investors enjoy high liquidity and low transaction costs. At the same time, Deutsche Börse stands for transparent, secure capital markets in which organised trading is based on free price formation.

Deutsche Börse Group's business model is based on a broadly diversified range of products and services, covering the entire financial market transactions value creation chain. It aims to provide customers with reliable services, in an efficient and cost-effective manner, benefiting from the scalability of the business; it is based on the following key elements:

- Integrating different financial market services such as trading, clearing, settlement, securities custody, liquidity and collateral management, as well as index and market data services
- Providing these services for different asset classes such as equities, bonds, funds, commodities, foreign-exchange (FX) products, interest rate products, as well as derivatives on these underlyings
- Developing and operating proprietary electronic systems for all processes along the value creation chain
- Organising an impartial marketplace to ensure orderly, supervised trading with fair price formation, plus providing risk management services

The efficiency of this business model is proven by the fact that Deutsche Börse Group is one of the most cost-effective providers of trading, clearing and settlement services for comparable products worldwide. Thanks to its efficient cost base and highly scalable business, Deutsche Börse Group has generated strong cash flows from operating activities for many years.

In order to maintain and expand its leading position among exchange organisations, Deutsche Börse Group is pursuing a growth strategy called "Roadmap 2020". To achieve this strategic objective, Deutsche Börse is, on the one hand, focusing on generating structural, organic growth and, on the other hand, also accelerating non-organic growth through acquisitions in five defined business segments. The third pillar of the strategy is to strengthen and further expand its leading position in the IT area.

Against this background, the Group conducted an in-depth review of its organic growth initiatives in the 2018 reporting year and reprioritised where appropriate. In particular, Deutsche Börse Group is focusing on the expansion in structural growth markets and asset classes, considering the consequent and successful implementation of introduced initiatives as highly important. Please refer to the report on opportunities for an overview of key initiatives and growth drivers. Moreover, the remuneration system for the Executive Board and executive staff has created, among other things, incentives for growth in the individual divisions. For a detailed description of all objectives, see the remuneration report. As far as external growth opportunities are concerned, the focus is on strengthening existing high-growth areas and exploring new asset classes and services.

Deutsche Börse Group has a scalable business model, which permits higher business volumes at relatively minor additional costs. With strong business performance and organic or external growth, this means that revenue growth will exceed cost increases. To reinforce the scalability of its business model, the Group has introduced clearly defined net revenue and profit growth targets. Based on its current business portfolio, the Group anticipates structurally driven net revenue increases of at least 5 per cent annually until 2020. With regard to the annual earnings before interest, tax, depreciation and amortisation (EBITDA) and consolidated net profit for the period attributable to Deutsche Börse AG shareholders, the Group is targeting increases of a yearly average of 10 to 15 per cent until 2020.

The factors with material impact on Deutsche Börse Group's organic growth are, amongst others:

- Regulatory requirements affecting all market participants: if regulatory initiatives (e.g. EMIR, MiFIR and Capital Requirements Directives) strengthen the role of exchanges, this will also benefit Deutsche Börse Group.
- Structural changes in the financial markets: e.g. trading activity increases if investment funds make greater use of derivatives to implement their trading strategies.
- Innovative strength: if Deutsche Börse Group succeeds in continually introducing new products and services for which there is demand on the market, the Group will further grow its business.
- The effect of macroeconomic conditions on the financial markets: e.g. greater stock market volatility typically leads to higher levels of trading in the cash and derivatives markets, and rising interest rates drive higher net interest income and trading volumes of interest rate derivatives.

Deutsche Börse Group is committed to maintaining transparent, reliable and liquid financial markets; although it cannot affect how the volume drivers for these markets, i.e. cyclical factors, develop. However, the Group is able to influence the other factors to some extent or to control them in full; for instance, it can lobby for a favourable legal framework for the financial markets, or it can develop products and services to support customer business. This also enables it to reduce dependence on those factors beyond its control.

**Management approach for a Group-wide commitment to sustainability**

Deutsche Börse Group's objectives and strategies include discharging its corporate responsibility holistically. In line with this, its management approach is guided by three action-based principles that aim to sustainably strengthen and preserve the value added to the economy and to society by Deutsche Börse Group:

- Building trust. Deutsche Börse Group aims to organise the capital markets in a way that ensures their integrity, transparency and security. The availability of high-quality information is a key aspect in this process and something that the company is working constantly to enhance. In this context, providing sustainability information is as significant as engaging in a constructive dialogue on the future viability of the international capital markets with customers and the general public alike.
- Leading by example. As a listed service provider, Deutsche Börse Group aims to ensure that its own corporate activities are conducted responsibly and with a view to the future. In addition, the Group pursues a sustainable human resources policy and is committed to the environment and hence to conserveing resources. It enhances its commitment to sustainability and related reporting on an ongoing basis in order to establish itself as a long-term role model on the market.
- Increasing public awareness. The Group is part of civil society and as such has a responsibility towards it. It is committed to fulfilling this role both in Germany and in its international locations. It systematically bases its actions on local requirements and, as a good corporate citizen, takes part in long-term cooperative initiatives aimed at strengthening structures in the non-profit sector.

In 2016, Deutsche Börse established a Group Sustainability Board to continuously develop the Group-wide sustainability strategy along the entire value chain and advise the Executive Board on sustainability issues. The Board convenes twice a year; in 2018, its members comprised 15 representatives of the Executive Board divisions, plus the Head of Group Sustainability. Due to the 2018 restructuring of the Executive Board divisions, the Board met only once in the year under review.

## Internal management

### Management systems

Deutsche Börse Group's internal management system is based on key performance indicators taken from the consolidated income statement (net revenue; operating costs excluding depreciation, amortisation and impairment losses; EBITDA; Group's net profit for the period attributable to Deutsche Börse AG shareholders), as well as on various parameters derived from the consolidated statement of financial position and the consolidated statement of cash flows (cash flows from operating activities, liquidity, equity less intangible assets). Additionally, the system includes key performance indicators derived from the adjusted consolidated income statement and the balance sheet (interest coverage ratio, interest-bearing gross debt / EBITDA and return on shareholders' equity).

Net revenue is composed of sales revenue plus net interest income from banking business and from other operating income, less volume-related costs. Sales revenue from external customers is generally dependent on the growth factors described above (regulatory and structural changes, the Group's innovative strength, and performance of the financial markets). Net interest income from banking business is dependent on how Clearstream's international settlement business performs, on the one hand, and on developments of short-term interest rates, particularly in the USA and in the eurozone, on the other. In addition to income from the Clearstream segment, net interest income has also included interest income and expenses in the Eurex segment. This income is generated by the Group's clearing houses from investing their clients' cash collateral. Other operating income results from exchange rate differences, among other things.

Volume-related costs normally correlate with business development in the relevant business areas, such as fees and commissions from banking business or the cost of purchasing price data. In addition, various licence fees (e.g. for index licences) contribute to volume-related costs.

To facilitate transparency in reporting costs and results, and to increase comparability with competitors, Deutsche Börse Group has been separately disclosing operating costs as well as depreciation, amortisation and impairment losses since the second quarter of 2017, introducing EBITDA as an additional parameter. Consequently, operating costs include staff costs as well as other operating expenses, but exclude depreciation, amortisation and impairment losses. Staff costs consist of wages and salaries, social security contributions and the cost of retirement benefits. They are subject to inflation adjustments and depend partially on the company's performance, as they also include a variable remuneration. Other operating expenses mainly comprise the costs of developing and operating the Group's technological infrastructure, office infrastructure costs and marketing costs. The item depreciation, amortisation and impairment losses includes depreciation and amortisation of, and impairment losses on, intangible assets and property, plant and equipment.

Around 75 per cent of Deutsche Börse Group's costs are fixed costs (unadjusted). As a result, the Group can handle higher volumes of business without a significant increase in total costs. Conversely, a decline in business volumes has a direct impact on the Group's profitability. Approximately 25 per cent of the Group's costs are volume-related costs.

Deutsche Börse Group manages its EBITDA using net revenue and operating costs. At Group level, the net profit for the period attributable to Deutsche Börse AG shareholders also serves as a performance indicator for internal management.

The performance indicators derived from the statement of financial position and the statement of cash flows include cash flows from operating activities, a predefined liquidity target, and equity less intangible assets. Liquidity planning aims at maintaining liquidity at about the same level of operating costs for one quarter (currently between €150 million and €250 million). There is no set target for the Group's management KPI of equity less intangible assets; rather, the objective is to maintain a positive figure.

The interest coverage ratio is the ratio of EBITDA to the interest expense from financing activities. As part of its capital management programme, the Group aims to achieve an interest coverage ratio of at least 16 for Deutsche Börse Group. In addition, the goal is to achieve a maximum ratio of interest-bearing gross debt to EBITDA of 1.5 at Group level. The latter performance indicator is particularly important at present in protecting the Group's current AA rating. The target for the Clearstream subgroup is to maintain an interest coverage ratio of 25 and to comply with other capital adequacy measures to protect its current AA rating. Because Clearstream had no financial liabilities from non-banking business in either the reporting period or the previous year, no interest coverage ratio had to be calculated for the subgroup.

Beginning with the 2019 financial year, the Group will use new key performance indicators based on the consolidated balance sheet. Prompting this was an adjustment by the S&P Global Ratings (S&P) rating agency in the key indicators it follows and in their calculation. The most important new indicators are free funds from operations (FFO) in relation to net debt and net debt in relation to EBITDA. The Group will continue to use the interest coverage indicator, but the calculation has been adjusted.

In order to achieve the minimal financial risk profile consistent with an AA rating as defined by S&P, the company is targeting an FFO to net debt ratio of at least 50 per cent, a net debt to EBITDA ratio of no more than 1.75 and an interest coverage ratio of at least 14. These key indicators will be incorporated into the Group's reporting as of the first quarter of 2019. Details on how the indicators were calculated for the year 2018, as well as a comparison with the previous calculation methodology, are presented in the "Financial position" section.

Group projects are prioritised and steered using strategic and financial criteria, taking project-specific risks into account. The main criterion used to assess the strategic attractiveness of projects is their (expected) contribution to the strategic objectives for Deutsche Börse Group and its business areas. The main financial criteria are key performance indicators such as net present value (NPV), the payback period and the return after tax, which are calculated on the basis of the project or business plans. Risks are monitored at all levels of project work, i.e. both when prioritising and steering projects and during ongoing project management.

Details concerning the non-financial performance indicators used by Deutsche Börse Group are outlined in the "Combined non-financial statement" section.

**Internal control system as part of the financial reporting process**

Deutsche Börse has established a Group-wide internal control system (ICS). The ICS comprises rules to manage the company's activities as well as guidelines defining how compliance with these rules is monitored. Monitoring tasks are implemented through process-integrated measures (such as organisational safeguards and controls) as well as through process-independent measures. All business divisions are responsible that Group-wide ICS requirements are met in their respective areas of responsibility.

The purpose of the accounting-related ICS is to ensure orderly accounting practices. The central Financial Accounting and Controlling (FA&C) division, together with decentralised units acting on the requirements set out by FA&C, are responsible for preparing the accounts at Deutsche Börse AG and its consolidated subsidiaries. Group Tax is responsible for determining tax items within the scope of the accounting; the relevant department heads are responsible for the related processes, including effective security and control measures. The goal is to ensure that risks in the accounting process are identified early on so that remedial action can be taken in good time.

In order to maintain consistent and continuous accounting processes, FA&C provides regularly updated accounting manuals as well as guidelines and work instructions for the material accounting processes – as part of the preparation of the annual financial statements and consolidated financial statements of Deutsche Börse AG. All FA&C employees have access to this documentation, accounting manuals and account allocation guidelines, allowing them to obtain information on the management judgements and accounting options exercised by Deutsche Börse Group.

Moreover, Deutsche Börse Group continuously monitors and analyses changes in the accounting environment and adjusts its processes in line with them. This applies in particular to national and international accounting standards.

Another key feature of the ICS is the principle of the separation of functions: tasks and responsibilities are clearly defined and allocated within the organisation. Incompatible tasks – such as modifying master data on the one hand and issuing payment instructions on the other – are strictly segregated at a functional level. An independent control unit grants individual employees access rights to the accounting system and continuously monitors these permissions using a so-called incompatibility matrix. Transactions are initially recorded in the general ledger or the appropriate sub ledgers on the basis of the chart of accounts and the account allocation guidelines.

Major Deutsche Börse Group subsidiaries maintain and consolidate their general ledgers in the same system. Accounting data from the other companies is uploaded for inclusion in the consolidated financial statements. Liabilities, expenses and income for individual transactions are recorded in separate accounts under the name of the counterparty concerned. Any consolidation differences are reviewed centrally and sent to the accounting departments of the companies concerned for clarification.

The processes, systems and controls described above aim to provide reasonable assurance that the accounting system complies with the applicable principles and laws. In addition, Compliance and Internal Audit act as a further line of defence, performing risk-based, process-independent controls on whether the ICS is appropriate and effective. The Executive Board and the Audit Committee established by the Supervisory Board receive regular reports on the effectiveness of the ICS with respect to the financial reporting process.

## Research and development activities

As a service provider, Deutsche Börse Group does not engage in research and development activities comparable to those of manufacturing companies. As a result, this combined management report does not contain a detailed research and development report. However, Deutsche Börse does develop and operate its own trading and clearing systems, as well as systems solutions designed to achieve its structural growth objectives. The company constantly works to maintain and enhance the technological leadership and stability of its electronic systems in the interests of its customers and the systemic stability of the financial markets. During the years 2014 to 2018, Deutsche Börse therefore significantly overhauled its trading and clearing technology, which go by the trade names T7® and C7®. During the reporting period, the T7 trading technology was rolled out on the US Nodal Exchange, which has been a part of Deutsche Börse Group since May 2017. Other technically challenging projects of the past financial year include the implementation of the increasing reporting obligations according to EMIR and MiFID II, as well as the introduction of the pan-European intraday power market (XBID) and the clearing functionality for FX trading.

In 2018, research and development expenses amounted to €130.8 million (2017: €154.4 million); of this figure, approximately 61 per cent (2017: 56 per cent) was attributable to development costs that were capitalised as internally developed software. Accordingly, research and development costs amounted to 5 per cent of net revenue (2017: 6 per cent). In addition, €36.8 million of capitalised development costs were amortised in 2018. Details can be found in the notes 7 and 24 to the consolidated financial statements.

Further details of product and services development activities can be found in the report on opportunities and the report on expected developments.

## Takeover-related disclosures

### Disclosures in accordance with sections 289a (1) and 315a (1) of the HGB and notes

In accordance with sections 289a (1) and 315a (1) of the Handelsgesetzbuch (HGB, German Commercial Code), Deutsche Börse AG hereby makes the following disclosures as at 31 December 2018:

The share capital of Deutsche Börse AG amounted to €190.0 million on the above-mentioned reporting date and was composed of 190 million no-par value registered shares. There are no other classes of shares besides these ordinary shares.

The share capital has been contingently increased by up to €19.3 million by issuing up to 19.3 million no-par value registered shares (contingent capital 2014). The contingent capital increase will be implemented only to the extent that holders of convertible bonds or warrants attaching to bonds with warrants issued by the company or a Group company in the period until 14 May 2019 on the basis of the authorisation granted to the Executive Board in accordance with the resolution of the Annual General Meeting on 15 May 2014 on item 5 (a) of the agenda exercise their conversion or option rights, that they meet their conversion or option obligations, or that shares are tendered, and no other means are used to settle such rights or obligations. More details can be found in Article 4 (7) of the Articles of Association of Deutsche Börse AG.

The Executive Board is only aware of limitations to voting rights that result from the Aktiengesetz (AktG, German Stock Corporation Act), according to which voting rights arising from shares affected by section 136 of the AktG may not be exercised. Furthermore, shares held by Deutsche Börse AG as treasury shares are exempted from the exercise of any rights according to section 71b of the AktG.

Under the Wertpapierhandelsgesetz (WpHG, German Securities Trading Act), any investor whose shareholding reaches, exceeds or falls below specified voting right thresholds as a result of purchase, sale or any other transaction is required to notify the company and the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin, German Federal Financial Supervisory Authority). The lowest threshold for this disclosure requirement is 3 per cent. Deutsche Börse AG is not aware of any direct or indirect equity interests in its capital exceeding 10 per cent of the voting rights.

There are no shares with special rights granting the holder supervisory powers.

Employees holding shares in Deutsche Börse AG exercise their rights in the same way as other shareholders in accordance with the statutory provisions and the Articles of Association.

Members of the Executive Board are appointed and dismissed in accordance with sections 84 and 85 of the AktG and with Article 6 of the Articles of Association of Deutsche Börse AG. Amendments to the Articles of Association of Deutsche Börse AG are adopted by resolution of the Annual General Meeting in accordance with section 119 (1) No. 5 of the AktG. Under Article 12 (4) of the Articles of Association of Deutsche Börse AG, the Supervisory Board has the power to make changes to the Articles of Association that relate to the wording only. In accordance with Article 18 (1) of the Articles of Association of Deutsche Börse AG, resolutions of the Annual General Meeting are passed by a simple majority of the votes cast, unless otherwise mandated by the AktG. Insofar as the AktG additionally prescribes a majority of the share capital represented at the time of a resolution, a simple majority of the share capital represented is sufficient where this is legally permissible.

Subject to the approval of the Supervisory Board, the Executive Board is authorised to increase the share capital by up to a total of €13.3 million on one or more occasions in the period up to 10 May 2021 by issuing new no-par value registered shares in exchange for cash and/or non-cash contributions (authorised capital I). Shareholders must be granted pre-emptive rights. However, subject to the approval of the Supervisory Board, the Executive Board may exclude shareholders' pre-emptive rights with respect to fractional amounts. However, according to the authorisation, the Executive Board may only exclude shareholders' pre-emptive rights if the total number of shares that are issued during the term of the authorisation and that exclude shareholders' pre-emptive rights does not exceed 20 per cent of the share capital. Full authorisation, and particularly the conditions under which shareholders' pre-emptive rights can be excluded, is derived from Article 4 (3) of the Articles of Association of Deutsche Börse AG.

The Executive Board is also authorised to increase the share capital by up to a total of €19.3 million on one or more occasions in the period up to 12 May 2020, subject to the approval of the Supervisory Board, by issuing new no-par value registered shares against cash and/or non-cash contributions (authorised capital II). Shareholders must be granted pre-emptive rights, which the Executive Board can disapply in certain cases, subject to the approval of the Supervisory Board in each case. The Executive Board is authorised to exclude shareholders' pre-emptive rights: (i) in the case of cash capital increases, provided that the issue price of the new shares is not significantly lower than the prevailing exchange price, and the total number of shares issued under exclusion of shareholders' pre-emptive rights does not exceed 10 per cent of the share capital; (ii) in the case of physical capital increases in exchange for non-cash contributions for the purpose of acquiring companies, parts of companies, interests in companies, or other assets; or (iii) with respect to fractional amounts. However, according to the authorisation, the Executive Board may only exclude shareholders' pre-emptive rights if the total number of shares that are issued during the term of authorisation and that exclude shareholders' pre-emptive rights does not exceed 20 per cent of the share capital. The full authorisation, and particularly the conditions under which shareholders' pre-emptive rights can be disapplied, is derived from Article 4 (4) of the Articles of Association of Deutsche Börse AG.

In addition, the Executive Board is authorised to increase the share capital by up to a total of €38.6 million on one or more occasions in the period up to 12 May 2020, subject to the approval of the Supervisory Board, by issuing new no-par value registered shares in exchange for cash contributions (authorised capital III). Shareholders must be granted pre-emptive rights, which the Executive Board can exclude, subject to the approval of the Supervisory Board, only for fractional amounts. However, according to the authorisation, the Executive Board may only exclude shareholders' pre-emptive rights if the total number of shares that are issued during the term of authorisation and that exclude shareholders' pre-emptive rights does not exceed 20 per cent of the share capital. The exact content of this authorisation is derived from Article 4 (5) of the Articles of Association of Deutsche Börse AG.

Furthermore, the Executive Board is authorised to increase the share capital by up to a total of €6.0 million on one or more occasions in the period up to 16 May 2022, subject to the approval of the Supervisory Board, by issuing new no-par value registered shares against cash and/or non-cash contributions (authorised capital IV). Shareholders must be granted pre-emptive rights unless the Executive Board makes use of the authorisation granted to it to disapply such rights, subject to the approval of the Supervisory Board. The Executive Board is authorised to disapply shareholders' pre-emptive rights for fractional amounts with the approval of the Supervisory Board. However, according to the authorisation, the Executive Board may only exclude shareholders' pre-emptive rights if the total number of shares that are issued during the term of the authorisation and that exclude shareholders' pre-emptive rights does not exceed 20 per cent of the share capital. Full authorisation is derived from Article 4 (6) of the Articles of Association of Deutsche Börse AG.

The Executive Board is authorised to acquire treasury shares amounting to up to 10 per cent of the share capital. However, the acquired shares, together with any treasury shares acquired for other reasons that are held by the company or attributed to it in accordance with sections 71a ff. of the AktG, may at no time exceed 10 per cent of the company's share capital. The authorisation to acquire treasury shares is valid until 16 May 2019 and may be exercised by the company in full or in part on one or more occasions. However, it may also be exercised by dependent companies, by companies in which Deutsche Börse AG holds a majority interest or by third parties on its or their behalf. The Executive Board may elect to acquire the shares (1) on the stock exchange, (2) via a public tender offer addressed to all shareholders or via a public request for offers of sale addressed to the company's shareholders, (3) by issuing tender rights to shareholders or (4) using derivatives (put options, call options, forward purchases or a combination of put options, call options and forward purchases). The full and exact wording of the authorisation to acquire treasury shares, and particularly the permissible uses to which the shares may be put, can be found in items 5 and 6 of the agenda for the Annual General Meeting held on 17 May 2017.

The following material agreements of the company are subject to a change of control following a takeover bid:

- On 28 March 2017, Deutsche Börse AG and its subsidiary Clearstream Banking S.A. entered into a multicurrency revolving facility agreement with a banking syndicate for a working capital credit totalling up to €750 million. If there is a change of control, the credit relationship between Deutsche Börse AG and the lenders can be reviewed in negotiations within a period of no more than 60 days. In this process, each lender has the right, at its own discretion, to terminate its credit commitment and demand partial or full repayment of the amounts owing to it. A change of control occurs if Deutsche Börse AG no longer directly or indirectly holds the majority of Clearstream Banking S.A. or if a person or a group of persons acting in concert acquires more than 50 per cent of the voting shares of Deutsche Börse AG.
- Under the terms of Deutsche Börse AG's €600.0 million fixed-rate bond issue 2015/2041 (hybrid bond), Deutsche Börse AG has a termination right in the event of a change of control which, if exercised, entitles Deutsche Börse AG to redeem the bonds at par, plus accrued interest. If Deutsche Börse AG does not exercise this termination right, the affected bonds' coupon will increase by 5 percentage points. A change of control occurs if a person or a group of persons acting in concert, or third parties acting on their behalf, has or have acquired more than 50 per cent of the shares of Deutsche Börse AG or the number of Deutsche Börse AG shares required to exercise more than 50 per cent of the voting rights at Annual General Meetings of Deutsche Börse AG. In addition, the relevant bond terms require that the change of control must adversely affect the long-term rating given to Deutsche Börse AG by Moody's Investors Services, Inc., S&P Global Ratings or Fitch Ratings Limited. Further details can be found in the applicable bond terms.
- The terms of the €500.0 million fixed-rate bonds 2015/2025, the €600.0 million fixed-rate bonds 2018/2028, and the €600.0 million fixed-rate bonds 2012/2022, which were all issued by Deutsche Börse AG, all provide Deutsche Börse AG with a termination right in the event of a change of control. If these cancellation rights are exercised, the bonds are repayable at par plus any accrued interest. A change of control occurs if a person or a group of persons acting in concert, or third parties acting on their behalf, has or have acquired more than 50 per cent of the shares of Deutsche Börse AG or the number of Deutsche Börse AG shares required to exercise more than 50 per cent of the voting rights at Annual General Meetings of Deutsche Börse AG. In addition, the respective sets of bond terms require that the change of control must adversely affect the rating given to one of the preferential unsecured debt instruments of Deutsche Börse AG by Moody's Investors Services, Inc., S&P Global Ratings or Fitch Ratings Limited. Further details can be found in the applicable bond terms.
- Under certain conditions, members of Deutsche Börse AG's Executive Board have a special right to terminate their contracts of service in the event of a change of control. According to the agreements made with all Executive Board members, a change of control occurs if (i) a shareholder or third party discloses possession of more than 50 per cent of the voting rights in Deutsche Börse AG in accordance with sections 33 and 34 of the WpHG (sections 21 and 22 of the WpHG [previous version]), (ii) an intercompany agreement in accordance with section 291 of the AktG is entered into with Deutsche Börse AG as a dependent company, or Deutsche Börse AG is absorbed in accordance with section 319 of the AktG or (iii) Deutsche Börse AG is merged in accordance with section 2 of the Umwandlungsgesetz (UmwG, German Reorganisation and Transformation Act).

Moreover, agreements for compensation in the case of a change of control have been entered into with the members of the Executive Board. A description of these agreements, which are in line with customary national and international practice, can also be found in the remuneration report.

## Deutsche Börse AG shares

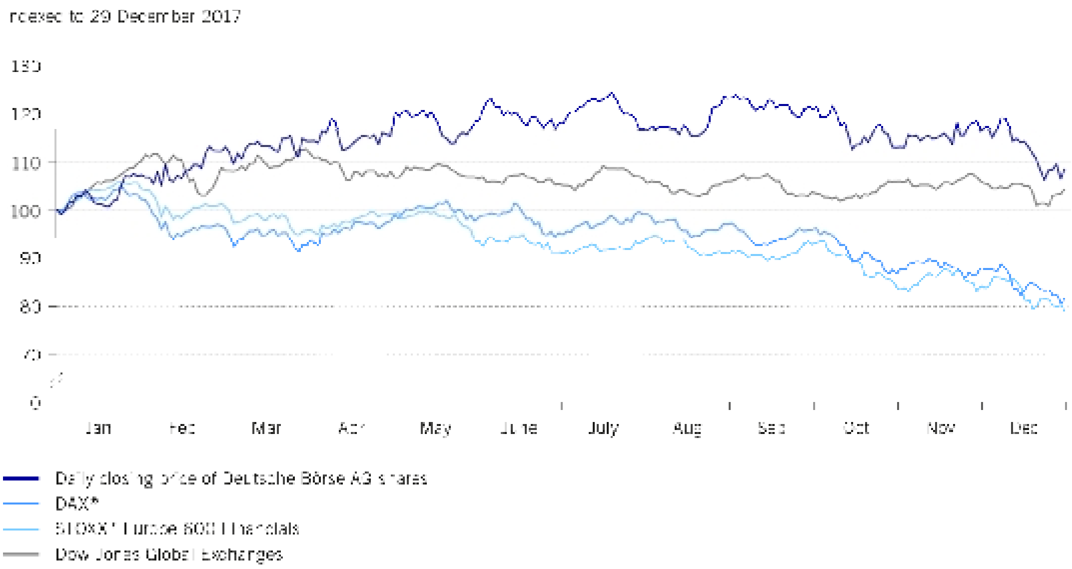
The average annual return since Deutsche Börse AG's initial public offering in 2001 has been about 14 per cent. Thus, Deutsche Börse AG shares have proven to be an attractive long-term investment. They closed financial year 2018 with a strong increase of 8 per cent – better than the performance of the Dow Jones Global Exchanges Index, which tracks other exchange organisations and rose by 4 per cent during 2018. Deutsche Börse AG shares significantly outperformed the DAX® blue-chip index (price index: minus 21 per cent) as well as the STOXX® Europe 600 Financials Return (minus 21 per cent) (see the "Share price development of Deutsche Börse AG and benchmark indices in 2018" chart).

### Deutsche Börse AG shares: key figures

| | | 2018 | 2017 |
|---|---|---|---|
| Earnings per share (basic)[1] | € | 5.42 | 4.59 |
| Dividend per share | € | 2.70[2] | 2.45 |
| Dividend distribution ratio[1] | % | 49 | 53 |
| Dividend yield[3] | % | 2.4 | 2.7 |
| Opening price (as at 1 Jan)[4] | € | 96.80 | 77.54 |
| High[5] | € | 121.15 | 100.25 |
| Low[5] | € | 95.30 | 74.27 |
| Closing price (as at 31 Dec) | € | 104.95 | 96.80 |
| Average daily trading volume on trading venue Xetra® | m shares | 0.6 | 0.5 |
| Number of shares (as at 31 Dec) | m | 190.0 | 193.0 |
| thereof outstanding (as at 31 Dec) | m | 183.3 | 186.6 |
| Free float (as at 31 Dec) | % | 100 | 100 |
| Price-earnings ratio[3] | | 20.5 | 19.9 |
| Market capitalisation (as at 31 Dec) | €bn | 19.2 | 18.1 |
| Average annual return since IPO in 2001 | % | 13.8 | 15.0 |
| Attendance of share capital at the Annual General Meeting | % | 71.1 | 73.7 |
| Share of investors from Germany/UK/USA/other countries | % | 20/26/33/21 | 18/26/34/22 |
| Institutional investors | % | 94 | 93 |
| Number of shareholders | | ca. 52,000 | ca. 50,000 |
| Analyst recommendations buy/hold/sell (as at 31 Dec) | % | 37/47/16 | 43/52/5 |
| Average target price set by analysts at year-end | € | 119.75 | 98.00 |

1) Adjusted for exceptional effects
2) For financial year 2018, proposal to the Annual General Meeting 2019
3) Based on the volume-weighted average of the daily closing prices
4) Closing price on preceding trading day
5) Intraday price

Share price development of Deutsche Börse AG and benchmark indices in 2018




## Report on economic position

### Macroeconomic and sector-specific environment

Macroeconomic conditions had, and continue to have, a significant impact on trading activity on the markets. For Deutsche Börse Group, the macroeconomic environment during the year under review was rather complex; while some factors had a stimulating effect on business, other factors unsettled market participants, burdening their business activity:

- The robust global economic situation, with output growth in the economies relevant to Deutsche Börse Group (Central Europe, USA) during the year under review.
- The European Central Bank's (ECB) persistent low interest rate policy, with deposit rates at minus 0.4 per cent; however, the ECB reduced the high levels of liquidity provided during the course of the year, and ended the bond-buying programme that is part of the central bank's quantitative easing (QE) policy at the end of 2018.
- The turnaround in the US Federal Reserve's (Fed) interest rate policy continued in the year under review, through interest rate increases of 25 basis points each in March, June, September and December.
- The higher level of stable volatility on equity markets – as measured by the VDAX® index – as one of the key drivers of activity on the cash and derivatives markets.
- The stable economic situation in the euro area at the beginning of the year, albeit with an increasingly deteriorating economic outlook during the third and fourth quarter of 2018 – associated with uncertainty regarding the UK's exit from the EU and its future impact on markets.
- The trade dispute between the US and the EU, China, and other major trading partners, as well as the trade tariffs imposed on commodity and goods imports by the respective parties, fuelling concerns over a global trade war.

- Continued unstable political conditions in some parts of Eastern Europe and recurring flashpoints in the Arab world and their impact on the Western world
- Regulatory projects and the resulting stricter requirements for capital market participants (see the “Regulatory environment” section)

Against this background, growth in the economies of industrialised nations in 2018 remained all about the same compared with the previous year, as estimated by the International Monetary Fund (IMF; 2018: 2.3 per cent; 2017: 2.4 per cent). Global economic growth was 3.7 per cent in 2018 (2017: real growth rate of 3.8 per cent).

While the upswing in Germany continued, initial estimates for 2018 indicate that German gross domestic product (GDP) significantly underperformed the previous year’s levels – despite the slowdown in growth from mid-2018 onwards. The IMF’s January 2019 estimates put growth in German economic output at 1.5 per cent for 2018 (2017: increase in real terms of 2.5 per cent).

Economic performance throughout the euro area also slightly weakened in 2018. While no country experienced a recession in 2018, economic growth in some countries of the European Economic Area slowed, particularly in Germany, France and Italy.

The IMF expects US economic output to post a 2.9 per cent increase for 2018, compared to a 2.2 per cent increase the year before. Given further improvements on the labour market and ongoing high economic growth expectations for 2019, the US Federal Reserve continued to raise its key interest rate in 2018 in four steps to a range between 2.25 and 2.50 per cent.

In the past year, trading on the European capital markets benefited from economic growth in Europe and the US, the major political uncertainty factors, and the continued low interest rate policy of the ECB. The Group saw material increases to trading volumes in equities, equity index derivatives and interest rate derivatives, resulting in overall Eurex trading volumes being significantly above the prior year’s level.

### Development of trading activity on selected European cash markets

| | 2018<br>€m | Change vs 2017<br>% |
|---|---|---|
| **Deutsche Börse Group** | **1,719.6** | **17** |
| London Stock Exchange[1] (£) | 1,456.7 | 8 |
| Euronext[2] | 2,067.9 | 6 |
| Borsa Italiana[1] | 753.2 | 1 |
| Bolsas y Mercados Españoles[1] | 587.5 | – 10 |

1) Part of London Stock Exchange Group
2) Trading volume in electronic trading (single-counted)
Source: Exchanges listed

Development of contracts traded on selected derivatives markets

| | 2018<br>m contracts | Change vs 2017<br>% |
|---|---|---|
| National Stock Exchange of India | 3,790.1 | 54 |
| CME Group | 4,844.9 | 18 |
| **Deutsche Börse Group – Eurex®** | **1,951.8** | **16** |
| Intercontinental Exchange | 2,474.2 | 16 |
| Moscow Exchange | 1,500.4 | –5 |
| Shanghai Futures Exchange | 1,201.9 | –12 |

Source: Exchanges listed

## Regulatory environment

Ten years on from the financial crisis, global financial markets are even more stable than before – not least due to the fact that regulation of post-crisis financial markets has tightened considerably. The G20 countries have resolved measures focusing on a regulated financial markets infrastructure, such as the one Deutsche Börse Group has operated for many years. To protect the transparency, safety and stability of the financial markets, established rules and regulations, supervisory structures and rules of conduct must now be enforced. Market participants, regulators and supervisory authorities all agree that another financial markets crisis – such as the one seen in the years 2007/2008 – must be avoided and that there must be no further rescue of banks using public-sector funds.

What is important now is to continue developing individual regulatory dossiers, and create a stable and competitive market within the European Union (EU). Especially in 2019, the year when elections to the European Parliament will take place, Europe is facing various challenges, all of which affect the financial markets more or less directly: Brexit, populist movements (which are increasingly nationalist-minded across Europe), the threat of excessive sovereign debt, cyber risks and deregulation are just a few examples. Financial markets are global markets. This is why joint efforts are required to establish global standards – which must be consistently implemented. Our goal must be to create markets that are open and secure; the EU's stability and competitiveness must be ensured, especially in the wake of Brexit.

### Financial markets infrastructure regulation

#### Regulation of markets in financial instruments (MiFID II, MiFIR)

MiFID II and MiFIR have fundamentally transformed the European financial market by expanding transparency provisions, strengthening the stability and integrity of its infrastructure, revising the market's microstructure and improving the quality and availability of market data.

Deutsche Börse Group welcomes the current political efforts to monitor market adjustments to the new rules, with a readiness to close any loopholes that might still exist. This is the only way to ensure transparent action by as many market participants as possible, thus contributing to fair price determination as well as fair competition.

In connection with Brexit, many threshold values which are essential elements of MiFID II (and without which obligations concerning transparency and trading venue obligations no longer work as intended) will need to be recalibrated, given that the biggest financial centre in Europe will then be outside the EU-27. The United Kingdom will lose its access rights to the EU and will henceforth have third-country status. Until new rules on market access for third-country companies take effect, transitional rules are needed to ensure that existing business relationships with UK companies can continue and that these companies can continue to transact on trading venues within the EU.

#### EMIR: implementation and review

The European Market Infrastructure Regulation (EMIR), which entered into force in 2012, is the most significant regulation for central counterparties. The purpose of the proposals for a revision of the regulation, published in the summer of 2017 (EMIR Review), was to enhance efficiency and to ensure the post-Brexit safety and stability of financial markets. For example, the proposals provide for adjustments to reporting and aim to facilitate access to centralised clearing for smaller market participants. Furthermore, the revision of supervisory structures for central counterparties (CCPs) inside and outside the EU is also an important issue. Deutsche Börse Group welcomes the review: it perceives opportunities for its business and offers market-oriented products and services to its clients in this respect.

#### Recovery and resolution regulation for central counterparties

Following the European Market Infrastructure Regulation (EMIR), developing recovery and resolution plans for CCPs is the next logical legislative step for making CCPs even more secure and stable. A key aspect of regulation is to create sound incentive structures – on a European as well as a global level – in order to ensure that the interests of the stakeholders involved are aligned. The finalisation of the regulation is not expected before the fourth quarter of 2019.

#### Central Securities Depository Regulation (CSDR)

With the Central Securities Depositories Regulation (CSDR), a uniform European regulatory framework for central securities depositories (CSDs) was established for the first time in September 2014. Official Regulatory Technical Standards (RTS) were published between March 2017 and May 2018. The RTS on settlement discipline (which will come into force in September 2020) will be the final element of this exercise. The CSDR will harmonise the securities settlement systems and supervisory rules for CSDs throughout Europe. This will strengthen Clearstream's business model – even more so because the provision of integrated banking services will still be permitted. Deutsche Börse Group will support its clients' compliance with the new requirements through existing and extended service offers.

#### Regulation on benchmarks and indices

The regulation on indices used as benchmarks in financial instruments and financial contracts (the Benchmark Regulation) entered into force on 30 June 2016; the final application deadline was 1 January 2018. Accordingly, benchmark administrators from EU and non-EU countries will have to be admitted or recognised by 1 January 2020. The Benchmark Regulation largely follows the global principles for financial benchmarks of the International Organization of Securities Commissions (IOSCO). To prevent the manipulation of relevant reference interest rates, the G20 countries also instructed the Financial Stability Board to review these reference rates. The two reference interest rates which are relevant for the euro are the Euro Overnight Index Average (EONIA) and the Euro Interbank Offered Rate (Euribor). In their current form, neither of the two complies with the requirements of the Benchmark Regulation. While the benchmark administrator plans to adjust Euribor accordingly, the euro short-term rate (ESTER) was chosen as a replacement for EONIA in the course of a market consultation exercise. The ECB plans to make ESTER available as of October 2019. An extension of the transition phase of the Benchmark Regulation for critical benchmarks until the end of 2021 is currently in discussion.

Deutsche Börse Group, which successfully implemented the IOSCO principles in 2014 for its DAX® indices and the indices of its subsidiary STOXX Ltd., welcomes the agreement reached between the European Parliament and the European Council. The specific impact of this EU regulation on the Group's business activities depends upon the measures to be used for implementation – which are still to be laid out in the form of delegated acts and technical standards by the European Commission and the European Securities and Markets Authority (ESMA).

### Capital Markets Union

The European Commission has placed the focus of its Capital Markets Union on growth and industrial policy. Its main goals are the sustainable promotion of growth and job creation and the development of a diversified financial system where bank financing is supplemented by highly developed capital markets. A successful Capital Markets Union is more important than ever when facing the challenges ahead (including the financing of digitalisation, investing in growth companies, furthering an equity culture, and retirement provisions) – especially given that the EU has fallen behind in global competition with respect to numerous metrics. Success in the creation of integrated, pan-European capital markets would free up undeployed capital throughout Europe, as savers would be given a greater choice of investments, while businesses would benefit from enhanced financing options. The European Commission published its action plans on fintech and sustainable finance in March 2018.

The Capital Markets Union affects Deutsche Börse Group's entire value chain. Thus, the Group has actively supported the project from the outset, seeking active involvement in the political debate and contributing to the creation of safer, integrated EU-27 capital markets.

### Brexit

The decision by the United Kingdom to exit the European Union has far-reaching implications for financial markets and their participants.

Deutsche Börse Group's paramount objective is to ensure secure and competitive markets. The Group therefore maintains close and continuous contact with its clients, regulatory authorities and associations, in order to analyse the impact of Brexit and recognise the needs of all its stakeholders. Moreover, the Group is developing solutions to support clients, both during the negotiation process and after Brexit, and to mitigate the related effects to the greatest possible extent. At the same time, the Group is making its own preparations for Brexit: the Group is firmly convinced that it will continue to be able to create value for all stakeholders following Brexit – through its existing services along the entire exchange trading value chain (comprising pre-trading, trade execution, and post-trading), as well as additional offers such as the Eurex Clearing Partnership Program introduced in January 2018.

### Revision of European supervisory structures (ESAs review)

Based on insights gained from the financial crisis of 2007/2008, the EU is determined to establish more efficient and more strongly integrated supervision in Europe. The introduction of the European System of Financial Supervision (ESFS) in 2010– comprising the three European Supervisory Authorities (ESAs) and the European Systemic Risk Board (ESRB) – established a new supervisory structure at a European level. The European Commission reviews the effectiveness of this supervisory structure every three years.

Overview of regulatory initiatives and their impact on Deutsche Börse Group's business areas

| | Cash market/ Xetra | Eurex | EEX | 360T | Eurex Clearing | Clear-stream | IFS | GSF | STOXX | Data | Status as at 31 December 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Financial market infrastructure** | | | | | | | | | | | |
| MiFID II, MiFIR | X | X | X | X | X | | | | X | X | Application since 3 January 2018 |
| EMIR | | | X | X | X | X | | X | | | Became effective in 2012; review in 2018 |
| Recovery and resolution plans for CCPs | | | X | | X | | | | | | Draft legislation in the legislative process |
| CSDR | X | | | | X | X | | | | | Became effective in 2014; RTS on settlement discipline published in May 2018 |
| Regulation on benchmarks and indices | | X | X | | X | | | | X | X | Became effective on 30 June 2016; application since 1 January 2018 |
| Capital Markets Union | X | X | X | X | X | X | X | X | X | X | New action plans in 2018; implementation by 2019 |
| Review of European supervisory structures (ESAs review) | (X) | (X) | (X) | (X) | X | (X) | | | X | X | Draft legislation in the legislative process |
| **Investment firms** | | | | | | | | | | | |
| Basel III | | | X | | X | X | | | | | Finalisation at the end of 2017, with subsequent implement-ation throughout the EU |
| CRD V, CRR II | | | X | | X | X | | | | | Finalisation expected by Q1/2019; implementation expected at the beginning of 2021 |
| CRD VI, CRR III | | | X | | X | X | | | | | Publication of the EU Commis-sion's proposal expected at the beginning of 2020 |
| IFD/IFR | | X | | X | | X | | X | | | Draft legislation in the legislative process |

(X) = indirect effects of ESAs review

As part of this regular review, the European Commission published a draft bill in September 2017. In the wake of Brexit, the Commission has assigned top priority to aligning European supervisory structures to the new political environment, strengthening regulatory integration for certain cross-border financial services within the 27 EU member states.

The work of the ESAs – and especially of the ESMA – has an impact on parts of the value chain of Deutsche Börse Group. At present, the EU's proposal for a revision of the European supervisory structures is still in the legislative process. Efficient supervision with clear responsibilities and decision-making processes remains paramount – especially in conjunction with the described challenges such as Brexit. The revision of European supervisory structures should preserve an environment that promotes growth, while carefully adjusting the existing regulatory regime (where necessary) in order to safeguard financial stability, legal certainty, and the operational viability of supervised enterprises.

## Rules for banks and investment firms

### Basel III

As a consequence of the 2007/2008 global financial crisis, the Basel Committee on Banking Supervision (BCBS) thoroughly revised its existing Basel II framework for banks, on the basis of corresponding G20 agreements. Further amendments were published on top of the first cornerstones adopted in 2011; the revised Basel III framework was finally (largely) concluded on 7 December 2017. The following changes have already been implemented:

- Stricter definition of the term “capital”
- Increased capital levels
- Revised market risk framework
- Introduction of a leverage ratio
- Introduction of international rules to contain risk concentration (large exposure rules)
- Introduction of liquidity requirements

With the measures adopted in December 2017, revised rules – largely governing capital backing of credit and operational risk – will gradually come into effect between now and 1 January 2022. On top of the credit risk framework, both the standardised approach and the model-based approach have been substantially revised, and operational risk regulations have been restricted to a modified standardised approach. In addition, a floor was determined regarding capital requirements for credit risk, where these are calculated using internal models: the so-called output floor was set at 72.5 per cent of capital requirements under the standardised approach.

Moreover, the BCBS has submitted initial proposals as to how exposures to public-sector entities should be treated in the future. The BCBS will continue to develop these proposals, supplementing the Basel III regulatory framework, and may implement them at a later stage if applicable.

In addition, the Basel Committee has published amended standards for the minimum capital requirements for market risk in January 2018. These include a fundamental revision of the rules for the trading book, in particular, the allocation of financial instruments to the trading or banking book, depending on the type of instrument and the underlying trading intention.

### CRD V/CRR II

Accounting for ongoing changes to the Basel III framework and to other elements of bank regulation, the European Commission proposed amendments to the Capital Requirements Directive (CRD IV) and Capital Requirements Regulation (CRR) in November 2016. These proposals concern the minimum requirements for equity and eligible liabilities (MREL) as well as the total loss-absorbing capacity (TLAC); they also involve amendments to the EU Bank Recovery and Resolution Directive (BRRD) and the related regulation.

Besides the changes to MREL and TLAC, the European Commission's proposals concern the following items in particular:

- Introduction of a binding leverage ratio of 3 per cent
- Introduction of a net stable funding ratio (NSFR)
- Revision of the market risk framework

At the end of November 2018, the EU Commission, the EU Parliament and the EU Council reached a general agreement on the drafts of CRD V/CRR II. Deutsche Börse Group expects the final legal texts to take effect during the second quarter of 2019, while the respective requirements will need to be applied from mid-2021.

Deutsche Börse Group actively and continuously contributes to discussions on the modification of banking regulations. In this context, the Group emphasises the impact on financial infrastructure providers with a (restricted) banking licence, as well as the necessity of identifying specific rules for regulated entities to ensure that specific bank requirements do not negatively impact the stability of the financial markets. Moreover, the Group focuses on the capitalisation of its regulated entities, intervening where required in order to safeguard adequate risk coverage.

Due to adjustments to CRD V/CRR II by the Investment Firm Review, only investment firms of systemic relevance will in future be subject to the provisions of banking regulation. Small and medium-sized investment firms shall therefore be covered by the newly developed rules for European investment firms (see explanations below).

**CRD VI/CRR III**

CRD IV/CRR entered into force on 1 January 2014, implementing the first elements of Basel III. In general, the first Basel III framework provided for transitional provisions that were in force until 1 January 2019. The measures to finalise the Basel III regulatory framework, as resolved by the BCBS in December 2017, and presumably the subsequently resolved regulations on market risks and exposures to public-sector entities, will be incorporated into a new CRD VI/CRR III package. The corresponding draft law of the EU Commission is expected to be published at the beginning of 2020.

**Rules for European investment firms (Investment Firm Review, IFR)**

The purpose of the European Commission's Investment Firm Review is to develop new regulatory rules for European investment firms. The regulatory framework is set to be proportionate, with capital requirements in line with each firm's size, risk exposure, and type of business model.

Deutsche Börse Group welcomes the approach of taking these market participants' contributions to liquidity, price discovery and transparency into consideration. This new regulatory framework will also cover the Group's subsidiaries Eurex GmbH and 360 Treasury Systems AG.

**Transparency of securities financing transactions**

The Securities Financing Transactions Regulation (SFTR) was published in the EU Official Journal on 23 December 2015. It provides for reporting requirements concerning securities lending and repo transactions to so-called trade repositories. Furthermore, it sets out requirements regarding the re-pledging of collateral and the reporting obligations of investment fund providers that are active in securities lending. The introduction of comprehensive reporting duties for securities lending transactions has different effects upon the Clearstream subgroup, Eurex Clearing AG and REGIS-TR S.A., with increased efforts – and hence, higher costs – expected for proprietary securities financing transactions.

Yet the obligation to file reports to trade repositories also holds business potential for REGIS-TR. ESMA drew up corresponding implementation standards and submitted them to the European Commission on 31 March 2017.

More information on regulatory issues is available on Deutsche Börse Group's website at www.deutsche-boerse.com/regulation.

## Business developments

Given the overall framework conditions outlined at the beginning of the economic report, the situation on the capital markets for financial services providers such as Deutsche Börse Group in the reporting period improved considerably on the previous year. In early 2018, the economic situation was generally viewed as positive. With the start of the second quarter, however, which brought the trade dispute between the US and the EU, China and other important trading partners, as well as tariffs on commodities and goods, this picture turned increasingly gloomy. As concerns about a global trade war deepened, expectations as to the economy in general became dampened – especially expectations for Germany, an economy with a particular dependence on global trade. Then there was the decision of the US administration to withdraw from the nuclear deal with Iran, which also drew macroeconomic consequences. Oil prices rose to the highest level since 2014, dampening the economy further. Volatility – one of the main drivers of trading activity on the cash and derivatives markets – was more pronounced on an average annual level than in 2017, as measured by the VDAX volatility index. Until the middle of the year the benchmark DAX and STOXX® indices were rising, only to then start falling, with the decline gaining speed towards the end of the fourth quarter. In sum, this led to a sharp increase in trading volumes at the cash and derivatives trading venues of Deutsche Börse Group. At the same time, the interest rate policy pursued by the central banks invigorated the market environment. The European Central Bank initially announced that it would reduce its bond-buying programme, known as quantitative easing (QE), during the last three months of 2018 to €15 billion per month. The programme was then discontinued altogether at the end of the year. The US Federal Reserve (Fed) tightened its monetary policy once more, increasing the key interest rate in four steps of 0.25 percentage points each, to reach 2.25 to 2.50 per cent. This reinforced the business in interest rate derivatives at Eurex, and net interest income from banking business posted a marked increase as well. The Group's structural growth areas continued to develop favourably, the drivers being the following segments: Eurex (financial derivatives) including over-the-counter (OTC) clearing, EEX (commodities), 360T (foreign exchange), IFS (investment fund services) and STOXX (index business).

### Comparability of figures

#### Detailed segment reporting

Deutsche Börse Group introduced a new internal segment management starting with the first quarter of 2018. A more detailed classification of reporting segments helps to further enhance transparency, highlighting growth areas. Further information can be found in the "Overview of Deutsche Börse Group – Reporting segments" section.

#### Changes in the basis of consolidation

Deutsche Börse Group acquired the GTX Electronic Communications Network (ECN) business from US-based GAIN Capital Holdings, Inc. as per 29 June 2018. As part of the transaction, 360 Treasury Systems AG, a wholly-owned subsidiary of Deutsche Börse AG, established its own subsidiary, 360TGTX, Inc., which acted as the purchaser in this transaction. 360TGTX, Inc. has been included in the consolidated financial report of Deutsche Börse AG since 29 June 2018. Revenue and costs associated with 360TGTX have been recognised in the 360T (FX) segment.

With effect from 1 October 2018, Clearstream International S.A. acquired 100 percent of the shares in Swisscanto Funds Center Ltd., London, UK. Since then, the company has been included in the consolidated financial report of Deutsche Börse AG. The company was renamed Clearstream Funds Centre Ltd. as at 2 November 2018. With this transaction, Clearstream has expanded its range of services in the realm of investment funds to include additional distribution channels. New services include the administration of sales agreements and data processing: these will help Clearstream's expansion of its global business strategy.

## Results of operations

Deutsche Börse Group looks back on a very successful financial year. Structural drivers of the Group's business were largely positive, and substantially contributed to revenue and profit growth. Trading of power and gas products (commodities), the investment fund services (IFS) business, and clearing of OTC interest rate derivatives, were particular contributors. Structural growth was also evident in the index business at STOXX and in new, innovative derivative products. In addition, cyclical drivers were also mainly intact. Hence, the Group benefited not only from greater equity market volatility but also from a continuously fluctuating interest rate environment. Against this background, the Group posted significant growth in its index derivatives trading. Net interest income from banking business also continued to increase materially, as the US Federal Reserve (Fed) raised its key interest rate four times, to reach a corridor between 2.25 per cent and 2.50 per cent.

Overall, Deutsche Börse Group generated net revenue of €2,779.7 million, up 13 per cent, €9.3 million of which was related to insurance payouts. Adjusted for these, the Group also achieved net revenue growth of 13 per cent in the 2018 financial year; hence, net revenue amounted to €2,770.4 million, of which about 6 percentage points each were due to structural and cyclical factors. Furthermore, to a limited extent, consolidation effects also contributed to higher net revenue.

### Segment key figures (adjusted)

| | Net revenue | | Operating costs | | EBITDA | |
|---|---|---|---|---|---|---|
| | 2018<br>€m | 2017<br>€m | 2018<br>€m | 2017<br>€m | 2018<br>€m | 2017<br>€m |
| Eurex (financial derivatives) | 936.1 | 795.5 | 304.9 | 295.7 | 630.8 | 503.9 |
| EEX (commodities) | 256.6 | 212.2 | 141.2 | 121.0 | 115.2 | 91.2 |
| 360T (foreign exchange) | 78.8 | 66.5 | 45.7 | 36.6 | 33.1 | 29.9 |
| Xetra (cash equities) | 228.6 | 218.3 | 102.7 | 102.9 | 131.6 | 120.6 |
| Clearstream (post-trading) | 718.0 | 667.7 | 277.7 | 269.6 | 440.1 | 398.1 |
| IFS (investment fund services) | 154.3 | 137.6 | 86.8 | 81.9 | 67.5 | 55.7 |
| GSF (collateral management) | 83.1 | 81.6 | 39.5 | 36.0 | 43.1 | 45.6 |
| STOXX (index business) | 144.5 | 127.7 | 44.5 | 42.2 | 100.0 | 85.5 |
| Data | 170.4 | 154.2 | 53.0 | 53.6 | 117.2 | 100.6 |

In the derivatives market, greater and (temporarily) very high volatility was reflected in a material increase of traded volumes in index derivatives, Eurex Exchange's biggest business segment. In addition, traded volumes in interest rate contracts rose once again, largely due to the expectation that the ECB will also change its interest rate policy over the medium term on the one hand, and due to political instability in Europe on the other (particularly with regard to the new Italian government). Overall, the volume of futures and options contracts traded on the Eurex Exchange was up 16 per cent compared to 2017. Aggregate net revenue in the Eurex segment (financial derivatives) was up by 17 per cent year on year.

Deutsche Börse's commodities business, operated by European Energy Exchange and its subsidiaries (EEX group), saw markedly increased volumes in the area of power products trading. This helped EEX to regain market share on the German power derivatives market, after the announced split of the German/Austrian price zone had caused great market uncertainty in the previous year. On a full-year basis, trading in EEX power products thus rose by 19 per cent. Regarding FX trading, operated by Deutsche Börse's subsidiary 360T, it was new customer business that provided the basis for achieving growth in a stagnating market. 360T also benefited from the first-time consolidation of GTX, a US foreign-exchange trading platform, as of the second quarter of 2018.

The cash market showed significant year-on-year increases across all trading platforms. This was attributable, on the one hand, to the extremely robust economic situation in Germany in the first half of the year, which brought the benchmark index DAX to record levels at mid-year. On the other hand, Deutsche Börse gained market share in trading DAX constituents from other trading platforms. In addition, low interest rates make investments in equities and other variable-return securities more attractive compared to fixed income investments. Net revenue increased by 5 per cent.

Net revenue generated by the Clearstream (post-trading) segment increased by 8 per cent. The segment particularly benefited from higher interest rates in the US (significantly higher interest income) and, at the same time, from a rise in the value of cash market securities held in custody.

The Group was able to further expand its investment fund services (IFS) business, primarily by increaseing the value of securities deposited – which in turn was mostly due to new clients IFS acquired for its investment funds services. From October 2018 onwards, IFS also benefited from the acquisition and full consolidation of Swisscanto Funds Centre Ltd., London (SFCL).

Revenue in the GSF (collateral management) segment remained in line with the previous year's levels. The reason was a marginal decrease of average outstanding volumes on the repo market year-on-year, as financial institutions continued to borrow liquidity primarily from the central bank and not from the collateralised money market. A similar trend was visible in securities lending. As volumes reduced disproportionately in products with low margins, revenue remained stable due to the improved product mix.

Deutsche Börse Group's index business (STOXX segment) generated growth, especially in licence fees of exchange-traded funds (ETFs) and exchange licence fees. The data business (Data segment) posted growth with the sale of cash and derivatives markets data, as well as with the services for regulatory reporting requirements introduced at the beginning of the year. As a result of the positive business performance, net revenue climbed materially in both the STOXX and the Data segments (by 13 per cent and 10 per cent, respectively).

Deutsche Börse Group's operating costs comprise staff costs and other operating expenses. Staff costs increased to €824.0 million during the year under review (2017: €650.5 million). This marked jump is largely due to exceptional effects in the amount of €158.2 million (2017: €26.4 million). This amount arose as a result of the programme resolved in 2018 to reduce structural costs (Structural Performance Improvement Programme, SPIP), which aimed at streamlining the management structure and enhancing processes. These exceptional effects are the largest contributor to the higher operating costs reported in the chapters on the individual segments. Adjusted staff costs increased by 7 per cent to €665.8 million (2017: €624.1 million) due to a series of reasons:

- Increased average number of employees during the year under review attributable to the hiring of staff who had previously worked on a freelance basis
- Full consolidation of GTX and Swisscanto
- Higher costs for variable remuneration as a result of the improvement in net profit/loss and share price increase

Other operating expenses relate primarily to the costs of enhancing and operating Deutsche Börse Group's technological infrastructure, including, for example, costs for own IT services and external IT service providers. In addition, other operating expenses include the cost of the office infrastructure at all the Group's locations as well as travel expenses, most of which are incurred in connection with sales activities. Because of the Group's business model and the fact that the company does not normally distribute its products and services to end-customers, advertising and marketing costs account for only a very small portion of the company's operating expenses. Operating costs rose to €516.2 million during the year under review (2017: €481.1 million). The increase of approximately 7 per cent is largely due to exceptional effects in the amount of €86.0 million (2017: €65.7 million). These costs were also mainly a result of implementing the "Roadmap 2020" business strategy, organisational restructuring measures, and litigation costs. Adjusted for exceptional effects, the other operating expenses increased by 4 per cent year on year.

The Group's overall operating costs increased by 18 per cent to €1,340.2 million (2017: €1,131.6 million). Adjusted operating costs increased as planned by 5 per cent to €1,096.0 million (2017: €1,039.5 million).

Deutsche Börse Group's result from strategic investments amounted to €4.2 million (2017: €197.8 million). This significant decrease was due in particular to non-recurring revenue related to the full disposal of the stake in BATS Global Markets, Inc. during the first quarter of 2017, as well as to the disposal of shares in ICE US Holding Company L.P. during the fourth quarter of 2017. Adjusted for this non-recurring revenue, the result from equity investments amounted to €4.2 million (2017: €8.3 million).

Earnings before interest, tax, depreciation and amortisation (EBITDA) dropped by 6 per cent – a development which is mainly attributable to the above-mentioned exceptional effects. On an adjusted basis, EBITDA rose significantly, by 17 per cent. Higher net revenue and disproportionally low growth in operating costs are the reasons for this increase.

The Group reports depreciation, amortisation and impairment losses separately from operating costs: the latter were up by 32 per cent, to €210.5 million (2017: €159.9 million). Operating costs include exceptional effects in the amount of €20.6 million (2017: €2.6 million), mainly due to the €15.9 million extraordinary impairment of the value of a technological infrastructure. Adjusted for these effects, depreciation, amortisation and impairment losses rose by 21 per cent, to €189.9 million (2017: €157.3 million). The marked increase is a result of slightly higher regular depreciation and amortisation as well as impairment charges on software, particularly in the Clearstream, IFS and GSF segments.

## Deutsche Börse Group key performance figures

| | Reported | | | Adjusted | | |
|---|---|---|---|---|---|---|
| | 2018 €m | 2017 €m | Change % | 2018 €m | 2017 €m | Change % |
| Net revenue | 2,779.7 | 2,462.3 | 13 | 2,770.4 | 2,462.3 | 13 |
| Operating costs | 1,340.2 | 1,131.6 | 18 | 1,096.0 | 1,039.5 | 5 |
| EBITDA | 1,443.7 | 1,528.5 | –6 | 1,678.6 | 1,431.1 | 17 |
| Depreciation, amortisation and impairment losses | 210.5 | 159.9 | 32 | 189.9 | 157.3 | 21 |
| | | | | | | |
| Net profit for the period attributable to Deutsche Börse AG shareholders | 824.3 | 874.3 | –6 | 1,002.7 | 857.1 | 17 |
| Earnings per share (basic) in € | 4.46 | 4.68 | –5 | 5.42 | 4.59 | 18 |

The Group’s financial result in the year under review was €–76.4 million (2017: €–79.7 million). Adjusted for exceptional effects, the financial result of the previous year amounted to €–69.7 million. The increase is largely due to provisions for interest rates on potential tax back-payments.

The effective Group tax rate 2018 was 26.3 per cent; adjusted, it was 27.0 per cent, as expected.

The Group’s net profit for the period attributable to Deutsche Börse AG shareholders fell by 6 per cent compared with the previous year, while, on an adjusted basis, it rose significantly by 17 per cent, to €1,002.7 million (2017: €857.1 million).

Non-controlling interests in net profit for the period attributable to Deutsche Börse AG shareholders for the period amounted to €28.2 million (2017: €21.7 million). This comprises mainly earnings attributable to non-controlling shareholders of EEX group.

Based on the weighted average of 184.9 million shares, basic earnings per share amounted to €4.46 (2017: €4.68 for an average of 186.8 million shares outstanding). Adjusted, basic earnings per share rose to €5.42 (2017: €4.59).

Key figures by quarter (adjusted)

| | Q1 | | Q2 | | Q3 | | Q4 | |
|---|---|---|---|---|---|---|---|---|
| | 2018 €m | 2017 €m | 2018 €m | 2017 €m | 2018 €m | 2017 €m | 2018 €m | 2017 €m |
| Net revenue | 691.6 | 623.4 | 687.0 | 623.6 | 651.4 | 576.3 | 740.4 | 639.0 |
| Operating costs | 254.5 | 245.1 | 262.9 | 245.4 | 260.1 | 247.4 | 318.5 | 301.6 |
| EBITDA | 438.1 | 380.2 | 425.5 | 379.5 | 395.1 | 333.1 | 419.9 | 338.3 |
| Depreciation, amortisation and impairment losses | 40.8 | 35.2 | 42.1 | 39.2 | 43.8 | 40.3 | 63.2 | 42.6 |
| | | | | | | | | |
| Net profit for the period attributable to Deutsche Börse AG shareholders | 270.7 | 232.2 | 261.9 | 232.8 | 239.6 | 198.1 | 230.5 | 194.0 |
| Earnings per share (basic) in € | 1.45 | 1.24 | 1.42 | 1.25 | 1.30 | 1.06 | 1.25 | 1.04 |

**Comparison of results of operations with the forecast for 2018**

For the year 2018, Deutsche Börse Group had expected an increase in structural net revenue of at least 5 per cent on the basis of its diverse structural growth initiatives. It had also anticipated continued economic growth, a better cyclical market environment, including higher equity market volatility and a further rise in interest rates in the US. While, all in all, the global economy performed as anticipated, equity market volatility was significantly above the previous year's level on average during the year. In addition, interest rates were hiked four times in the US – in line with market expectations. The conditions described earlier in the "Business developments" section thus partly exceeded the Group's assumptions used in the forecast. Based on its highly diversified business model, Deutsche Börse Group increased net revenue by a total of 13 per cent, of which around 6 per cent each is attributable to structural and cyclical growth drivers. Furthermore, consolidation effects made a small contribution. The structural growth forecast was therefore slightly exceeded. Key drivers of structural growth were the Eurex (financial derivatives), EEX (commodities), IFS (investment fund services), STOXX (index business) and Data segments. Cyclical factors provided support to Deutsche Börse Group in Clearstream's banking business, for trading activities in interest rate derivatives, and especially for trading in equity index derivatives.

Deutsche Börse Group manages operating costs (adjusted for exceptional effects) – relative to the development of net revenue – based on principles designed to ensure the scalability of the Group's business model. Given a 5 per cent increase in adjusted operating costs, the Group achieved this objective.

An increase in structural driven net revenue of at least 5 per cent was forecast, and of operating costs in a corresponding range. Furthermore, the Group expected an increase in net profit for the period attributable to Deutsche Börse AG shareholders of at least 10 per cent.

The company also anticipates extraordinary effects of approximately €80 million in operating costs. These effects mainly relate to the integration of acquired companies but also to costs related to efficiency measures and restructuring as well as to costs in connection with criminal investigations against Clearstream Banking S.A. in the United States. Together with the announcement of the “Roadmap 2020” strategy programme at the end of April 2018, the Group announced that it would reduce its structural costs by around €100 million per year by the end of 2020. The company anticipated additional costs of around €200 million, of which around €150 million were to be incurred in 2018. As a result, the Group expected total exceptional effects of around €230 million for the 2018 financial year. At a total of €244.2 million, the exceptional effects impacting operating costs incurred in the year under review ultimately exceeded expectations, among others, due to the termination of the preliminary proceedings against the former CEO of Deutsche Börse AG, Carsten Kengeter, and against Deutsche Börse AG itself as an interested party. Overall operating costs totalled around €13 million and included fines and legal fees.

Deutsche Börse Group posted a result that was well above its forecast. This was primarily based on the slightly higher-than-expected increase in structural net revenues, additional cyclical tailwinds and the increase in adjusted operating costs, which were incurred with the aim or increasing scalability.

On an adjusted basis, Deutsche Börse Group achieved a 17 per cent increase in net profit for the period attributable to Deutsche Börse AG shareholders. Moreover, the Group achieved a ratio of interest-bearing gross debt to adjusted EBITDA of 1.2 at Group level, significantly below the target value of 1.5 at the maximum. The adjusted tax rate was 27.0 per cent, exactly as planned. In line with projections, the operating cash flow was clearly positive. Investments in property, plant and equipment, as well as intangible assets in the amount of €160.0 million, were slightly lower than forecast. After increasing its target figures, the Group aimed to distribute dividends equivalent to the mean of the projected range of 40 to 60 per cent of (adjusted) net profit for the period attributable to Deutsche Börse AG shareholders. According to the proposal made to the Annual General Meeting, a figure of 49 per cent was reached.

### Comparison of management indicators with the forecast for 2018

| | | Plan 2018 | Actual 2018 |
|---|---|---|---|
| Net revenue from structural growth opportunities (excluding exceptional effects) | % | + >5 | ~6 |
| Net profit for the period attributable to Deutsche Börse AG shareholders (excluding exceptional effects) | % | + >10 | 17 |
| Exceptional effects impacting operating costs | €m | 230.0 | 244.2 |

## Eurex (financial derivatives) segment

### Eurex (financial derivatives) segment: key indicators

| | 2018 | 2017 | Change |
|---|---|---|---|
| FINANCIAL KEY FIGURES | €m | €m | % |
| Net revenue | 936.1 | 796.5 | 18 |
| Equity index derivatives | 466.2 | 389.7 | 20 |
| Interest rate derivatives | 231.9 | 208.1 | 11 |
| Equity derivatives | 43.8 | 36.4 | 20 |
| OTC clearing (incl. net interest income on margins for OTC interest rate swaps) | 25.6 | 10.8 | 137 |
| Margin fees | 50.0 | 35.9 | 39 |
| Other (incl. connectivity, member fees and net interest income on margins for exchange-traded products) | 118.6 | 115.6 | 3 |
| Operating costs | 376.3 | 326.4 | 15 |
| Operating costs (adjusted) | 304.9 | 295.7 | 3 |
| EBITDA | 559.4 | 663.0 | –16 |
| EBITDA (adjusted) | 630.8 | 503.9 | 25 |
| | | | |
| PERFORMANCE INDICATORS | | | |
| Financial derivatives: trading volumes on Eurex Exchange | m contracts | m contracts | % |
| Derivatives[1] | 1,951.8 | 1,675.9 | 16 |
| Equity index derivatives | 949.8 | 818.6 | 16 |
| Interest rate derivatives | 628.5 | 582.1 | 8 |
| Equity derivatives | 372.1 | 275.0 | 35 |
| Financial derivatives: OTC clearing volumes | €bn | €bn | % |
| Notional outstanding | 7,913.9 | 1,930.8 | 310 |
| Notional cleared | 14,747.9 | 1,339.7 | 1,001 |

1) Due to other traded products, such as exchange-traded commodities (ETCs) on precious metals derivatives, the total shown does not equal the sum of the individual figures.

In the Eurex (financial derivatives) segment, Deutsche Börse Group reports on financial derivatives trading and the clearing business at Eurex Exchange. The clearing volume of OTC interest rate swaps, one of the structural growth factors for Deutsche Börse Group, is reported as a separated item within the segment. The performance of the Eurex segment largely depends on the trading activities of institutional investors, as well as proprietary trading by professional market participants.

Half of the segment's net revenue (50 per cent) in the year under review was generated from equity index derivatives. Interest rate derivatives and equity derivatives contributed 25 per cent and 5 per cent, respectively. The rapidly-growing interest rate derivatives clearing business more than doubled its contributed share of net revenue to more than 3 per cent. Handling fees for cash collateral provided by clients earned 5 per cent of net revenue. Furthermore, the Eurex segment generated other revenue (12 per cent), mostly from connectivity and participant fees.

Due to a higher level of volatility in the financial markets compared to the prior year, the Eurex segment saw total trading volume in the reporting year increase by 16 per cent to 1,951.8 million contracts (2017: 1,675.9 million). The strongest growth rates were seen in single-stock and equity index derivatives businesses (35 per cent and 16 per cent, respectively). An increase in hedge transactions stemmed from mounting concerns about unresolved trade disputes, political uncertainty and fears of an economic slowdown.

Interest rate derivatives saw an increase in trading volume of 8 per cent. This was driven, on the one hand, by the Fed's four interest hikes during the course of 2018. On the other hand, the ECB's decision to phase out its bond-buying programme by the end of the year opened up the prospect of a foreseeable end to the euro area's extremely low interest rate environment. Eurex derivatives on Italian BTPs generated a record volume of 50.1 million contracts in 2018. This high volume was achieved amidst the events surrounding the formation of a new government in Italy; after that, the new government's budget proposal caused further market uncertainty.

In December 2018, Eurex Clearing AG performed its first multilateral portfolio compression cycle for OTC interest rate derivatives. By means of a compression, investors can reduce their portfolio's notional value, as trades can be offset within their own portfolio or multilaterally with other market participants. As capitalisation rules and the Basel III Leverage Ratio are based on gross notional values, a compression reduces the capitalisation required for derivatives trading while also mitigating operational and credit risks. Thanks to the tri-party portfolio compression conducted by Eurex Clearing, outstanding volumes in OTC interest rate derivatives were reduced by 16 per cent.

The Eurex Clearing Partnership Program that was announced last year has made progress during 2018. The programme's goal is to create a liquid, EU-27-based alternative for the clearing of interest rate swaps denominated in euros. Up to now, 33 participants from the US, UK, Asia and Continental Europe have joined the programme. Against this backdrop, the clearing volume in interest rate derivatives rose significantly compared to last year. Hence, the outstanding notional volume at the end of December 2018 was significantly above the 2017 year-end.

Since 1 February 2016, Eurex Clearing AG has been registered with the Commodity Futures Trading Commission (CFTC) as a derivatives clearing organisation (DCO) under the Commodity Exchange Act with authorisation to provide clearing services for OTC interest swaps for US-based clearing members. Eurex Clearing has thus also been allowed to clear client business for US-based clearing members since 22 December 2018. Moreover, further expansion during 2019 will be seen in clearing services, access models and the global distribution network of OTC interest rate derivatives.

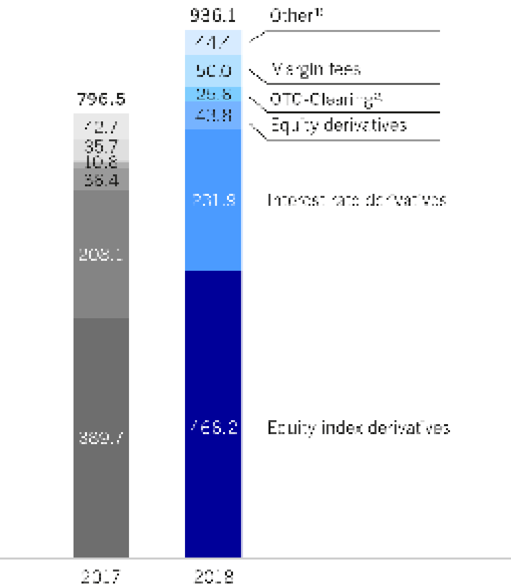
At the end of 2018, Eurex announced that it would extend its Eurex Clearing Partnership Program to also include the repo business, starting in the first quarter of 2019. Besides the clearing of repos for pension funds and asset managers, the programme is aimed, in particular, at expanding the repo business in the interbank market for European sovereign bonds at Eurex.

Net revenue from OTC clearing improved by 137 per cent during the year under review. Both revenue and volume performance were fully in line with expectations.

Overall, net revenue in the Eurex segment increased by 18 per cent in 2018. This development was also helped by the waiver of a temporary reduction in handling fees for cash collateral provided by clients, effective 1 April 2018. Since then, Eurex has reintroduced a handling fee of 20 basis points on cash collateral, which resulted in the corresponding interest income rising sharply compared to the previous year. Relative to net revenue, adjusted operating costs increased below average by 3 per cent. Therefore, adjusted EBITDA rose by 25 per cent.

Net revenue in the Eurex (financial derivatives) segment

€ million




1) Including connectivity and member fees

2) Including net interest income on margins for OTC interest rate swaps

## EEX (commodities) segment

### EEX (commodities) segment: key indicators

| | 2018 | 2017 | Change |
|---|---|---|---|
| FINANCIAL KEY FIGURES | €m | €m | % |
| Net revenue | 256.6 | 212.2 | 21 |
| Power spot | 67.1 | 62.5 | 7 |
| Power derivatives | 82.1 | 59.9 | 37 |
| Gas | 36.6 | 30.8 | 19 |
| Other (incl. connectivity, member fees and admission allowance) | 70.8 | 59.0 | 20 |
| Operating costs | 149.2 | 124.0 | 20 |
| Operating costs (adjusted) | 141.2 | 121.0 | 17 |
| EBITDA | 107.2 | 88.2 | 22 |
| EBITDA (adjusted) | 115.2 | 91.2 | 26 |
| | | | |
| PERFORMANCE INDICATORS | | | |
| Commodities: trading volumes on EEX | TWh | TWh | % |
| Power spot | 576.6 | 543.3 | 6 |
| Power derivatives | 4,385.5 | 3,217.3[1] | 36 |
| Gas | 1,962.9 | 1,981.6 | –1 |

1) Including trading volumes at Nodal Exchange since May 2017

The EEX (commodities) segment comprises Deutsche Börse Group's trading activities on EEX group's platforms, located in Europe, Asia and North America. For participants in more than 600 countries around the world, EEX group offers central market places for energy and commodity products. The product portfolio comprises contracts on energy, metals and environmental products, as well as freight and agricultural products. The segment's most important revenue drivers are the spot and forward power markets, which account for 26 per cent and 32 per cent of revenue, respectively, and the gas market (14 per cent).

Despite a challenging market environment, EEX group increased its trading volume in the spot power market by 6 per cent in 2018. A landmark in respect of short-term power trading was the launch of XBID, a cross-border solution for the connection of the intraday markets – a project initiated by the European Commission. Deutsche Börse had won the contract for the platform's development and operation in late 2013. The agreement was signed in June 2015 by Deutsche Börse AG and the four leading European electricity exchanges, EPEX SPOT, GME, Nord Pool and OMIE. Launching XBID was an important milestone on the way to an integrated European intraday power market. Not only will XBID open up national markets for competition but it also plans to establish liquidity pooling for day-ahead markets in 2019, analogous to intraday markets.

EEX group's power derivatives markets saw an increase in volume of 36 per cent. In the German and Austrian markets, EEX continued to consolidate its position in 2018, following the 2017 debate over price zones and a significant decline in volumes beginning in the second quarter of 2017 resulting from the expected split of the unified German-Austrian price zone. In the meantime, EEX has again consolidated its market share held by its former product for the common German-Austrian market. Overall, trading volumes in these markets increased by 7 per cent year on year. EEX has already exceeded the market share it had in Germany before the announced split of the price zone. In its other European core markets – namely France, Italy and Spain – EEX expanded its market share, expanding from what was already a high level. Furthermore, EEX saw strong growth in the Netherlands and in Eastern European power futures.

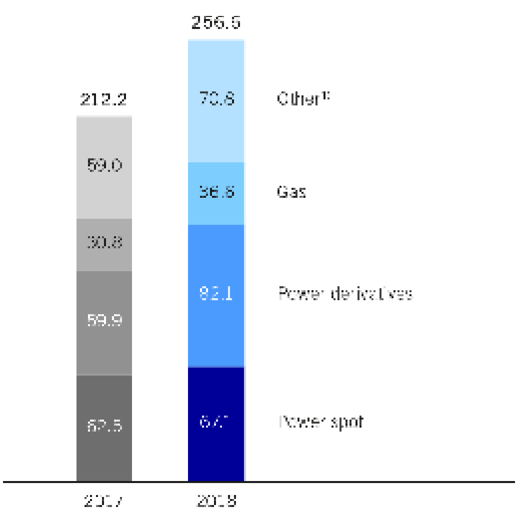
US-based Nodal Exchange, which EEX group had acquired in May 2017, was another positive development. In an overall declining market, Nodal managed to stabilise trading volumes and hence increased its market share compared to its competitors. During 2018, Nodal Exchange introduced the T7® trading system, an important technical foundation for offering new products and asset classes.

Gas market trading volumes were virtually flat during the year under review, hence the performance was mixed. While EEX group's spot market growth was significant, volumes on the derivatives market declined.

Across all product groups, EEX group boosted net revenue by 21 percent during the year under review; the segment's adjusted EBITDA rose by 26 per cent.

**Net revenue in the EEX (commodities) segment**

€ million




1) Including connectivity, member fees and admission allowance

## 360T (foreign exchange) segment

### 360T (foreign exchange) segment: key indicators

| | 2018 | 2017 | Change |
|---|---|---|---|
| FINANCIAL KEY FIGURES | €m | €m | % |
| Net revenue | 78.8 | 66.5 | 18 |
| Trading | 66.7 | 56.5 | 18 |
| Other (incl. connectivity and member fees) | 12.1 | 10.0 | 21 |
| Operating costs | 49.9 | 46.5 | 7 |
| Operating costs (adjusted) | 45.7 | 36.6 | 25 |
| EBITDA | 28.9 | 20.0 | 45 |
| EBITDA (adjusted) | 33.1 | 29.9 | 11 |
| | | | |
| PERFOMANCE INDICATORS | | | |
| Foreign exchange: trading volumes on 360T® | €bn | €bn | % |
| Average daily volume | 69.2[1)] | 61.0 | 13 |

1) Including GTX trading volumes since July 2018

In the 360T (foreign exchange) segment, Deutsche Börse Group manages its foreign-exchange trading business, which takes place on the platforms provided by its subsidiary 360T.

The acquisition of GAIN Capital Holdings, Inc.'s GTX Electronic Communication Network (ECN) business was a major milestone within the expansion of Deutsche Börse Group's foreign-exchange franchise. The deal was signed on 29 June 2018 at a purchase price of US$100.1 million. By acquiring this US-based ECN platform for forex trading, 360T has strengthened its position on the global forex markets and its presence on the US market. The transaction is in line with Deutsche Börse Group's "Roadmap 2020" to grow its business in a targeted manner and has expanded and diversified 360T's footprint in OTC forex trading. With GTX, 360T has won a spot interbank FX platform whose product range and customer base complement 360T's existing business. The company has been integrated into Deutsche Börse Group's structures as scheduled during the year under review, with the integration being largely completed at the end of 2018. The reported results include the acquisition since its closing.

Net revenue of the 360T segment is largely driven by trading activities of institutional investors, internationally active companies, and the provision of liquidity through so-called liquidity providers. During the year under review, the segment generated 81 per cent of its revenue from foreign-exchange trading and 19 per cent from the provision of other services.

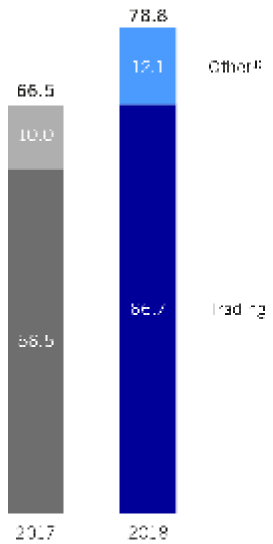
The average trading volume per day (including GTX ECN) increased by 13 per cent year on year; it benefited especially from numerous new client acquisitions and also from slightly higher trading activity of market participants. Drivers were the Fed's interest rates hikes and the ECB's announced expiration of its bond-buying programme by the end of 2018. Also, temporarily increased volatility was caused by the US and Chinese governments imposing trade tariffs on each other and the impact on global trade flows, as well as continuing uncertainty about the United Kingdom leaving the European Union.

Together with Eurex's trading and clearing business, 360T also made considerable progress in realising FX revenue synergies. Besides a central order book for OTC transactions, which is in its ramp-up phase and has completed initial proof-of-concept tests, further participants joined during the fourth quarter of 2018, both as liquidity providers and as clearing members for Eurex®-listed FX futures. By extending trading times to 23 hours per day, the trading volume rose correspondingly. With the completion of tests expected during the first half of 2019, market participants will have access to clearing services for over-the-counter forex transactions for the first time. In combination with the Data segment, 360T has rolled out a product providing data on both foreign-exchange spot and swap markets. So far, the new product has been very popular with market participants.

Like for like, i.e. excluding effects from the initial consolidation of the GTX ECN business, net revenue grew by 10 per cent to €73.0 million in the financial year 2018. This more pronounced percentage increase, compared to trading volumes, is mostly down to the product mix, with higher volumes in products generating higher margins. The GTX business contributed €5.8 million to net revenue. The 360T segment's adjusted EBITDA improved by 11 per cent during the year under review.

Net revenue in the 360T (foreign exchange) segment

€ million




1) Including connectivity and member fees

### Xetra (cash equities) segment

Xetra (cash equities) segment: key indicators

| | 2018 | 2017 | Change |
|---|---|---|---|
| FINANCIAL KEY FIGURES | €m | €m | % |
| Net revenue | 228.7 | 218.3 | 5 |
| Trading and clearing | 170.6 | 161.1 | 6 |
| Listing | 17.8 | 15.4 | 16 |
| Other (incl. connectivity and member fees) | 40.3 | 41.8 | – 4 |
| Operating costs | 118.8 | 108.4 | 10 |
| Operating costs (adjusted) | 102.7 | 102.9 | 0 |
| EBITDA | 115.5 | 115.1 | 0 |
| EBITDA (adjusted) | 131.6 | 120.6 | 9 |
| | | | |
| PERFORMANCE INDICATORS | €bn | €bn | % |
| Trading volume (single-counted order book turnover at the trading venues Xetra®, Börse Frankfurt and Tradegate) | 1,719.6 | 1,467.6 | 17 |
| Equities | 1,552.7 | 1,320.9 | 18 |
| ETF/ETC/ETN | 166.9 | 146.7 | 14 |

In the Xetra segment (cash equities), Deutsche Börse Group reports on the development of its cash market trading venues (Xetra®, the Frankfurt Stock Exchange and Tradegate). Besides trading and clearing services, the segment generates revenue from the listing of companies' securities and exchange admissions, connecting clients to their trading venues and providing services to partner exchanges.

During the year under review, the Xetra segment generated most of its net revenue (75 per cent) from the trading and clearing of securities. Listing fees and other revenues contributed 8 per cent and 18 per cent, respectively.

Cash market trading volumes rose by 17 per cent in 2018, marking the highest level since 2008. Compared to other European trading platforms, Deutsche Börse Group's trading venues also performed very successfully in 2018 and grew stronger than their relevant peers.

Moreover, Xetra further expanded its position as the reference market for trading in DAX constituents and increased its market share (68 per cent), thereby building on what was already a high level (2017: 65 per cent). The attractiveness of Xetra exchange trading was also enhanced thanks to T7, the new trading technology introduced in July 2017. T7 offers numerous advantages to clients. For instance, the new system even further reduces latency, which is the time needed for order processing.

Initial public offerings (IPOs) in the Xetra segment also developed very well. In total, 18 IPOs generated an aggregate issue volume of €11.6 billion. 16 companies opted for a Prime Standard listing, while two issuers went public in the Scale segment for small and medium-sized enterprises. At €4.2 billion, the IPO of Siemens Healthineers AG in March 2018 was the biggest flotation by far, followed by the issuances of Knorr-Bremse AG and DWS Group GmbH & Co. KGaA.

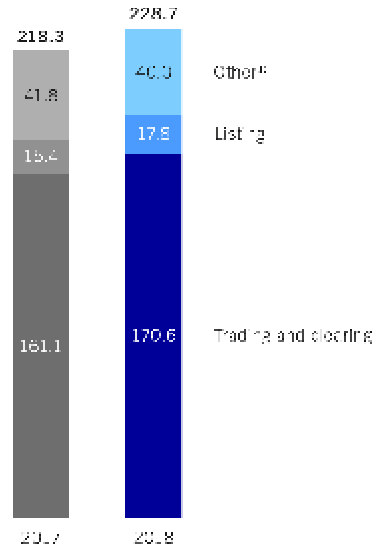
Furthermore, trading volumes in ETFs on indices surpassed last year's level at €151.1 billion (2017: €132.2 billion). Hence, Deutsche Börse was again the leading trading venue for trading ETFs in Europe: a total of 1,368 ETFs were listed as at 31 December 2018 (2017: 1,205 ETFs). Assets under management in ETFs totalled €524.2 billion at the end of 2018, which was in line with last year's figure (2017: €527.1 billion). New ETF issuers with Deutsche Börse were JP Morgan AM, Expat and HANetf.

Low interest rates and the general market environment further increased demand for Xetra-Gold® as an investment instrument in 2018. This bearer bond is backed by physical gold. At the end of the financial year 2018, the gold held in custody reached a record of 181.4 tonnes (2017: 175.0 tonnes), equivalent to around €6.5 billion (2017: €6.0 billion). Amongst the exchange-traded commodities (ETCs) available on Xetra, the most actively traded security was Xetra-Gold. The aggregate order book turnover on Xetra was approximately €2.66 billion in 2018.

Net revenue in the Xetra segment increased by 5 per cent in 2018 but fell short of the trading volumes' growth rate. This was mainly driven by the roll-out of the new T7 trading system and the related adjustments to pricing models. Correspondingly, average margins did not reach the previous year's level. The segment's adjusted EBITDA rose by 9 per cent.

Net revenue in the Xetra (cash equities) segment

€ million




1) Including connectivity and member fees

## Clearstream (post-trading) segment

### Clearstream (post-trading) segment: key indicators

| | 2018 | 2017 | Change |
|---|---|---|---|
| FINANCIAL KEY FIGURES | €m | €m | % |
| Net revenue | 727.3 | 667.7 | 9 |
| Custody | 382.8 | 385.1 | –1 |
| Settlement | 76.0 | 79.5 | –4 |
| Net interest income from banking business | 155.5 | 106.3 | 46 |
| Third-party services | 32.1 | 28.7 | 12 |
| Other (incl. connectivity, account maintenance) | 80.9 | 68.1 | 19 |
| Operating costs | 351.9 | 294.6 | 19 |
| Operating costs (adjusted) | 277.7 | 269.6 | 3 |
| EBITDA | 375.2 | 373.1 | 1 |
| EBITDA (adjusted) | 440.1 | 398.1 | 11 |
| | | | |
| PERFORMANCE INDICATORS | | | % |
| Assets under custody ICSD and CSD (average) (€bn) | 11,302.7 | 11,245.9 | 1 |
| Settlement transactions ICSD (m) | 48.39 | 44.65 | 8 |
| Cash balances (daily average) (€bn) | 13.1 | 13.6 | –4 |

Deutsche Börse Group's settlement and custody activities are reported under the Clearstream (post-trading) segment. By providing the post-trade infrastructure for the Eurobond market, Clearstream is responsible for issuance, settlement, management and custody of securities from more than 50 markets worldwide. Net revenue in this segment is mainly driven by the volume and value of securities under custody, which determine the deposit fees. The settlement business depends primarily on the number of settlement transactions processed by Clearstream, both via stock exchanges and over the counter (OTC). This segment also contains the net interest income originating from Clearstream's banking business.

As an international central securities depository (ICSD), Clearstream provides settlement and custody services for securities held in Luxembourg. As a central securities depository (CSD), Clearstream serves the market for German securities. In the year under review, the custody and settlement businesses accounted for 53 per cent and 11 per cent of the segment's net revenue, respectively, while net interest income from Clearstream's banking business contributed 22 per cent. Additionally, the segment provides third-party services, such as regulatory reporting services (4 per cent of net revenue) and other services, including connectivity and account maintenance (11 per cent of net revenue).

The value of securities held in custody in the CSD and ICSD business increased slightly by 1 per cent year on year. The quantity of international settlement transactions increased by 8 per cent during the 2018 reporting year.

In April 2018, five markets (Belgium, France, Italy, Luxembourg and the Netherlands) migrated to Clearstream's new investor-CSD model for TARGET2-Securities (T2S), which is the pan-European settlement platform for central bank money introduced by the ECB. Clearstream's investor-CSD model allows customers to consolidate their securities and cash activities in the T2S markets, enabling them to benefit from higher liquidity, better funding and lower risk. Clearstream has thus succeeded in migrating the first truly cross-border volumes onto the ECB's pan-European securities settlement platform. At the same time, Clearstream has been the first central securities depository to provide its clients with access to all T2S markets (using central bank money) and international markets by way of a comprehensive investor-CSD strategy – and all this through a single point of access. In December 2018, the new model covering all classes of securities was enhanced to Austria. As at the end of 2018, approximately 80 per cent of the custody and settlement volume of T2S markets was available through Clearstream's investor-CSD model.

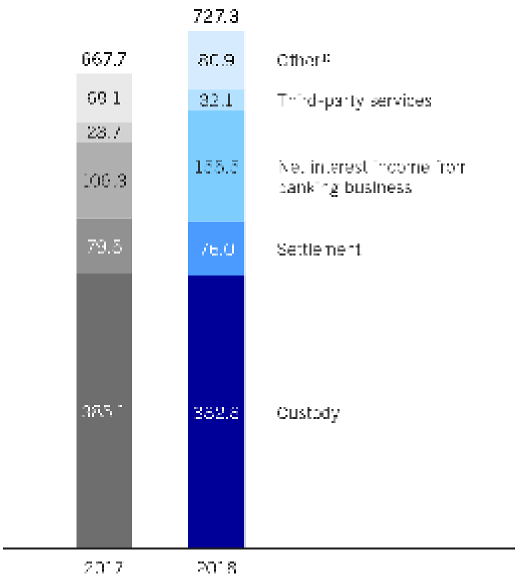
The segment's main growth driver in 2018 was the 46 per cent rise in net interest income, which Clearstream generated on the cash deposits pledged by its clients. This resulted above all from rising US interest rates, as around 52 per cent of the cash deposits are denominated in US dollars. During the course of the year, the US Federal Reserve raised its key interest rates on four separate occasions – and most recently in December – to a range between 2.25 per cent and 2.50 per cent. Average customer cash balances were down 4 per cent year on year.

Business involving regulatory reporting services also increased markedly during the 2018 reporting year. Clearstream offers such regulatory services to market participants and supervisory authorities via REGIS-TR, a joint venture with Spain's Iberclear. Net revenue is recognised under third-party services and was 4 per cent higher year on year.

Overall, the Clearstream segment increased net revenue by 9 per cent in 2018, including €9.3 million related to insurance services. Adjusted for this exceptional effect, net revenue rose by 8 per cent year-on-year. Operating costs adjusted for exceptional effects advanced by 3 per cent, resulting in an 11 per cent increase in adjusted EBITDA.

Net revenue in the Clearstream (post-trading) segment

€ million




1) Including connectivity and account maintenance

## IFS (investment fund services) segment

### IFS (investment fund services) segment: key indicators

| | 2018 | 2017 | Change |
|---|---|---|---|
| FINANCIAL KEY FIGURES | €m | €m | % |
| Net revenue | 154.3 | 137.6 | 12 |
| Custody | 65.9 | 61.3 | 8 |
| Settlement | 49.4 | 45.2 | 9 |
| Other (incl. connectivity, order routing and reporting fees) | 39.0 | 31.1 | 25 |
| Operating costs | 108.3 | 85.7 | 26 |
| Operating costs (adjusted) | 86.8 | 81.9 | 6 |
| EBITDA | 46.0 | 51.7 | –11 |
| EBITDA (adjusted) | 67.5 | 55.7 | 21 |
| | | | |
| PERFORMANCE INDICATORS | | | % |
| Assets under custody (average) (€bn) | 2,384.9 | 2,218.7 | 7 |
| Settlement transactions (m) | 24.5 | 22.7 | 8 |

In the IFS (investment fund services) segment, Deutsche Börse Group reports the settlement activity and custody volumes of exchange-traded mutual and hedge funds processed by Clearstream. Customers are able to settle and manage their entire fund portfolio via Clearstream's Vestima® fund processing platform. Net revenues in the IFS segment are largely a function of the value of assets under custody and the number of settlement transactions, which determine the fees. The IFS business is one of the dedicated structural growth engines of Deutsche Börse Group.

In the year under review, custody services accounted for 43 per cent of the segment's net revenue while settlement services contributed 32 per cent. Moreover, the segment provides other services such as connectivity, order routing and reporting, which contributed 25 per cent to net revenues.

Despite the weak stock market performance, the value of securities held in custody increased by 7 per cent during the 2018 financial year. Growth was mainly due to a number of large new clients, which Clearstream won for its investment fund services, including renowned names such as Banque Internationale à Luxembourg (BIL), SIX SIS and Lombard Odier who chose Clearstream as a strategic partner to consolidate their funds business. Whereas BIL migrated its mutual fund holdings in 2018 and plans to follow this by transferring its hedge funds, SIX SIS expects to start this process in the near future.

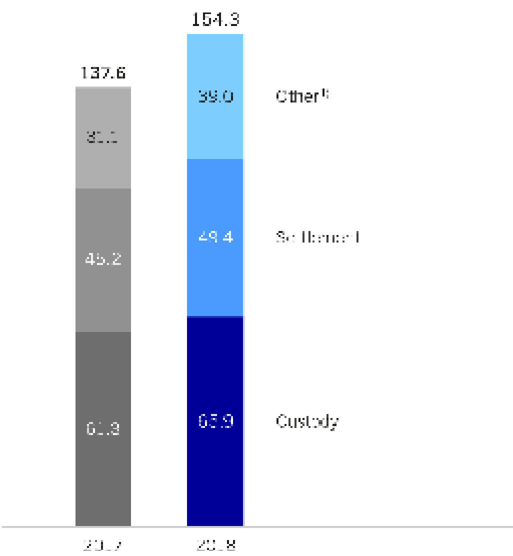
The increase in settlement transactions reflects the trading activity of new clients, as well as generally heavier trading activities compared to the previous year – particularly in the international business.

In an effort to further expand its fund services offering, Clearstream acquired Swisscanto Funds Centre Ltd., London, (SFCL) from Zürcher Kantonalbank in the reporting year. The transaction, involving an amount in the high double-digit million-euro range, closed as at 1 October 2018. As at 2 November 2018, the company was renamed to Clearstream Funds Centre Ltd. Through this transaction, Clearstream has extended its range of fund services to include the management of distribution contracts and data processing. Clearstream will be able to offer SFCL's range of services not only to SFCL's existing client base but also to its own international clientele. Thanks to this broader offering, Clearstream anticipates revenue in this segment to increase by a low double-digit million-euro amount and plans to realise synergies in terms of cross-selling.

As a result of both higher custody assets and number of settlement transactions, as well as the full consolidation of SFCL as at 1 October 2018, the IFS segment recorded 12 per cent growth in its net revenue in the past financial year. Due to the segment's highly scalable business model, adjusted EBITDA climbed by 21 per cent.

**Net revenue in the IFS (investment fund services) segment**

€ million




1) Including connectivity, order routing and reporting fees

## GSF (collateral management) segment

### GSF segment (collateral management): key indicators

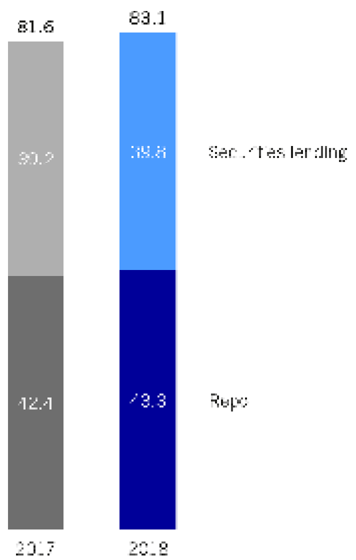
| | 2018 | 2017 | Change |
|---|---|---|---|
| FINANCIAL KEY FIGURES | €m | €m | % |
| Net revenue | 83.1 | 81.6 | 2 |
| Repo | 43.3 | 42.4 | 2 |
| Securities lending | 39.8 | 39.2 | 2 |
| Operating costs | 48.4 | 38.7 | 25 |
| Operating costs (adjusted) | 39.5 | 36.0 | 10 |
| EBITDA | 34.2 | 42.9 | –20 |
| EBITDA (adjusted) | 43.1 | 45.6 | –5 |
| | | | |
| PERFORMANCE INDICATORS | €bn | €bn | % |
| Average outstandings from securities lending | 53.8 | 60.0 | –10 |
| Average outstandings from repo | 377.6 | 399.8 | –6 |

In the GSF (collateral management) segment, Deutsche Börse Group reports business development at Clearstream's securities financing and collateral management services.

Net revenue from the repo franchise – which encompasses triparty repo, GC Pooling® and collateral management – contributed 52 per cent of the segment's net revenue while net revenue from securities lending services accounted for 48 per cent.

### Net revenue in the GSF (collateral management) segment

€ million



In the GSF business, average outstanding volumes in repo decreased by 6 per cent. Since the ECB began to provide additional liquidity on the market as part of its quantitative easing (QE) programme, volumes declined over time, especially in GC Pooling. At the same time, securities lending revenues (strategic and fails lending programmes) overcompensated the declining collateral volumes, raising GSF net revenue overall by 2 per cent compared to 2017.

The segment's adjusted EBITDA declined by 5 per cent in the reporting year due to a disproportionate rise in adjusted operating costs.

### STOXX (index business) segment

#### STOXX (index business) segment: key indicators

| | 2018 | 2017 | Change |
|---|---|---|---|
| FINANCIAL KEY FIGURES | €m | €m | % |
| Net revenue | 144.5 | 127.7 | 13 |
| ETF licences | 43.8 | 41.5 | 6 |
| Exchange licences | 31.3 | 27.1 | 15 |
| Other licences[1] | 69.4 | 59.1 | 17 |
| Operating costs | 53.9 | 47.7 | 13 |
| Operating costs (adjusted) | 44.5 | 42.2 | 5 |
| EBITDA | 90.6 | 79.9 | 13 |
| EBITDA (adjusted) | 100.0 | 85.5 | 17 |
| | | | |
| PERFORMANCE INDICATORS | €bn | €bn | % |
| Assets under management in ETFs on STOXX® indices (average for the period) | 81.9 | 76.8 | 7 |
| Assets under management in ETFs on DAX® indices (average for the period) | 27.7 | 28.7 | –2 |
| Index derivatives (traded contracts) (m) | 875.4 | 763.6 | 15 |

1) Including licences on structured products

The STOXX segment (index business) comprises Deutsche Börse Group's index business, which it conducts through its STOXX Ltd. subsidiary. The extensive range of indices offered by STOXX provides issuers with a wealth of opportunity to create financial instruments for a diverse range of investment strategies.

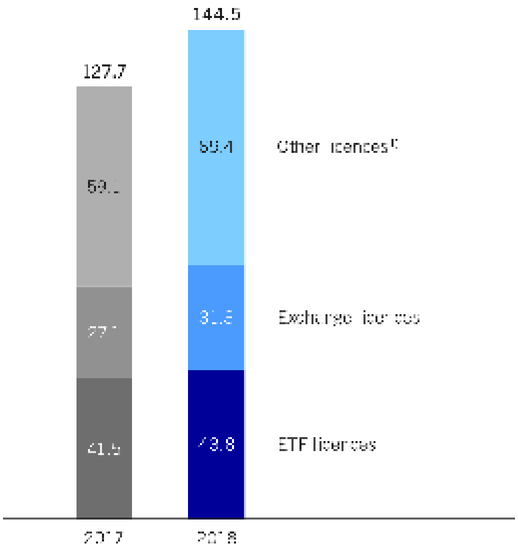
Of the STOXX segment's net revenue, 30 per cent was attributable to ETF licence fees, 22 per cent to exchange licence fees and 48 per cent to other licence fees. While the amount of ETF licence fees depends on the volume globally invested in ETFs based on the STOXX® and DAX indices, exchange licence fees are mainly driven by the trading volumes of STOXX and DAX index derivatives at Eurex. Licence fees from structured products are shown as part of other licence fees.

Another innovative product developed by the STOXX segment was the recently introduced STOXX® Europe 600 ESG-X index, which features a standardised screening based on ESG exclusion criteria. The screening is based on criteria applied by institutional investors and helps to reduce both reputational and idiosyncratic risks. Furthermore, with the launch of fixed-income indices designed to reflect the concept of liability-driven investing (LDI) in the second quarter of 2018, STOXX has focused on a market amounting to some 1 trillion pound sterling. These indices can be used as independent reference points for defined benefit pension plans; they are also suitable as flexible, investable building blocks for LDI portfolios. The index methodology allows pension insurance schemes to better align their assets with their liability profile over time.

After a dynamic start to the year, the weaker market environment – and especially the reallocation of investors' funds from Europe to other regions during the further course of the year – caused a slowdown in the growth of ETF licence fees. Due to the rise in volatility and the resulting higher volumes traded at Eurex, the net revenue from exchange licences was significantly higher. Overall, the segment's net revenue in full-year 2018 increased by 13 per cent. Adjusted EBITDA improved by 17 per cent during the year under review.

**Net revenue in the STOXX (index business) segment**

€ million




1) Including licences on structured products

## Data segment

### Data segment: key indicators

| | 2018 | 2017 | Change |
|---|---|---|---|
| **FINANCIAL KEY FIGURES** | **€m** | **€m** | **%** |
| Net revenue | 170.3 | 154.2 | 10 |
| Cash and derivatives | 113.6 | 108.8 | 4 |
| Regulatory services | 17.8 | 10.7 | 66 |
| Other (incl. CEF® data services) | 38.9 | 34.7 | 12 |
| Operating costs | 83.5 | 59.6 | 40 |
| Operating costs (adjusted) | 53.0 | 53.6 | –1 |
| EBITDA | 86.7 | 94.6 | –8 |
| EBITDA (adjusted) | 117.2 | 100.6 | 17 |
| | | | |
| **PERFORMANCE INDICATORS** | **thousand** | **thousand** | **%** |
| Subscriptions | 337.8 | 438.2 | –14 |

In the Data segment, Deutsche Börse Group reports on the development of its business concerning licences for real-time trading and market signals, together with the supply of historical data and analytics. The most important products in this respect are order book data from the cash and derivatives markets, as well as reference data of Deutsche Börse and data from its partner exchanges. The segment generates much of its net revenue on the basis of long-term client relationships; it is relatively independent of trading volumes and capital markets volatility. Revenues from regulatory services are also shown in this segment.

During the year under review, 67 per cent of net revenue was attributable to the supply of cash and derivative markets data; 10 per cent of net revenue was generated with regulatory services and the remaining 23 per cent with other services.

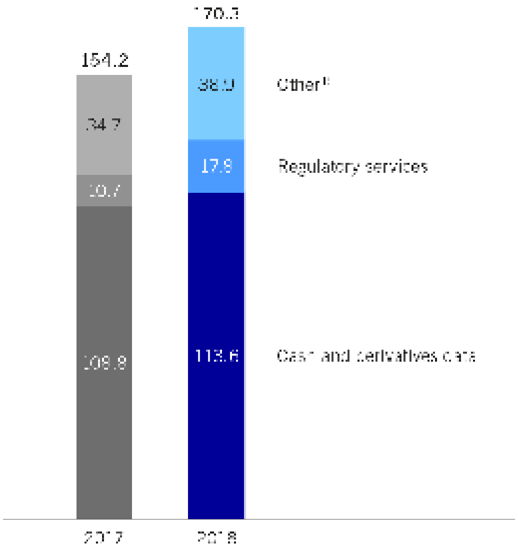
Despite a decline in the number of subscribers, the segment increased net revenue from cash and derivatives markets data by 4 per cent in the financial year under review. This performance was also driven by the further development of the segment's licensing model, which has been differentiated regarding specific usage – especially with regard to automated data processing.

Net revenue from regulatory services increased by 66 per cent in the financial year 2018. Growth was particularly driven by the Regulatory Reporting Hub, which was rolled out at the beginning of January 2018. The Hub offers clients bundled solutions tailored to their reporting requirements, especially in accordance with the revised EU Markets in Financial Instruments Directive (MiFID II).

Overall, the segment boosted net revenue by 11 per cent in 2018, with adjusted EBITDA up by 17 per cent.

Net revenue in the Data segment

€ million




1) Including CEF® data services

**Development of profitability**

Deutsche Börse Group's return on shareholders' equity expresses the ratio of net income after taxes to average equity available to the Group during the course of 2018. At 17.1 per cent, return on shareholders' equity was below the previous year's ratio in the 2018 financial year (2017: 18.8 per cent). Adjusted for the exceptional effects described in the "Results of operations" section, the return on equity amounted to 20.8 per cent (2017: 18.4 per cent).

## Financial position

### Cash flow

Consolidated cash flow statement (condensed)

| | 2018<br>€m | 2017<br>€m |
|---|---|---|
| Cash flows from operating activities (excluding CCP positions) | 1,176.5 | 1,107.2 |
| Cash flows from operating activities | 1,298.2 | 1,056.2 |
| Cash flows from investing activities | 792.0 | 181.9 |
| Cash flows from financing activities | –832.9 | –501.0 |
| Cash and cash equivalents as at 31 December | 1,839.0 | 580.2 |
| Cash and other bank balances as at 31 December | 1,322.3 | 1,297.6 |

Cash and cash equivalents at Deutsche Börse Group comprise cash and bank balances – to the extent that these do not result from reinvesting current liabilities from cash deposits by market participants – as well as receivables and liabilities from banking business with an original maturity of three months or less. Cash and cash equivalents as at 31 December 2018 amounted to €1,839.0 million (31 December 2017: €580.2 million). Other cash and bank balances amounted to €1,322.3 million as at 31 December 2018 (31 December 2017: €1,297.6 million).

In the 2018 financial year, Deutsche Börse Group generated a positive cash flow of €1,257.3 million (2017: €737.1 million). The informative value of Deutsche Börse Group's cash flow is relevant only to a limited extent since it includes in particular CCP positions which are subject to significant fluctuations on the reporting date, as well as the inflows and outflows resulting from the banking business. Adjusted by these technical effects, the cash flow in the 2018 financial year can essentially be explained as follows:

Deutsche Börse Group generated €1,176.5 million (2017: €1,107.2 million) in cash flow from operating activities, excluding changes in CCP positions on the reporting date. This figure is determined indirectly, resulting from the net profit for the period amounting to €852.5 million (2017: €896.0 million), which is adjusted by non-cash expense and income such as depreciation and deferred tax assets. Additionally, changes in working capital resulted in a positive contribution to cash flow from operating activities amounting to €105.7 million (2017: €156.6 million), such contribution arising in particular in connection with the programme for the implementation of the company strategy "Roadmap 2020", which contributed a total of €108.3 million to the increase in provisions.

The strongly positive operative cash flow from operating activities is essentially matched by the purchase of the GTX Electronic Communication Network business in the amount of €85.9 million and Swisscanto Fund Centre Ltd. in the amount of €83.3 million, investments in intangible assets and property amounting to €160.0 million, a treasury share repurchase programme amounting to €364.2 million and the distribution of €453.3 million in dividends by Deutsche Börse AG for the 2017 financial year (dividends for the 2016 financial year: €439.0 million).

As in previous years, the Group assumes it will have a strong liquidity base in financial year 2019 due to its positive cash flows from operating activities, adequate credit lines and flexible management and planning systems.

For further details regarding the cash flow, please refer to the consolidated cash flow statement as well as note 22 to the consolidated financial statements.

**Operating leases**
Deutsche Börse Group uses operating leases and does so, above all, for the office building in Eschborn that the Group moved into in the second half of 2010 and for the buildings used by Clearstream International S.A. in Luxembourg (see note 27 to the consolidated financial statements for details).

**Liquidity management**
Deutsche Börse Group meets its operating liquidity requirements primarily from internal financing, i.e. by retaining generated funds. The aim is to maintain liquidity at about the same level of operating costs for one quarter (currently between €150 million and €250 million). An intra-Group cash pool is used for pooling excess liquidity cash as far as regulatory and legal provisions allow. All of the Group's cash is invested in short-term instruments to ensure rapid availability and are largely collateralised using liquid bonds from prime-rated issuers. Moreover, Deutsche Börse AG has access to external sources of financing, such as bilateral and syndicated credit lines, and a commercial paper programme (see note 25 to the consolidated financial statements for details on financial risk management). In recent years, Deutsche Börse AG has leveraged its access to the capital markets to issue corporate bonds in order to meet its structural financing needs.

Debt instruments issued by Deutsche Börse AG (outstanding as at 31 December 2018)

| Type | Issue volume | ISIN | Term | Maturity | Coupon p.a. | Listing |
|---|---|---|---|---|---|---|
| Fixed-rate bearer bond | €600 m | DE000A1RE1W1 | 10 years | October 2022 | 2.375% | Luxembourg/ Frankfurt |
| Fixed-rate bearer bond | €500 m | DE000A1684V3 | 10 years | October 2025 | 1.625% | Luxembourg/ Frankfurt |
| Fixed-rate bearer bond | €600 m | DE000A2LQJ75 | 10 years | March 2028 | 1.125% | Luxembourg/ Frankfurt |
| Fixed-rate bearer bond (hybrid bond) | €600 m | DE000A161W62 | Call date 5.5 years/ final maturity in 25.5 years | February 2021/ February 2041 | 2.75% (until call date) | Luxembourg/ Frankfurt |

**Capital management**
The company's clients generally expect it to maintain conservative interest coverage and leverage ratios and, thereby, achieve a good credit rating.

Therefore, the Group targets a minimum consolidated interest coverage ratio (defined as the ratio of EBITDA to interest expenses from financing activities) of 16. In 2018, Deutsche Börse Group achieved this target, with an interest coverage ratio of 40.8 (2017: 32.7). This figure is based on relevant interest expenses of €41.2 million and adjusted EBITDA of €1,678.6 million.

The data included for the purpose of calculating interest coverage comprises interest expenses incurred for financing Deutsche Börse Group, less interest expenses incurred by subsidiaries that are also financial institutions, including Clearstream Banking S.A., Clearstream Banking AG and Eurex Clearing AG. Interest expenses incurred that are not related to Group financing are not included in the calculation of interest coverage.

## Deutsche Börse Group's interest coverage ratio

| Interest expense from financing activities | Issue volume | 2018 €m | 2017 €m |
|---|---|---|---|
| Fixed-rate bearer bond (term until March 2018)[1] | €600 m | 1.7 | 7.6 |
| Fixed-rate bearer bond (term until October 2022) | €600 m | 14.8 | 14.8 |
| Fixed-rate bearer bond (term until October 2025) | €500 m | 8.7 | 8.7 |
| Fixed-rate bearer bond (term until March 2028)[2] | €600 m | 5.6 | – |
| Fixed-rate bearer bond (hybrid bond) | €600 m | 16.5 | 16.5 |
| Other interest expense | | 2.1 | 4.4 |
| **Total interest expense (incl. 50 % of the hybrid coupon)** | | **41.2** | **43.7** |
| EBITDA (adjusted) | | 1,678.6 | 1,431.1 |
| **Interest coverage[3]** | | **40.8** | **32.7** |

1) With maturity on 26 March 2018 and fully repaid
2) Refinancing of the bond maturing on 26 March 2018
3) EBITDA / interest expense from financing activities (includes 50 per cent of the interest on the hybrid bond)

Moreover, Deutsche Börse had targeted a maximum ratio of interest-bearing gross debt to EBITDA of 1.5 at Group level. In 2018, the Group achieved the target ratio of gross debt to EBITDA of 1.2. This figure is based on gross debt of €1,982.2 million, and adjusted EBITDA of €1,678.6 million. Gross debt comprises interest-bearing liabilities of €1,982.2 million.

According to the definition of the rating agency, only 50 per cent of the Group's hybrid bond is deducted to determine gross debt as well as interest expenses.

Furthermore, the company endeavours to maintain the strong AA credit rating of its subsidiary Clearstream Banking S.A., in order to ensure the long-term success of its Clearstream securities settlement and custody segment. The activities of the Eurex Clearing AG subsidiary also require Deutsche Börse AG to have and maintain a strong credit quality.

Deutsche Börse AG has stated its intention to maintain certain additional financial indicators for Clearstream entities that it believes to be consistent with an AA rating. Specifically, this involves a commitment to maintain minimum tangible equity (equity less intangible assets) of €700 million for Clearstream International S.A., and of €400 million for Clearstream Banking S.A. During the reporting period, Clearstream International S.A. exceeded this commitment, reporting tangible equity of €1,337.0 million (2017: €1,206.6 million); Clearstream Banking S.A. was also higher at €1,253.3 million (2017: €1,213.6 million). To the extent that the Clearstream subgroup has financial liabilities to non-banks, the subgroup is committed to a minimum interest coverage ratio of 25. During the reporting period, as in the previous year, Clearstream had no financial liabilities to non-banks; for this reason, no interest coverage ratio is being reported.

Since 2007, Deutsche Börse Group's target figures are based on the calculation method used by S&P Global Ratings (S&P) rating agency. As S&P has adjusted its method for rating market infrastructure providers, new key performance indicators, as listed below, will be used in the future. In order to achieve a minimal financial risk profile consistent with an AA rating and in accordance with the S&P method, the company aims to achieve the following targets for the new key performance indicators:

- Net debt to EBITDA ratio: no more than 1.75
- Free funds from operations (FFO) to net debt: equal to or greater than 50 per cent
- Interest coverage ratio (calculation changes by S&P): at least 14
- Tangible equity (for Clearstream Banking S.A.): total of at least €1.1 billion

When calculating these key performance indicators, Deutsche Börse Group will closely follow the method used by S&P.

- To determine EBITDA, reported EBITDA is adjusted by the result from strategic investments, as well as by expenses for operating leases and unfunded pension obligations. In 2018, EBITDA amounted to €1,444 million.
- In order to determine FFO, interest and tax expenses are deducted from EBITDA, applying the respective imputed adjustments for operating leases and unfunded pension obligations. FFO in 2018 amounted to €1,091 million.
- The Group's net debt is reconciled by first deducting 50 per cent of the hybrid bond, as well as the surplus cash as at the reporting date, from gross debt (i.e. from interest-bearing liabilities). Liabilities from operating leases and unfunded pension obligations are then added. Net debt in 2018 amounted to €1,642 million.

S&P bases the determination of the key performance indicators on the corresponding weighted average of the reported or expected results of the previous, current and following reporting periods. To ensure the transparency of the key performance indicators, Deutsche Börse Group reports them based on the respective current reporting period.

The tables "Relevant key performance indicators according to the conventional calculation method" and "Relevant key performance indicators according to the adjusted calculation method" illustrate the calculation method and point out the differences between old and new values for the reporting year. As of the first quarter of 2019, Deutsche Börse Group will report exclusively according to the adjusted method.

### Relevant key performance indicators according to the conventional calculation method

| | | Target figures | 2018 |
|---|---|---|---|
| Gross debt / EBITDA | | ≤ 1.5 | 1.2 |
| Interest coverage ratio | | ≥ 16 | 40.8 |
| Tangible equity of Clearstream International S.A. (as at the reporting date) | €m | ≥ 700 | 1,337.0 |
| Tangible equity of Clearstream Banking S.A. (as at the reporting date) | €m | ≥ 400 | 1,253.3 |

### Relevant key performance indicators according to the adjusted calculation method

| | | Target figures | 2018 |
|---|---|---|---|
| Net debt / EBITDA | | ≤ 1.75 | 1.1 |
| Free funds from operations (FFO) / net debt | % | ≥ 50 | 69 |
| Interest coverage ratio | | ≥ 14 | 25.1 |
| Tangible equity of Clearstream Banking S.A. (as at the reporting date) | €m | ≥ 1,100 | 1,253.3 |

### Dividends and share buy-backs

Deutsche Börse Group generally aims to distribute dividends equivalent to between 40 and 60 per cent of adjusted net profit for the period attributable to Deutsche Börse AG shareholders. Within this range, the Group manages the actual dividend payout ratio depending on the business performance and taking into account aspects of continuity. Furthermore, the company aims to invest the remaining freely available funds primarily in organic growth, but also for complementary external development. Should the investment of these funds by the Group not be possible, additional dividend payouts would represent another possibility for distribution.

For the financial year 2018, Deutsche Börse AG is proposing that the Annual General Meeting resolve to pay a dividend of €2.70 per no-par value share (2017: €2.45). This dividend corresponds to a distribution ratio of 49 per cent of net profit for the period, attributable to Deutsche Börse AG shareholders, adjusted for exceptional effects described in the "Results of operations" section (2017: 53 per cent, also adjusted for exceptional effects). Given 183.3 million no-par value shares bearing dividend rights, this would result in a total dividend amount of €495.0 million (2017: €456.4 million). The number of shares bearing dividend rights is produced by deducting 6.7 million treasury shares from the ordinary share capital of 190.0 million shares.

Furthermore, Deutsche Börse AG announced in April 2017 that it would launch a share repurchase programme with a volume of around €200 million during the second half of 2017. The programme was operated from 27 November 2017 to 28 March 2018. On top of this, Deutsche Börse AG announced on 5 December 2017 that it would launch an additional share repurchase programme – also with a volume of around €200 million – during the course of 2018. The programme was operated from 13 August 2018 to 2 November 2018. Further details on the purchase of treasury shares within the scope of the share repurchase programme, pursuant to section 160 (1) no. 2 of the AktG are available in the notes to Deutsche Börse AG's annual financial statements, section "Equity".

### Credit ratings

Credit ratings

| | Long-term | Short-term |
|---|---|---|
| **Deutsche Börse AG** | | |
| S&P Global Ratings | AA | A–1+ |
| **Clearstream Banking S.A.** | | |
| Fitch | AA | F1+ |
| S&P Global Ratings | AA | A–1+ |

Deutsche Börse AG regularly has its credit quality reviewed by S&P, while Clearstream Banking S.A. is rated by Fitch and S&P.

On 13 September 2018, Fitch Ratings affirmed the AA credit rating of Clearstream Banking S.A. with a stable outlook. The rating reflects Clearstream Banking's leading position in the post-trading business and its diligent liquidity management, as well as its impeccable capitalisation.

On 20 November 2018, S&P affirmed the AA credit rating of Deutsche Börse AG. The rating reflects the assumption that the Group will continue its growth strategy and reach at least the lower end of its growth targets.

On the same date, S&P affirmed the AA credit rating of Clearstream Banking S.A. with a stable outlook. The rating reflects the strong risk management, minimum debt levels, as well as Clearstream's strong position on the international capital markets, especially through its international custody and transaction business.

As at 31 December 2018, Deutsche Börse AG was one of only two DAX-listed companies awarded an AA rating by S&P. The rating histories of Deutsche Börse AG and Clearstream Banking S.A. are given in the five-year overview.

## Net assets

Material changes to net assets are described below; the full consolidated balance sheet is shown in the consolidated financial statements.

### Consolidated balance sheet (extract)

| | 31 Dec 2018 €m | 31 Dec 2017 €m |
|---|---|---|
| ASSETS | | |
| Non-current assets | 15,642.0 | 10,883.7 |
| thereof intangible assets | 4,191.6 | 4,091.0 |
| thereof goodwill | 2,865.6 | 2,770.9 |
| thereof other intangible assets | 952.7 | 911.2 |
| thereof financial assets | 11,168.6 | 6,535.4 |
| thereof financial assets measured at amortised cost | 1,057.1 | – |
| thereof financial assets available-for-sale (AFS) | – | 1,692.0 |
| thereof financial instruments held by central counterparties | 9,985.4 | 4,837.2 |
| Current assets | 146,257.1 | 124,257.7 |
| thereof financial instruments held by central counterparties | 94,280.3 | 79,510.7 |
| thereof restricted bank balances | 29,833.6 | 29,392.0 |
| thereof other cash and bank balances | 1,322.3 | 1,297.6 |
| | | |
| EQUITY AND LIABILITIES | | |
| Equity | 4,963.4 | 4,959.4 |
| Liabilities | 156,935.7 | 130,182.0 |
| thereof non-current liabilities | 12,828.7 | 7,023.8 |
| thereof financial instruments held by central counterparties | 9,985.4 | 4,837.2 |
| thereof financial liabilities measured at amortised cost | 2,283.2 | 1,688.4 |
| thereof deferred tax liabilities | 194.5 | 226.8 |
| thereof current liabilities | 144,107.0 | 123,158.2 |
| thereof financial liabilities measured at amortised cost | 19,219.7 | 14,126.3 |
| thereof financial instruments held by central counterparties | 94,068.3 | 78,798.6 |
| thereof cash deposits by market participants | 29,559.2 | 29,215.3 |

Deutsche Börse Group's total assets have increased in comparison with the previous year – this is primarily due to the rise in the financial instruments held by central counterparties on the reporting date.

Taking into account the two acquisitions which lead to an increase in goodwill, the increase in intangible assets was relatively moderate. Adjusted by the rise in the financial instruments held by central counterparties, current assets showed an increase due to the increase in debt instruments valued at amortised cost on the reporting date, such debt instruments covering essentially the activities of the Clearstream subgroup.

The equity of the Group is essentially similar to the prior year's equity. The increase in the cumulative profits is matched primarily by an increase in the amount of treasury shares purchased. Adjusted by the rise in the financial instruments held by central counterparties, non-current liabilities have increased due to the emission of a ten-year euro bond in the amount of €600.0 million. The increase in the current liabilities is mainly due to the development of the contributions by the clearing and settlement business of the Clearstream subgroup.

Overall, Deutsche Börse Group invested €160.0 million in the continued business in intangible assets and property, plant and equipment (capital expenditure or capex) in the reporting period (2017: €149.2 million). The Group's largest investments were made in the Clearstream and Eurex segments.

**Working capital**
Working capital comprises current assets less current liabilities, excluding technical closing-date items. Current assets, excluding technical closing-date items, amounted to €1,098.3 million (2017: €1,020.9 million). As Deutsche Börse Group collects fees for most of its services on a monthly basis, the trade receivables of €397.5 million included in current assets as at 31 December 2018 (31 December 2017: €331.9 million) were relatively low compared with net revenue. The current liabilities of the Group, excluding technical closing-date items, amounted to €1,468.5 million (2017: €1,280.1 million, excluding technical closing-date items). The Group therefore had slightly negative working capital of €370.2 million at the end of the year (2017: €259.2 million).

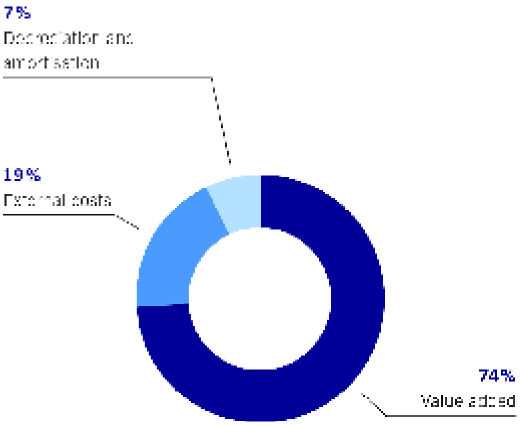
**Technical closing-date items**
The "financial instruments of the central counterparties" item relates to the function performed by Eurex Clearing AG and European Commodity Clearing AG: since they act as the central counter parties for Deutsche Börse Group's various markets, their financial instruments are carried in the balance sheet at their fair value. The financial instruments of the central counterparties are described in detail in the risk report and in notes 3, 13 and 25 to the consolidated financial statements.

Market participants linked to the Group's clearing houses partly provide collateral in the form of cash deposits, which are subject to daily adjustments. The cash deposits are generally invested on a secured basis overnight by the central counterparties and reported in the balance sheet under "restricted bank balances". The total value of cash deposits at the reporting dates relevant for the reporting period (31 March, 30 June, 30 September and 31 December) varied between €28 billion and €30 billion (2017: between €27 billion and €35 billion).

**Value added: breakdown of company performance**
Value added is calculated by subtracting depreciation and amortisation as well as external costs from the company performance. In 2018, the value added by Deutsche Börse Group amounted to €2,028.3 million (2017: €1,974,8 million). The breakdown shows that large portions of the generated value added flow back into the economy: 25 per cent (€509.8 million) benefit shareholders in the form of dividend payments, while 41 per cent (€824.0 million) was attributable to staff costs in the form of salaries and other remuneration components. Taxes accounted for 15 per cent (€304.3 million), while 2 per cent (€47.5 million) was attributable to external creditors. The 17 per cent value added that remained in the company (€342.7 million) is available for investments in growth initiatives, among other things (see the "Origination of value added" and "Distribution of value added" charts).

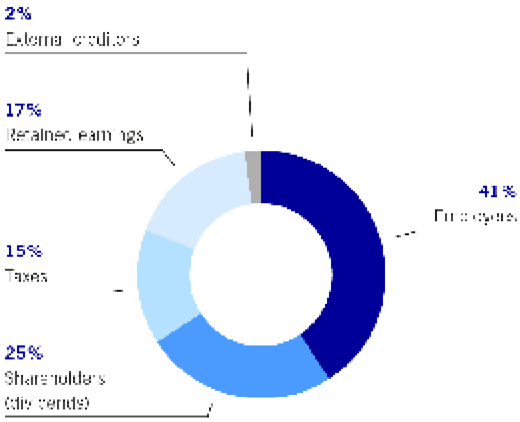
### Origination of value added

Company performance: €2,[illegible] million




### Distribution of value added

Value added: €[illegible] million



### Overall assessment of the economic position by the Executive Board

The economic environment remained favourable in 2018, both in Europe and globally, whereas the outlook took a turn for the worse at the beginning of the second half of the year. This was especially due to trade conflicts and the imminent Brexit. Nevertheless, interest rates in the USA rose again, while the ECB allowed bond purchases in the euro zone to expire at the end of December. At the same time, average equity market volatility was higher than in the previous year. Against this background, equity index derivatives volumes rose significantly, and equities trading benefited as well. At the same time, volumes in interest rate derivatives grew and net interest income of the Clearstream segment improved due to higher interest rates for overnight client balances denominated in US dollars. Alongside these cyclical factors, the Group's structural net revenue also increased by 6 per cent. The main reasons for this were the positive development of new products and OTC clearing in the Eurex segment, the gain in additional market share in the energy markets, and the further expansion of the investment fund and index business. In summary, these factors led Deutsche Börse Group's financial performance to develop very positively during the 2018 financial year, slightly exceeding the range of net revenue anticipated by the Executive Board. The Group recorded a 13 per cent increase in net revenue. Adjusted operating costs were up 5 per cent on the previous year's figure. This was mainly due to higher staff costs, which were attributable to the increased number of employees and higher variable remuneration. Moreover, the full consolidation of two companies acquired in the course of the year contributed to the rise in costs. On an adjusted basis, Deutsche Börse Group achieved a 17 per cent increase in net profit attributable to Deutsche Börse AG shareholders, exceeding the anticipated range of 10 per cent to 15 per cent.

The Executive Board considers Deutsche Börse Group's financial position to be extremely sound during the reporting period. The Group generated high operating cash flows, as in the previous year. Given the increase in adjusted EBITDA, Deutsche Börse Group was able to further improve the ratio of interest-bearing gross debt to EBITDA at Group level: With a value of 1.2, the target value of 1.5 was clearly undercut.

Rating agencies again affirmed the Group's credit quality, awarding it excellent ratings in 2018. On 20 November 2018, S&P Global Ratings (S&P) confirmed Deutsche Börse AG's AA credit rating. On the same day, S&P – just like Fitch Ratings on 13 September 2018 – affirmed the AA credit rating of Clearstream Banking S.A. Both ratings were assigned a stable outlook.

Deutsche Börse AG has offered its shareholders attractive returns for years – and the financial year 2018 is no exception. At €2.70 (2017: €2.45), the dividend proposed for distribution to shareholders is above the prior-year level. As a result of the improvement in earnings, the distribution ratio decreased from 53 per cent in the previous year to 49 per cent in the year under review (adjusted for exceptional effects in both cases), and was thus in line with the Executive Board's forecast range of 40 to 60 per cent.

The Group's net assets, financial position and results of operations can be considered to be in an orderly state.

## Deutsche Börse Group: five-year overview

| | | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|
| **Consolidated income statement** | | | | | | |
| Net revenue | €m | 2,047.8 | 2,220.3[1] | 2,388.7 | 2,462.3 | 2,779.7 |
| thereof net interest income from banking business | €m | 37.6 | 50.6 | 84.0 | 132.6 | 204.5 |
| Operating costs (excluding depreciation, amortisation and impairment losses) | €m | –990.0 | –1,164.2[1] | –1,186.4 | –1,131.6 | –1,340.2 |
| Earnings before interest, tax, depreciation and amortisation (EBITDA) | €m | 1,136.1 | 1,054.6[1] | 1,239.2 | 1,528.5 | 1,443,7 |
| Depreciation, amortisation and impairment losses | €m | 124.8 | 119.0 | 131.0 | 159.9 | 210.5 |
| Net profit for the period attributable to Deutsche Börse AG shareholders | €m | 762.3 | 613.3[1] | 722.1 | 874.3 | 824.3 |
| Earnings per share (basic) | € | 4.14 | 3.31[1] | 3.87 | 4.68 | 4.46 |
| **Consolidated cash flow statement** | | | | | | |
| Cash flows from operating activities | €m | 677.3 | 10.1 | 1,621.4 | 1,056.2 | 1,298.2 |
| **Consolidated balance sheet** | | | | | | |
| Non-current assets | €m | 11,267.2 | 14,386.9 | 11,938.7 | 10,883.7 | 15,642.0 |
| Equity | €m | 3,752.1 | 3,695.1 | 4,623.2 | 4,959.4 | 4,963.4 |
| Financial liabilities measured at amortised cost | €m | 1,428.5[2] | 2,546.5 | 2,284.7 | 1,688.4[2] | 2,283.2 |
| **Performance indicators** | | | | | | |
| Dividend per share | € | 2.10 | 2.25 | 2.35 | 2.45 | 2.70[3] |
| Dividend payout ratio | % | 58[4] | 55[4] | 54[4] | 53[4] | 49[4][5] |
| Employees (average annual FTEs) | | 3,911 | 4,460[1] | 4,731 | 5,183 | 5,397 |
| Personnel expense ratio (staff costs / net revenue) | % | 23[4] | 27 | 25 | 26 | 30 |
| Tax rate | % | 26.0[4] | 26.0 | 27.0 | 27.0[4] | 27.0[4] |
| Return on shareholders' equity (annual average)[6] | % | 21 | 20[4] | 19[4] | 18[4] | 21[4] |
| **Deutsche Börse shares** | | | | | | |
| Year-end closing price | € | 59.22 | 81.39 | 77.54 | 96.80 | 104.95 |
| Average market capitalisation | €bn | 10.8 | 14.7 | 14.0 | 17.2 | 21.5 |
| **Rating key figures** | | | | | | |
| Gross debt / EBITDA | | 1.5[4] | 1.9[4] | 1.5 | 1.4 | 1.2 |
| Interest coverage ratio | % | 26.0[4] | 23.2[1] | 25.3 | 32.7 | 40.8 |
| Deutsche Börse AG: S&P Global Ratings | Rating | AA | AA | AA | AA | AA |
| Clearstream Banking S.A.: S&P Global Ratings | Rating | AA | AA | AA | AA | AA |
| Fitch | Rating | AA | AA | AA | AA | AA |
| **Market indicators** | | | | | | |
| **Xetra®, Börse Frankfurt and Tradegate** | | | | | | |
| Trading volume (single-counted) | €bn | 1,282.6 | 1,635.7 | 1,377.0 | 1,467.6 | 1,719.6 |
| **Eurex®** | | | | | | |
| Number of contracts | m | 2,097.9 | 1,672.6[1] | 1,727.5 | 1,675.9 | 1,951.8 |
| **Clearstream** | | | | | | |
| Assets under custody (annual average) | €bn | 10,717.5 | 11,459.7 | 11,172.9 | 11,245.9 | 11,302.7 |
| **Investment fund services (IFS)** | | | | | | |
| Assets under custody (annual average) | €bn | 1,497.2 | 1,814.5 | 1,902.0 | 2,218.7 | 2,384.9 |

1) Figure for 2015 without consideration of International Securities Exchange (ISE), which represents a discontinued operation due to its disposal as at 30 June 2016
2) Bonds that will mature in the following year are reported under "other current liabilities" (2014: €139.8 million, 2017: €599.8 million).
3) Proposal to the Annual General Meeting 2019
4) Adjusted for exceptional effects; please refer to the consolidated financial statements for the respective financial year for adjustment details.
5) Amount based on the proposal to the Annual General Meeting 2019
6) Net profit for the period attributable to Deutsche Börse AG shareholders / average shareholders' equity for the financial year based on the quarter-end balance of shareholders' equity

## Report on post-balance sheet date events

There have been no material events after the balance sheet date.

## Combined non-financial statement

This combined non-financial statement for Deutsche Börse Group and the parent company Deutsche Börse AG is integrated into the combined management report; it fulfils the provisions of sections 289b–e and 315b–c of the Handelsgesetzbuch (HGB, German Commercial Code). It is also in accordance with the standards ("Core" option) of the Global Reporting Initiative (GRI). A detailed overview of all GRI indicators (GRI index) is available at www.deutsche-boerse.com > Sustainability > Reporting > GRI. More detailed information, which is referenced in the non-financial statement, does not form part of the statement itself. Provided no explicit statements are made for the parent company, qualitative information within the meaning of the combined management report applies to Deutsche Börse Group and the parent company Deutsche Börse AG. In some cases, quantitative details concerning the parent entity are disclosed separately.

Deutsche Börse Group uses not only the financial figures outlined in the "Group management" section for Group management, but also non-financial performance indicators – specifically, the availability of its trading systems for the cash and derivatives markets and the share of women in executive positions. For details regarding the targets pursued and the results achieved in the year under review, please refer to the sections entitled "Social matters – systems availability" and "Combined corporate governance statement and corporate governance report – target figures for the proportion of female executives beneath the Executive Board".

A materiality analysis comprising continuous analyses and assessments of relevant internal and external stakeholders' expectations and requirements is a key element of Deutsche Börse Group's sustainability strategy. This process is aimed at identifying the issues required to understand the Group's business performance, operating results, the capital corporation situation and the impact of its activities on non-financial aspects. Thus, the Group is able to identify opportunities and risks in its core business activities at an early stage and define concrete areas of entrepreneurial activity on this basis.

The combined non-financial statement outlines the objectives, actions, due diligence processes applied, the involvement of the Group's management and other stakeholders, as well as the concept outcomes with respect to employee matters (see the "Employees" section), compliance (including combating corruption and bribery), social matters and product matters. Deutsche Börse Group voluntarily reports on human and employee rights, as the active protection of human rights is a key element of the Group's corporate responsibility. The Group addresses this at various points along the value chain. Relevant matters in this non-financial statement are specifically reflected in the "Employees" section, and in the "Human rights in the supply chain" section, which focuses on the Group's procurement management.

As a service provider with a focus on providing electronic market infrastructure services, Deutsche Börse Group engages in relatively little environmentally sensitive activity from a corporate environmental perspective; hence, no detailed report is provided in this combined non-financial statement in this respect. Nonetheless, the Group is committed to protecting the environment and conserving natural resources.

Deutsche Börse Group has outlined its environmental policies in its code of business conduct. Indicators for its environmental sustainability performance are available on its website: www.deutsche-boerse.com > Sustainability > Reporting > ESG Indicators. Moreover, environmental protection issues are becoming increasingly relevant for the design of individual products or services; related measures are described in detail in the "Product matters" section. Deutsche Börse Group is also developing a climate strategy aligned with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

As an international capital markets organiser, Deutsche Börse aims to build and grow market participants' trust in its market structures. As a responsible member of society, it also endeavours to use the expertise it deploys to successfully manage its core business in such a way that enables contribution to resolving social challenges. Within this scope, the company strives to be a role model. Please refer to the "Fundamental information about the Group" section for a detailed description of Deutsche Börse Group's business model. Deutsche Börse Group acts "with an eye to the future". Its sustainability strategy of the same name defines the Group's understanding of entrepreneurial responsibility and guides its operations. Please see the section entitled "Management approach for a Group-wide commitment to sustainability".

As a member of the United Nations Global Compact (UNGC) and the Sustainable Stock Exchange initiative (SSE), Deutsche Börse Group has committed itself to implementing the 17 Sustainable Development Goals (SDGs) of the "2030 Agenda for Sustainable Development" set by the UN. An overview of Deutsche Börse Group's contribution to the corresponding targets can be found in the following "Overview: key sustainability aspects" table.

## Overview: key sustainability aspects

| Relevant contents of the non-financial statement according to section 289c HGB[1] | Areas for action relevant to Deutsche Börse Group | UN Sustainable Development Goals (SDGs) covered by Deutsche Börse Group |
|---|---|---|
| **Business model** p. 26 | | |
| ▪ Overview of Deutsche Börse Group<br>▪ Objectives and strategies<br>▪ Internal management<br>▪ Research and development activities | ▪ Economic performance<br>▪ Stakeholder engagement<br>▪ Brand management | ▪ SDG 7 "Affordable and clean energy"<br>▪ SDG 8 "Decent work and economic growth"<br>▪ SDG 9 "Industry, innovation and infrastructure"<br>▪ SDG 12 "Responsible consumption and production"<br>▪ SDG 17 "Partnerships for the goals" |
| **Mandatory aspects** | | |
| **Environmental matters** | | |
| ▪ Ecological awareness: code of business conduct (principle no. 14)<br>▪ Environmental aspects of products or services: "Product matters" section | ▪ Environmental management | |
| **Employee matters** p. 87 | | |
| ▪ Staff development<br>▪ Human resources strategy<br>▪ Talent promotion<br>▪ Promoting diversity and gender equality<br>▪ Measures to promote women<br>▪ Target quotas for women<br>▪ Feedback for employees and managers<br>▪ Training and continuing professional development<br>▪ Work-life balance | ▪ Human capital development<br>▪ Human and employee rights | ▪ SDG 4 "Quality education"<br>▪ SDG 5 "Gender equality"<br>▪ SDG 8 "Decent work and economic growth"<br>▪ SDG 10 "Reduce inequalities" |
| **Social matters** p. 99 | | |
| ▪ Sustainable financial market initiatives<br>▪ Stable, transparent and fair markets<br>▪ Systems availability<br>▪ Market transparency<br>▪ Stable financial markets | ▪ Economic participation and education<br>▪ Transparent, stable and fair markets | ▪ SDG 4 "Quality education"<br>▪ SDG 8 "Decent work and economic growth"<br>▪ SDG 9 "Industry, innovation and infrastructure"<br>▪ SDG 10 "Reduce inequalities"<br>▪ SDG 12 "Responsible consumption and production"<br>▪ SDG 16 "Peace, justice and strong institutions"<br>▪ SDG 17 "Partnerships for the goals" |
| **Respect for human rights** p. 106 | | |
| ▪ Code of conduct for suppliers<br>▪ Supplier survey<br>▪ Monitoring suppliers in relation to risk criteria | ▪ Human and employee rights | ▪ SDG 5 "Gender equality"<br>▪ SDG 8 "Decent work and economic growth"<br>▪ SDG 10 "Reduce inequalities" |
| **Anti-corruption and bribery matters** p. 95 | | |
| ▪ Compliance organisation<br>▪ Code of business conduct<br>▪ Compliance rules<br>▪ Compliance training<br>▪ Whistleblowing system<br>▪ Analysis of compliance risks<br>▪ Due diligence/customer review<br>▪ Data protection<br>▪ Inside information<br>▪ Internal/external audit | ▪ Good governance | ▪ SDG 8 "Decent work and economic growth"<br>▪ SDG 10 "Reduce inequalities"<br>▪ SDG 16 "Peace, justice and strong institutions" |
| **Further relevant aspects** | | |
| **Product matters** p. 102 | | |
| ▪ Customer satisfaction<br>▪ Sustainable index products<br>▪ Energy and energy-related markets | ▪ Sustainable product and service portfolio | ▪ SDG 7 "Affordable and clean energy"<br>▪ SDG 8 "Decent work and economic growth"<br>▪ SDG 9 "Industry, innovation and infrastructure"<br>▪ SDG 12 "Responsible consumption and production" |

1) HGB = Handelsgesetzbuch (German Commercial Code)

## Employees

This chapter provides an overview of key figures reflecting staff developments at Deutsche Börse Group; at the same time, it satisfies the requirements for reporting on employee matters as part of the non-financial statement.

### Staff development

As at 31 December 2018, Deutsche Börse Group employed a total of 5,964 staff (31 December 2017: 5,640), having 96 nationalities at 37 locations worldwide. The average number of employees in the reporting period was 5,800 (2017: 5,567). On a Group level, this corresponds to an increase of around 4.2 per cent compared to the previous year's reporting date, which was primarily a result of the development of control functions and the consolidation of Clearstream Funds Centre Ltd. (formerly Swisscanto Funds Centre Ltd.) and the US foreign-exchange trading platform GTX. The Group had an average of 5,397 full-time equivalents during the year (2017: 5,183), including part-time employees. As at 31 December 2018, the proportion of part-time employees was higher in the general workforce than in management and higher amongst women than amongst men. For details regarding the exact proportion by location, please refer to the table entitled "Key data on Deutsche Börse Group's workforce as at 31 December 2018".

### Employees by country/region

| | 31 Dec 2018 | | |
|---|---|---|---|
| | Total | Male | Female |
| Germany | 2,689 | 1,661 | 1,028 |
| Luxembourg | 1,077 | 648 | 429 |
| Czech Republic | 890 | 563 | 327 |
| Ireland | 404 | 176 | 228 |
| United Kingdom | 208 | 134 | 74 |
| Rest of Europe | 312 | 194 | 118 |
| America | 184 | 135 | 49 |
| Asia | 201 | 98 | 103 |
| **Total** | **5,964** | **3,609** | **2,355** |

### Employees by segment

| | 31 Dec 2018 |
|---|---|
| Eurex (financial derivatives) | 1,265 |
| EEX (commodities) | 725 |
| 360T (foreign exchange) | 253 |
| Xetra (cash equities) | 488 |
| Clearstream (post-trading) | 1,767 |
| IFS (investment fund services) | 752 |
| GSF (collateral management) | 242 |
| STOXX (index business) | 197 |
| Data | 275 |
| **Total** | **5,964** |

797 staff joined the Group (excluding consolidation effects), while 507 employees left the Group during the course of the year (excluding deconsolidation effects and number of employees who accepted one of the Group offers within the framework of efficiency programmes and left the company or entered partial retirement). The fluctuation rate was 8.7 per cent (unadjusted: 9.3 per cent) and thus above the previous year (2017: 7.4 and 8.7 per cent respectively). At the end of the year under review, the average length of service for the company was 9.5 years (2017: 9.4 years).

The number of Deutsche Börse AG's employees rose by 69 during the year under review to 1,502 as at 31 December 2018 (comprising 555 women and 947 men; 31 December 2017: 1,433). On average, Deutsche Börse AG employed 1,465 people during the 2018 financial year (2017: 1,392). On 31 December 2018, Deutsche Börse AG had employees at six locations around the world. During the 2018 financial year, 69 employees left Deutsche Börse AG; the adjusted fluctuation rate thus amounted to 4.6 per cent (unadjusted: 5.4 per cent).

## Joiners and leavers by gender in 2018

| | Joiners | | | Leavers | | |
|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total |
| **Deutsche Börse AG** | | | | | | |
| All locations | 66 | 54 | 120 | 47 | 22 | 69 |
| **Deutsche Börse Group** | | | | | | |
| Germany | 156 | 90 | 246 | 81 | 46 | 127 |
| Luxembourg | 56 | 40 | 96 | 44 | 32 | 76 |
| Czech Republic | 110 | 67 | 177 | 72 | 45 | 117 |
| Ireland | 52 | 36 | 88 | 17 | 16 | 33 |
| Other locations | 120 | 70 | 190 | 95 | 59 | 154 |
| **All locations** | **494** | **303** | **797** | **309** | **198** | **507** |

## Joiners and leavers by age in 2018

| | Joiners | | | | Leavers | | | |
|---|---|---|---|---|---|---|---|---|
| | Under 30 years | 30–39 | 40–49 | 50 years and older | Under 30 years | 30–39 | 40–49 | 50 years and older |
| **Deutsche Börse AG** | | | | | | | | |
| All locations | 55 | 46 | 15 | 4 | 9 | 23 | 23 | 14 |
| **Deutsche Börse Group** | | | | | | | | |
| Germany | 104 | 102 | 29 | 11 | 27 | 59 | 28 | 13 |
| Luxembourg | 39 | 41 | 12 | 4 | 20 | 35 | 16 | 5 |
| Czech Republic | 86 | 71 | 19 | 1 | 44 | 62 | 10 | 1 |
| Ireland | 69 | 12 | 4 | 3 | 16 | 13 | 3 | 1 |
| Other locations | 74 | 59 | 32 | 25 | 50 | 49 | 35 | 21 |
| **Total** | **372** | **285** | **96** | **44** | **157** | **218** | **91** | **41** |

### Human resources strategy

Employee commitment and highly developed skills are among the cornerstones supporting Deutsche Börse Group's business success. Its corporate culture is characterised by a sense of responsibility, commitment, flexibility and teamwork. Deutsche Börse Group aims to make sure that staff with these qualities continue to join the company in the future and that they stay for the long term, if possible. Deutsche Börse Group's Executive Board is also engaged in employee matters through one of its Board members who is simultaneously Director of Labour Relations as well as through other regular reporting formats. The Group's workforce is highly diverse in many respects – including nationality, age, gender, religion, cultural and social origin. The company consciously promotes this diversity and benefits from it, creating an environment conducive to integration – to the advantage of corporate culture. This is also in the interests of Deutsche Börse Group's business: its broad range of diverse products and services and the international composition of its client base pose specific requirements regarding the professional and cross-cultural expertise of employees.

Within the scope of its growth strategy, the Group promotes a high-performance culture with a distinct focus on clients' needs and innovation. In order to encourage this culture, Deutsche Börse Group has a remuneration system for executive staff in place that incorporates growth, performance and financial indicators to a greater extent than in previous years.

Deutsche Börse Group offers its employees a wide range of benefits over and above statutory requirements (see the "Total expenses for employee benefits" table). At €123,000, average staff costs for employees and executive staff (adjusted for the costs of efficiency programmes and staff costs for the members of the Executive Board) slightly increased year-on-year (2017: €118,000). Staff costs per employee at the parent entity Deutsche Börse AG, which accounts for the largest part of the Group's executive staff, amounted to €144,000 (2017: €149,000). In addition to the base salary, these costs include (among other things), social benefits, pension provisions and variable remuneration components. In the 2018 financial year, the Executive Board of Deutsche Börse AG approved a voluntary linear salary increase of 2.5 per cent for collectively paid employees in Germany. In addition, a central budget will be made available for individual discretionary salary increases. In the course of harmonising the Group's processes, all salary increases will take effect on 1 January 2019, instead of in July as in the previous year. Salary adjustments have also been made at the other locations.

#### Talent promotion

To gain, motivate and promote top talent is a key instrument for Deutsche Börse Group to remain sustainably successful in this digital age. With the introduction of a new recruiting tool, the applicant process has been simplified and the user experience enhanced for all parties involved. In the year under review, the Group implemented further innovative formats for attracting talent.

Also in place are the "Evolving Leaders" programme, which is designed to identify and promote future managers from within the Group and the "Show Your Talent" initiative, which is set to create visibility for and support employees' entrepreneurial and innovative potential. At the same time, the programmes are designed to strengthen staff commitment and their performance orientation.

From initial contact to the actual meeting, mentors and mentees can connect on the "Meet your Mentor" platform. Experienced colleagues assume sponsorship for other employees, making their work easier. As mentors, they assist new colleagues in networking beyond their own department, help them to get to know the company and offer a comprehensive, cross-divisional understanding. The "New Role" mentoring programme makes it easier for colleagues to take on a new management role.

### Promoting diversity and gender equality

As a global enterprise, Deutsche Börse Group advocates openness and fairness at the workplace. This is why Deutsche Börse AG signed the "Diversity Charter" to support recognition, appreciation and integration of diversity in the working environment. For Deutsche Börse Group, diversity within the company is the basis for achieving a corporate culture characterised by open dialogue, trust and mutual acceptance.

Deutsche Börse Group does not tolerate any discrimination, whether on the grounds of gender, sexual orientation, race, nationality, ethnic origin, age, religion or disability, irrespective of whether this concerns behaviour among employees or the placement of orders with third parties. Deutsche Börse Group's Equal Opportunities Officers safeguard the equal treatment of staff members. Moreover, Human Resources has implemented processes designed to ensure equal treatment in the selection of personnel and enable the Group to take prompt action whenever discrimination is suspected. In 2018, no incidents of discrimination at the Frankfurt/Eschborn, Luxembourg, Prague and or Cork locations (which are covered by reporting) were reported; accordingly, no countermeasures were required.

To prevent systematic remuneration disadvantages for women or men, Deutsche Börse AG carries out analyses at regular intervals among employees in Germany to identify any remuneration differences between women and men.

### Measures to promote women

As a general rule, the candidates' qualifications are decisive for any appointment to a position at Deutsche Börse Group. However, in order to raise the share of women in executive positions, the company explicitly ensures that women are also identified as candidates. In addition, Deutsche Börse Group offers numerous additional tools to promote female employees, such as targeted succession planning and a mentoring programme involving internal and external mentors. Meetings and training courses designed specifically for women are held regularly within the scope of a women's network.

### Target quotas for women

For details regarding targets for female quotas, please refer to the section entitled "Combined corporate governance statement and corporate governance report – target figures for the proportion of female executives beneath the Executive Board".

### Feedback for employees and managers

Deutsche Börse Group managers hold annual appraisal discussions with employees within their area of responsibility, jointly defining targets for the next year and document these discussions. 96 per cent of employees recorded in Deutsche Börse Group's internal staff performance appraisal system received an assessment last year. The remaining 4 per cent are subject to the following special provisions:

- Pursuant to an employer/works council agreement, German employees aged 59 or older may waive the annual appraisal and target-setting process.
- Newly hired employees are to receive an appraisal and agree upon targets following expiry of their probationary period.

The appraisal system is applied equally to female and male employees. A separate target-agreement system exists for managerial staff.

Subsidiaries EEX and 360T use their own appraisal systems. The data compiled by these subsidiaries is currently not maintained or made available centrally. The long-term objective is to harmonise appraisal and target-agreement processes across the entire Group, thus enhancing availability and transparency of the data collected.

## Total expenses for employee benefits

| | Lunch allowance € thous. | Childcare € thous. | Sports and leisure € thous. | Accident insurance € thous. | Savings plans € thous. | Travel expenses € thous. |
|---|---|---|---|---|---|---|
| **Deutsche Börse AG** | | | | | | |
| All locations | 2,317.9 | 574.7 | 47.2 | 147.3 | 534.2 | 641.6 |
| **Deutsche Börse Group** | | | | | | |
| Germany | 3,915.4 | 895.8 | 75.9 | 270.9 | 847.9 | 1,042.0 |
| Luxembourg | 1,747.4 | 0 | 8.6 | 111.3 | 0 | 116.6 |
| Czech Republic | 728.2 | 26.9 | 220.0 | 28.7 | 1,159.6 | 202.7 |
| Ireland | 268.2 | 0 | 34.4 | 18.8 | 0 | 0 |

### Training and continuing professional development

Deutsche Börse assigns high priority to training its staff and providing continuing professional development: employees continuously enhance and renew their financial markets knowledge. In addition, they have a large number of training courses at their disposal for polishing their communication and organisational skills. Deutsche Börse also supports its employees and managers in facing their individual challenges by offering a broad range of internal and external professional development measures.

In 2018, the Group invested an average of 2.9 days per employee for continuing professional development (2017: 3.3 days) and carried out, among other things, 1,175 internal training events (2017: 1,568 internal training events). Of these, 37 per cent were on business-related issues, 34 per cent covered specialist topics, 11 per cent dealt with the work-life balance and 18 per cent were on IT subjects or part of induction training.

## Key figures on staff training in 2018

| | | Deutsche Börse AG | | | Deutsche Börse Group | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Total | Male | Female | Total |
| Average number of training days per employee | | 3.2 | 3.1 | 3.2 | 2.9 | 2.8 | 2.9 |
| Average number of training days per FTE[1] | | 3.4 | 3.7 | 3.5 | 3.0 | 3.3 | 3.1 |
| Number of hours | | 24,609 | 13,564 | 38,173 | 84,902 | 52,313 | 137,215 |
| thereof managers | % | 6.1 | 6.1 | 6.1 | 7.4 | 2.7 | 5.6 |
| thereof employees | % | 93.9 | 93.9 | 93.9 | 92.6 | 97.3 | 94.4 |

1) FTE = full-time equivalent

### Work-life balance

It is Deutsche Börse Group's declared intention to achieve a reasonable work-life balance. The company offers a number of options designed to achieve a positive work-life balance as part of its "Job, Life & Family" initiative, e.g. the option to work from home (home office), take a sabbatical or have access to (or receive contributions for) child care facilities.

Deutsche Börse Group offers parental leave at all its locations in accordance with applicable national regulations (see the "Key figures on parental leave" table). The high ratio of employees who return from parental leave indicates a constructive working atmosphere and good employment conditions within the company.

At the same time, Deutsche Börse Group is well aware of its duty of care and attaches great importance to the health and well-being of employees. The company accordingly offers employees various sports and relaxation courses. One of the objectives pursued with these measures is to ensure that employees not only remain healthy despite a high workload but also to keep sickness levels within the company as low as possible. For example, the company assigns importance to the fact that employees take their full annual vacation during the course of the year. The sickness ratio within Deutsche Börse Group stood at 3.1 per cent during the year under review (2017: 3.0 per cent) and 4.0 per cent (2017: 3.9 per cent) at the parent company Deutsche Börse AG.

#### Key figures on parental leave

| | Entered parental leave in 2018 | | Returned from parental leave in 2018 | | Multiple-year return ratio[1] | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male % | Female % |
| Deutsche Börse AG | 31 | 20 | 32 | 22 | 100 | 100 |
| Deutsche Börse Group | 76 | 100 | 82 | 87 | 99 | 95 |

1) Employees whose parental leave ended in 2018, and who remained with the company

## Key data on Deutsche Börse Group's workforce as at 31 December 2018 (part 1)

| | Deutsche Börse AG | | Deutsche Börse Group | | | |
|---|---|---|---|---|---|---|
| | All locations | | Germany | | Luxembourg | |
| | Male | Female | Male | Female | Male | Female |
| **Employees** | **947** | **555** | **1,661** | **1,028** | **648** | **429** |
| 50 years and older | 329 | 126 | 500 | 225 | 198 | 89 |
| 40–49 years | 273 | 139 | 474 | 265 | 258 | 173 |
| 30–39 years | 264 | 197 | 523 | 388 | 148 | 111 |
| Under 30 years | 81 | 93 | 164 | 150 | 45 | 56 |
| Average age | 44 | 40 | 43 | 40 | 44 | 41 |
| | | | | | | |
| **Full-time equivalents** | **917** | **408** | **1,603** | **720** | **623** | **278** |
| Senior and middle management | 101 | 15 | 159 | 25 | 62 | 11 |
| Junior management | 80 | 22 | 114 | 36 | 56 | 17 |
| Staff | 736 | 371 | 1,330 | 659 | 505 | 250 |
| | | | | | | |
| **Part-time employees** | **30** | **147** | **58** | **307** | **25** | **151** |
| Senior and middle management | 0 | 0 | 2 | 0 | 0 | 2 |
| Junior management | 1 | 4 | 1 | 4 | 0 | 9 |
| Staff | 29 | 143 | 55 | 303 | 25 | 140 |
| | | | | | | |
| Disabled employees | 20 | 13 | 37 | 27 | 3 | 1 |
| Proportion of graduates (%)[1)] | 65 | 35 | 65 | 35 | 61 | 39 |
| Apprentices | 8 | 7 | 8 | 7 | 0 | 0 |
| Interns and students | 84 | 78 | 126 | 116 | 12 | 12 |
| | | | | | | |
| **Length of service** | | | | | | |
| Under 5 years (%) | 45 | 47 | 44 | 44 | 26 | 31 |
| 5–15 years (%) | 22 | 21 | 26 | 26 | 21 | 26 |
| Over 15 years (%) | 33 | 32 | 30 | 30 | 52 | 43 |
| | | | | | | |
| **Staff turnover** | | | | | | |
| Joiners | 66 | 54 | 156 | 90 | 56 | 40 |
| Leavers | 47 | 22 | 81 | 46 | 44 | 32 |
| | | | | | | |
| Training days per staff member | 3.25 | 3.06 | 3.06 | 2.71 | 3.38 | 3.54 |
| Promotions | 52 | 30 | 77 | 49 | 40 | 31 |
| Employees covered by collective bargaining agreements | 821 | 511 | 1226 | 820 | 573 | 414 |

1) This figure is calculated on the basis of the number of employees holding a degree from a university, university of applied sciences or university of cooperative education; it also includes employees who have completed comparable studies outside Germany.

## Key data on Deutsche Börse Group's workforce as at 31 December 2018 (part 2)

| | Deutsche Börse Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | Czech Republic | | Ireland | | Other locations | | |
| | Male | Female | Male | Female | Male | Female | Total (part 1 and 2) |
| **Employees** | **563** | **327** | **176** | **228** | **560** | **344** | **5,964** |
| 50 years and older | 16 | 9 | 14 | 7 | 104 | 43 | 1,205 |
| 40–49 years | 104 | 45 | 47 | 55 | 161 | 75 | 1,656 |
| 30–39 years | 339 | 195 | 55 | 123 | 202 | 157 | 2,241 |
| Under 30 years | 104 | 78 | 60 | 43 | 93 | 69 | 862 |
| Average age | 35 | 34 | 35 | 36 | 40 | 37 | 40 |
| | | | | | | | |
| **Full-time equivalents** | **561** | **307** | **175** | **210** | **546** | **316** | **5,340** |
| Senior and middle management | 5 | 1 | 4 | 1 | 34 | 3 | 306 |
| Junior management | 44 | 14 | 15 | 5 | 18 | 16 | 335 |
| Staff | 512 | 292 | 156 | 204 | 494 | 297 | 4,699 |
| | | | | | | | |
| **Part-time employees** | **2** | **20** | **1** | **18** | **14** | **28** | **624** |
| Senior and middle management | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Junior management | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| Staff | 2 | 20 | 1 | 18 | 14 | 28 | 606 |
| | | | | | | | |
| Disabled employees | 1 | 1 | 0 | 0 | 0 | 0 | 70 |
| Proportion of graduates (%)[1] | 62 | 38 | 50 | 50 | 63 | 37 | 73 |
| Apprentices | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Interns and students | 7 | 17 | 0 | 0 | 0 | 0 | 290 |
| | | | | | | | |
| **Length of service** | | | | | | | |
| Under 5 years (%) | 62 | 60 | 58 | 33 | 60 | 57 | 46 |
| 5–15 years (%) | 38 | 40 | 36 | 56 | 32 | 37 | 30 |
| Over 15 years (%) | 0 | 0 | 6 | 11 | 8 | 6 | 24 |
| | | | | | | | |
| **Staff turnover** | | | | | | | |
| Joiners | 110 | 67 | 52 | 36 | 120 | 70 | 797 |
| Leavers | 72 | 45 | 17 | 16 | 95 | 59 | 507 |
| | | | | | | | |
| Training days per staff member | 3.19 | 2.65 | 3.96 | 2.81 | 1.52 | 2.12 | 2.88 |
| Promotions | 56 | 35 | 15 | 16 | 9 | 12 | 340 |
| Employees covered by collective bargaining agreements | 0 | 0 | 0 | 0 | 0 | 0 | **3,033** |

1) This figure is calculated on the basis of the number of employees holding a degree from a university, university of applied sciences or university of cooperative education; it also includes employees who have completed comparable studies outside Germany.

## Compliance – including combat against corruption and bribery

Responsible entrepreneurial action implies adherence to laws and regulations; it is also based on the principle of integrity and ethically irreproachable conduct at all times. Deutsche Börse Group has implemented a compliance management system based on regulatory requirements, with the objectives of preventing misconduct and avoiding liability and reputational risks for the Group, its legal representatives, executives and staff. Beyond business-related compliance requirements, the focus is on strengthening a uniform compliance culture throughout the Group, especially with a view to enhancing compliance awareness. The compliance management system – under the responsibility of, and promoted by, the Executive Board of Deutsche Börse AG – therefore constitutes an indispensable element of good corporate governance (with respect to compliance). Such a system provides the foundation for sustainable risk transparency; specifically, it facilitates mitigating risks in the areas of money laundering/terrorism financing, data protection, corruption, as well as market manipulation and insider trading; it also monitors requirements concerning financial sanctions and embargoes.

The compliance management system applies to Deutsche Börse AG as well as to domestic and international companies in which Deutsche Börse AG holds a majority interest (whether directly or indirectly). Thanks to its Group-wide compliance approach, Deutsche Börse Group safeguards the respective Group entities' adherence with applicable law and regulatory requirements. The compliance functions and the Chief Compliance Officers of the individual Group entities have a direct reporting line to the Group Chief Compliance Officer, who in turn reports directly to the Executive Board of Deutsche Börse AG. Compliance reporting includes all relevant compliance risk areas within the context of the compliance management system.

Deutsche Börse Group is continually developing its compliance management system in order to deal with rising complexity and increasing regulatory requirements. Measures have been implemented to prevent, identify, and sanction any compliance risks – especially with regard to the areas of money laundering/terrorism financing, financial sanctions and embargoes, as well as market manipulation, insider trading and data protection.

For this purpose, Deutsche Börse Group has aligned its system with the recommendations of an internationally recognised standard (ISO 19600 “Compliance Management Systems – Guidelines”). Based on this standard, the Group’s compliance functions identify fields of action and measures to ensure compliance management meets the requirements as they continue to change. In 2018, a systematic gap analysis, which was conducted together with an external party, identified potential in the area of suitability; also in 2018, the Group started to realise this potential, and it will continue to do so in 2019.

As a member of the UN Global Compact, Deutsche Börse AG has committed to observe the related principles, notably the principle to work against corruption in all its forms, which includes extortion and bribery. In line with its code of business conduct, Deutsche Börse Group bans its employees from involving themselves in corruption, or from taking part in any actions which may lead to the impression that the Group promises, arranges, provides, receives, or asks for inadmissible benefits. Bribery and any similar payments are prohibited.

It is Deutsche Börse Group's guiding principle that the actions and decisions of all employees are taken objectively and with integrity. Management plays a particularly important role in this context. Deutsche Börse Group is fully aware of the so-called "tone from the top" for achieving a high level of attention for avoiding compliance risks – both within the Group and amongst market participants. In order to sustainably enshrine this guiding principle, and to prevent Deutsche Börse Group and its staff from legal sanctions and reputational damage, Compliance has implemented a variety of preventative measures in a risk-oriented approach.

**Compliance organisation**

Compliance has overall responsibility for identifying and managing Group-wide compliance risks. Compliance devises risk-oriented measures in order to contain and manage corresponding risks, communicating risks, incidents, and the effectiveness of the measures taken; it ensures continuous improvement of the compliance management system by way of regular adjustments to the relevant internal guidelines and processes.

Key compliance topics are discussed by Deutsche Börse's Group Compliance Committee, which comprises senior management representatives from the business divisions and the relevant Group-wide control functions.

**Code of business conduct**

Deutsche Börse Group's code of business conduct, which is communicated to all members of staff, summarises the most important aspects with regard to corporate ethics and compliance as well as appropriate conduct. Moreover, Compliance provides employees with compliance-relevant information via the corresponding intranet pages, unless specific confidentiality aspects prevent such communication. For details, see the section entitled "Combined corporate governance statement and corporate governance report".

**Compliance rules**

Compliance has implemented Group-wide guidelines covering relevant local requirements. These rules are designed to ensure that the internal stakeholder groups acting on behalf of Deutsche Börse Group comply with the behavioural rules set out in such guidelines, with the objective of countering breaches of compliance throughout the Group in a preventive, investigative and sanctioning manner. Group-wide communications via the intranet are geared towards providing employees (including members of the Executive Board and Managing Directors) with the necessary guidance in their daily work, and making sure they commit to such guidance.

In addition, all external staff and service providers must sign a form through which they undertake to comply with Deutsche Börse Group's compliance regulations, including rules to combat corruption.

**Compliance training**

Regular compliance training is essential for a culture of compliance throughout Deutsche Börse Group: employees worldwide are being trained with respect to relevant compliance issues – covering, in particular, the areas of money laundering/terrorism financing, data protection, corruption, market manipulation and insider trading. Managers who are exposed to increased compliance risks on account of their activities receive additional training in line with their needs. Participation in training measures covering the compliance topics mentioned above is mandatory for employees, as well as for management.

**Whistleblowing system**

Deutsche Börse Group has established a whistleblowing system, where employees can relay information about potential or actual breaches of regulatory rules or ethical standards, by phone or e-mail, whereby the anonymity of whistleblowers is a fundamental guarantee. Through its commitment to compliance awareness, Deutsche Börse Group cultivates an open approach to dealing with misconduct. For this reason, reports received are often passed on directly to the responsible line manager, or to Compliance. During 2018, five reports were submitted via the whistleblowing system, or directly via line managers or control functions (such as Compliance).

**Analysis of compliance risks**

In line with regulatory requirements, Deutsche Börse Group carries out risk analyses and/or risk assessments, at least on an annual basis – specifically, it analyses the risk of being abused for the purposes of money laundering/financing of terrorism, corruption, market manipulation or insider trading. Such risk analyses and assessments comprise the Group's own business activities as well as business relationships, market participants, products and services. Risk-mitigating measures are derived from the compliance risks identified.

**Due diligence review of clients, market participants, counterparties, and business partners, plus transaction monitoring**

Deutsche Börse Group is constantly improving its processes for the onboarding of new clients and the review of existing clients ("Know Your Customer" processes). Depending on the assessment of client risk in each case, client relationships are subject to corresponding diligence duties concerning their establishment, update, and monitoring. Client relationships are not entered into where the risks involved are too high. Deutsche Börse Group analyses transaction data in order to identify activity which might indicate potential money laundering.

Deutsche Börse Group is exposed to the risk of sanctions being imposed upon business partners; moreover, there is a risk of bribery and corruption. In this connection, the Group examines its business partners, whereby their details are cross-checked against relevant data sources (such as embargo, sanctions, PEP, terrorist and other "black lists"). Appropriate measures are taken in the event of any match against such lists.

## Non-financial key performance figures: corruption/data protection

| | | 2018 | 2017 |
|---|---|---|---|
| **Corruption** | | | |
| Punished cases of corruption | | 1 | 0 |
| Percentage of business units for which measures have been taken to address corruption risks | % | 100 | 100 |
| Number of employees who were trained in ABC measures (anti-bribery/corruption)[1] | | 1,562 | 4,487 |
| **Data protection** | | | |
| Number of justified customer complaints relating to data protection | | 0 | 0 |

1) The web-based ABC training is mandatory for employees of Deutsche Börse Group. The number of employees who attended anti-bribery/corruption trainings varies with respect to the year under review due to the training frequencies that extend over a period of several years.

**Data protection/protection of personal data**
Deutsche Börse Group has exposure to a plethora of data during the course of its business activities. The Group takes data protection very seriously and has taken measures to ensure compliance with data protection law, in particular the appropriate and transparent processing of personal data. The Executive Board has appointed a Data Protection Officer and established a data protection organisation to ensure, amongst other things, that the data privacy framework and the principles of the EU General Data Protection Regulation, which came into force in 2018, are adhered to. To this end, the data protection organisation informs and advises the individual legal entities as regards data protection and data privacy. It also monitors adherence to legal requirements on data protection on a risk basis, in particular regarding the question of responsibility. The data protection organisation also serves as a contact for data protection authorities, and supports the business units in assessing risks related to the issue of data protection and data privacy. It supports a stronger culture of data protection at Deutsche Börse Group by raising awareness and providing training on data protection in the context of the Group's business activities.

The implementing measures, started in 2017, were continued and concluded in 2018. In 2019, the data protection organisation will integrate its monitoring framework into the structure of compliance safeguards and controls, as a second line of defence on data protection. The Data Protection Officer informs senior management on an annual basis about the measures taken.

**Inside information**
In its capacity as an issuer of securities, Deutsche Börse Group has access to information which, in accordance with legal requirements, may be classified as inside information. To raise awareness amongst the employees affected, further measures were introduced on a Group-wide basis in 2018. These measures are designed to mitigate the risks of market manipulation and insider trading for employees' personal account transactions and are geared towards ensuring that maximum sensitivity is applied to dealing with such information.

Compliance maintains a Group-wide restricted list of issuers and financial instruments affected by any particularly sensitive, relevant information. Compliance may impose a general prohibition of trading for such issuers or financial instruments or may prohibit certain types of transactions. A confidential watchlist is used to summarise compliance-relevant information about other issuers and/or financial instruments. In particular, Compliance uses these lists to monitor personal transactions of employees as well as information barriers.

**Internal/external audit**
At least once a year, Internal Audit checks whether the measures and concepts of the compliance management system comply with the regulatory requirements, in a risk-based manner. Moreover, regulated entities are subject to statutory external audits.

## Social matters

As a market infrastructure provider, Deutsche Börse Group considers ensuring transparency on the capital markets as its direct responsibility. In doing so, it fosters stability in these markets, thereby promoting their economic success. Positioning itself in this manner, Deutsche Börse Group focuses on the needs of market participants. The management is involved through its participation on the Group Sustainability Board, which is also described in detail in the section entitled "Management approach for a Group-wide commitment to sustainability".

### Sustainable financial market initiatives

In April 2018, Deutsche Börse Group's initiative "Accelerating Sustainable Finance" and the Hesse Ministry of Economics' "Green Finance Cluster" merged to form the "Green and Sustainable Finance Cluster Germany e. V." (GSFCG). The goal of this new Cluster is to enhance the expertise on sustainable finance in the market, put that expertise to efficient use, and identify (as well as take) specific action to make national and international financial markets structures fit for the future. The Cluster has defined four fields of action: sustainable finance – status quo and innovation; data and digitalisation; metrics and standards; dialogue and knowledge development. It coordinates the activities of the participating institutions within these fields of action and brings them together with policymakers, regulators, civil society and academia. At a European level, the Cluster is a member of the technical expert group on sustainable finance and thus actively involved in the European Commission's Action Plan on sustainable finance, whose implementation the Cluster supports.

### Stable, transparent and fair markets

#### Systems availability

Deutsche Börse AG operates its trading systems for the cash and derivatives markets as redundant server installations, distributed across two geographically separate, secure data centres. Should a trading system fail, the other data centre would take over operations. Together with clients, Deutsche Börse successfully simulated this scenario – as well as the impact of local disruptions – within the scope of the FIA test (the annual disaster recovery exercise conducted by the Futures Industry Association). Other disruptions, such as workstation malfunctions or personnel absence, were also tested. Thanks to manifold tests and the verified roll-out of software, as well as the continuous monitoring of the network, servers and applications, Deutsche Börse Group achieved a 99.912 per cent availability of its cash market trading system and 99.963 per cent for its derivatives trading system. These levels corresponded to downtimes of around 178 minutes and 84 minutes, respectively, during the entire year.

#### Market transparency

Section 42 (1) of the Börsengesetz (BörsG, German Exchange Act) authorises exchanges to impose additional admission requirements and further notification duties upon equity issuers for parts of the Regulated Market. The Frankfurter Wertpapierbörse (FWB®, the Frankfurt Stock Exchange) used this authorisation in its Exchange Rules (section IV, sub-section 2) to create the "Prime Standard" in 2003. The Prime Standard segment is characterised, on the one hand, by special post-admission obligations, which are monitored by the FWB with any breaches sanctioned by the exchange's Sanctions Committee; on the other hand, admission to the Prime Standard is a mandatory requirement for inclusion into one of Deutsche Börse AG's selection indices.

Over and above statutory requirements under the Wertpapierhandelsgesetz (WpHG, German Securities Trading Act), Prime Standard issuers must submit their financial reports (annual and half-yearly reports), as well as their quarterly statements for the first and third quarter, to FWB, in German and/or English and within set deadlines. Moreover, Prime Standard issuers must submit their calendars of material corporate events to FWB, hold an analysts' conference at least once a year and publish any inside information in English as well as German. All submissions to FWB must be carried out via the Exchange

Reporting System (ERS®). This electronic interface allows for efficient sorting and display of data, so that any (impending) failure to meet a deadline can easily be spotted. This allows FWB to support issuers concerning their transparency duties in the best possible manner by sending out e-mail reminders prior to each deadline. All reports and data submitted to FWB are subsequently available on www.boerse-frankfurt.com, the exchange's website, under the respective issuer's name. Information is thus accessible to interested investors in a compact, easy-to-find manner, creating a particular level of market transparency within the Prime Standard segment. Thanks to the special requirement for submission via ERS, FWB is also able to monitor fulfilment of transparency requirements – seamlessly and without delay.

In the summer of 2017, the Zweites Finanzmarktnovellierungsgesetz (2nd FiMaNoG, Second German Financial Markets Amendment Act) was adopted. It provided for an increase in the maximum administrative fine pursuant to section 22 (2) of the BörsG from €250,000 to €1.0 million. This increase, implemented and practically applied for the first time in 2018, allows for an even more effective enforcement of post-admission duties, and FWB's management board has suggested higher administrative fines for sanctioning contraventions of post-admission duties in its notices handing over cases to the Sanctions Committee.

In 2018, six cases were submitted to the FWB Sanctions Committee for the delayed disclosure of information. Three of these proceedings had been completed with the expiry of the 23 January 2019 deadline. In two of the proceedings, fines were imposed in an amount totalling €46,600, and in one proceeding the issuer was given a reprimand.

The seamless and timely monitoring of post-admission financial reporting duties combined with even more effective sanctions for non-compliance with financial reporting duties as introduced in 2018 has provided even more incentive for Prime Standard issuers to adhere to their transparency obligations.

Deutsche Börse Group launched a new segment for green bonds – bonds issued to raise capital for projects with climate and environmental benefits – on the Frankfurt Stock Exchange in November 2018. This "shop window" for green investors included about 150 bonds at its launch. All bonds in this segment comply with the Green Bond Principles of the International Capital Markets Association, which offer guidelines on key components of issuance: use of proceeds, process for project selection, management of proceeds, as well as reporting. In creating the new segment, Deutsche Börse is reacting to the demand for sustainable finance, which is rising globally. Investors who care not only about the economical, but also the ecological return of their investment can find the right strategy under www.boerse-frankfurt.de > Bonds > Green Bonds. The bonds included in Deutsche Börse's segment are admitted for trading at various European stock exchanges, including the Frankfurt Stock Exchange.

### Stable financial markets

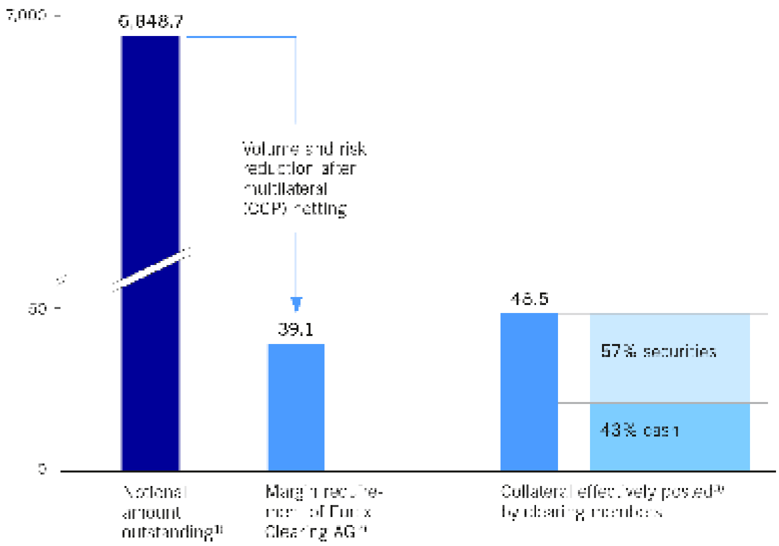
The core economic function of an exchange is to preserve economic prosperity and create the right framework conditions for growth. As a global market infrastructure provider, Deutsche Börse Group operates markets that help enterprises of all sizes to raise equity and debt – which in turn enables them to grow, create and protect jobs and contribute to a higher level of value creation.

As central counterparty (CCP), Clearing AG fulfils its responsibility of promoting sustainable global economic growth and stable financial markets. As a clearing house, it is an independent risk manager and ensures that clearing members' risk positions are neutrally assessed. It also protects members in the event of a market participant defaulting, thus minimising risks and enhancing both the efficiency of trading and the stability of the financial markets. The bundling of default risk permits high netting effects, which in turn facilitate sustainable cost savings for the entire market.

The outcome of the UK's Brexit referendum on 23 June 2016 has caused significant uncertainty for the entire European financial services sector. A key issue in this context is the clearing of over-the-counter (OTC) interest rate derivatives. Based on outstanding volumes of some €292 trillion, this is the second largest market for financial derivatives after currency derivatives [source: BIS, Semiannual OTC Derivatives Statistics, June 2018; the indication provided by the Bank for International Settlements of approx. €413 trillion (www.bis.org > Statistics > Derivatives > OTC derivatives statistics) was adjusted by eliminating the dual counting of interdealer volumes (source: www.clarusft.com); USD/EUR exchange rate as at 30 June 2018: 1.1658 (Deutsche Bundesbank)]. The EU and the United Kingdom are currently negotiating the terms for Britain's exit from the EUeurex (. The issue of access to clearing houses outside the 27 remaining EU member states is subject to an ongoing and heated debate, which in turn has given rise to a feeling of considerable uncertainty among market participants. Eurex Clearing AG has come up with a solution designed to make the (potentially required) shift of euro clearing into the EU-27 as straightforward as possible for all market participants: the Eurex Clearing Partnership Program. Through this initiative, Eurex Clearing AG is not only offering the market an attractive alternative for clearing interest rate derivatives outside of London and within the EU-27 but also anticipating potential market turbulence and taking early action to counteract it.

Risk mitigation via netting and collateralisation

€ billion, as at 31 December 2018




1) Notional amount outstanding
As at 31 December 2018, transactions cleared by Eurex Clearing amounted to €6,848.7 billion notional outstanding.

2) Margin requirement
Risks arising out of open positions are quantified. Eurex Clearing requires its clearing members to post collateral (margin) to cover these risks.

3) Collateral
Clearing members can provide securities and cash as collateral. They may post more collateral than required by Eurex Clearing.

## Non-financial key indicators: social matters

| | | 2018 | 2017 |
|---|---|---|---|
| **Transparency** | | | |
| Proportion of companies reporting in accordance with maximum transparency standards[1] | % | 91 | 91 |
| **Security** | | | |
| Availability of cash market trading system[2] | % | 99.912 | 99.968 |
| Availability of derivatives market trading system[2] | % | 99.963 | 99.967 |
| Average monthly cleared volumes across all products[3] | € trillion | 23.5 | 20.6 |

1) Ratio of the market capitalisation of companies listed in the Prime Standard for shares to the market capitalisation of all companies listed on Frankfurter Wertpapierbörse (FWB®, the Frankfurt Stock Exchange)
2) System availability ranks amongst the most important non-financial performance indicators (as defined in DRS 20 and section 289 (3) in conjunction with section 289 (1) sentence 3 of the HGB) for which a forecast is made.
3) Average monthly clearing volume, including exchange-traded and OTC derivatives, as well as securities and repo transactions. Clearing volumes are subject to double counting.

Deutsche Börse Group pays wages, salaries and taxes. Its commercial activity therefore contributes to private and public income – this contribution is made transparent in the value-added statement. For details, please refer to the “Value added: breakdown of corporate performance” section. For the year under review, a regional breakdown of costs cannot be provided for technical reasons. The company is reviewing the existing procedure for potential improvements.

## Product matters

### Customer satisfaction

Deutsche Börse Group is executing a Group-wide growth strategy with which it aims to strengthen its agility, ambition, effectiveness and clear customer focus. In improving its organisation, the Group aims to better address changing client needs and gradually tap unutilised potential by means of a Group-wide approach to marketing, sales, innovation and product development.

In 2018, surveys across the Group were aligned; they include common questions and use a standardised “Net Promotor Score” methodology. In this context, businesses ask their clients about their readiness to recommend the service provider.

In the latter half of the reporting year, all of the pertinent product and service areas conducted their customer satisfaction reviews in parallel with the aim of notifying senior management and staff of the results shortly after the close of the survey. Each area notifies the senior management and the respective Board member with the survey results and analysis. Results are also consolidated at the level of Group Sustainability for inclusion in the annual report. The conclusions of the newly conceived surveys are intended to be communicated back to clients using the appropriate channels, while the results at a Group level will also be assessed.

One example of Deutsche Börse Group's customer focus is Clearstream's annual client services survey. This survey aims to identify customer needs and prioritise and address enhancement requests to further improve products and services. The results of this survey are taken up by the Clearstream Client Committee, which includes senior management, where concrete actions are taken to address customer needs. The Clearstream senior management is provided with an overview of the items (customers' needs/ complaints) raised in the survey and information about the actions taken to address these with the respective product areas. In the course of the year, updates are provided in the different management forums.

**Sustainable index products**
STOXX Ltd., a Deutsche Börse Group company, calculates and distributes more than 11,000 indices, a growing number of which are designed after sustainability aspects. 900 indices are currently reviewed and may be reintroduced in 2019. STOXX's offering of sustainability indices is diversified and includes environmental, social and governance- (ESG), climate change- and carbon emissions-related products. Indices are built based on internal research and the evaluation of market demand.

For all indices, the ultimate goal is to provide solutions to investors who consider sustainability a key element of their investment strategy. STOXX® and iSTOXX® indices focus on indicators that can be assessed quantitatively and are compiled by research providers specialised in the field. Within this approach, STOXX aims to select companies that are ranked better than their peers according to selected indicators and tilt the allocation towards those companies.

The latest extension to STOXX suite of ESG-related indices is the launch of the STOXX® Europe 600 ESG-X index in November 2018. This index is based on the STOXX® Europe 600 index, one of Europe's key benchmarks, with standardised ESG exclusion screens applied. The screens are based on the responsible policies of leading asset owners and aim to reduce reputational and idiosyncratic risks. STOXX specifically exclude companies that Sustainalytics considers to be non-compliant with the UN Global Compact Principles, are involved in controversial weapons, are tobacco producers and that either derive revenues from thermal coal extraction or exploration or have power generation capacity that utilises thermal coal. The STOXX Europe 600 ESG-X index is suitable for underlying mandates, passive funds, ETFs, structured products and listed derivatives with the ambition to increase liquidity and lower the cost of trading.

**STOXX Sustainability indices**
The STOXX Sustainability index families provide access to companies that are leaders in terms of ESG criteria. Indices are available for Europe (STOXX Europe Sustainability) and the eurozone (EURO STOXX Sustainability). Components are selected from the STOXX Europe 600 indices according to their respective sustainability rating.

The EURO STOXX Sustainability index offers a consistent, flexible and investable representation of the sustainability leaders in the eurozone in terms of long-term ESG criteria. With a variable number of components, the EURO STOXX Sustainability index covers stocks from eleven eurozone countries: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain.

### STOXX Global ESG Leaders and ESG Specialized Leaders index family

The STOXX Global ESG Environmental Leaders, STOXX Global ESG Social Leaders and STOXX Global ESG Governance Leaders indices that together form the STOXX Global ESG Specialized Leaders indices, all consist of companies that are leading in one of the three sustainability dimensions and range above average in all other criteria. All components of the specialised indices together make up the STOXX Global ESG Leaders index. To keep up with the demands of responsible investors, STOXX excludes companies from the index universe that are involved in controversial weapons or violate one or several of the Global Compact Principles. The ESG blue-chip indices are derived from the STOXX Global ESG Leaders index and cover the largest capitalisations regionally. In all above-mentioned ESG indices, constituents are weighted proportionally to their ESG score – hence, a better score means a higher weight in the index. ESG data are provided by Sustainalytics.

### STOXX Climate index family

The STOXX Global Climate Impact Ex Global Compact and Controversial Weapons and STOXX Global Climate Impact Ex Global Compact Controversial Weapons & Tobacco indices select those companies that are seen as leading in terms of climate change. These companies qualify based on particular actions that mark them as leaders or provide evidence that they understand their climate impact and take measures to manage it.

The STOXX Climate Awareness Ex Global Compact Controversial Weapons and STOXX Climate Awareness Ex Global Compact Controversial Weapons & Tobacco indices additionally include companies that have looked at implications of climate change for and on their business and display a high contextual knowledge of environmental issues. All emissions-related data are provided by CDP (formerly known as the “Carbon Disclosure Project”).

The STOXX Global Climate Change Leaders index includes companies that are seen as leading companies in terms of climate change. These companies qualify based on particular actions that mark them as leaders and have high scores across all other levels of the CDP Scoring matrix. Scoring requires detailed company-specific explanations. The components are selected from the CDP A-List.

### STOXX Low Carbon index family

The STOXX Low Carbon indices focus on the selection of stocks with low carbon intensity scores using a weighting scheme that balances between the company’s size and its emissions amount.

### ESG Impact index family

A further family of indices, the ESG Impact indices, aims to select companies committed to specific, significant corporate governance criteria, such as carbon emission reduction targets, percentage of independent board members, percentage of women in the board, policies against child labour and limitations of “golden parachute” agreements.

In addition to the above-mentioned STOXX indices, Deutsche Börse’s ÖkoDAX® index focuses on German companies active in the renewable energy business.

### iSTOXX ESG offering

Under the umbrella of the iSTOXX brand, STOXX also offers a broad range of customised ESG-related indices that cater to specific client requirements. These indices offer specific strategies within the broader STOXX universe of responsible investing indices that track companies that are pioneering or making the most headway in the transition to a low-carbon economy and a fairer and better world from the perspective of ESG principles. STOXX offers include the iSTOXX North America ESG Select 30, iSTOXX Global Women Leadership Select 30 and iSTOXX Global Industry Neutral ESG 600 indices.

All data and service providers appointed by STOXX are subject to regular monitoring as required by the regulations of the International Organization of Securities Commissions (IOSCO) and the European Securities and Markets Authority (ESMA). STOXX indices are entirely rule-based. Consequently, there is neither a committee involved nor are customers consulted in the process of reviewing the index composition.

There is an increasing demand for considering sustainability indicators in the investment process. Having launched several index families focused on different aspects of sustainability and by continuing researching applications of sustainable portfolio allocations, STOXX aims to provide their clients with state-of-the-art solutions in that space. The current index offering ensures that STOXX's products are securely established in the market and that STOXX can offer a timely response to the next developments in sustainability.

STOXX, as an index provider, also has the duty to represent the economic reality of the environment in which financial actors operate. From this point of view, sustainable investment currently represents only a minority and is still mostly perceived as an investment add-on, rather than an essential building block. In order to prepare for and help facilitate a shift in investment culture, STOXX develops and maintains a broad range of sustainability indices in response to investors' current as well as anticipated demand. The broad range of solutions may also aim at mitigating business risk should investors decide to reallocate more significant parts of their investments to sustainability-oriented solutions, which may be driven, in part, by investor-specific or external regulations.

### Energy and energy-related markets

Deutsche Börse Group holds a majority shareholding in European Energy Exchange AG (EEX), Leipzig, Germany. The product and service offerings of EEX and its subsidiaries focus on energy and energy-related markets (e.g. power, gas, emission allowances). By providing liquid, secure and transparent markets, EEX group plays an important role in improving the efficient functioning of these markets that are directly linked to questions of climate change. This includes the continuous development of new products and services, providing market solutions to support the long-term transition of Germany's and Europe's energy system towards a higher share of carbon-free, renewable energy sources.

EEX is constantly developing new support within the framework of the German "Energiewende" and wider EU climate and energy policy, which includes the long-term 2030 and 2050 climate and energy policy targets. In addition to power markets, EEX operates a regulated market for emissions allowances. EEX also hosts the central auction platform for the EU Emissions Trading System, organising regular auctions on behalf of 27 EU member states, including 25 countries that form an EU-wide auction platform to be coordinated by the European Commission, Germany and Poland. Furthermore, EEX is developing new hedging instruments to address the effects of increasing power generation from renewables.

In the ongoing transition to an energy system with a higher share of renewables, EEX is taking an active role by introducing new products to support this process and adapting existing products. One example of the latter is the introduction of shorter lead times for power trading, thereby supporting the integration of renewable energy. Through extending its membership base, EEX is actively supporting new players in the power market, which is a core requirement for an efficient transition of the energy system.

This offering also stretches globally. On 16 November 2018, EEX subsidiary Nodal Exchange and IncubEx announced the successful launch of their first tranche of North American environmental contracts. The new contracts are listed on the T7® system and mark the expansion of Nodal Exchange's products into the environmental markets sector. The new contracts include futures and options on California Carbon Allowances, Regional Greenhouse Gas Initiative Allowances (RGGI), New Jersey Solar Renewable Energy Certificates, PJM Tri-Qualified Renewable Energy Certificates and eleven other emissions and renewable contracts.

Deutsche Börse Group's indirect economic impact, and particularly its trading activity and traded contracts, benchmarked against other exchange operators, can be found in the report on economic position in this combined management report (see tables entitled "Development of trading activity on selected European cash markets" and "Development of contracts traded on selected European derivatives markets").

Non-financial key indicators: sustainable index products

| | | 31 Dec 2018 | 31 Dec 2017 |
|---|---|---|---|
| **ESG criteria** | | | |
| Assets under management in ETFs based on ESG indices from STOXX[1)] | €m | 91.9 | 55.1 |
| Total assets under management in ETFs based on ESG indices from STOXX | €bn | 68.2 | 83.4 |
| **Transparency** | | | |
| Number of sustainable index concepts | | 131 | 117 |
| Number of calculated indices | | 11,547 | 12,422 |

1) Based on the ETFs issued in 2016: FlexShares STOXX® Global ESG Impact index and FlexShares STOXX® US ESG Impact index

## Respect for human rights in the supply chain

Being aware of its corporate responsibility, Deutsche Börse Group has committed to adhere to principles of sustainability. As a public listed company, it strives to lead by example by accepting its corporate responsibility holistically and disclosing how it does so. For this reason, the management approach for a Group-wide commitment to sustainability includes respect for human rights not only in the supply chain but also within the company. In addition to the Group's employees, suppliers and service providers are also expected to abide by these principles. To this end, Deutsche Börse Group has introduced the code of conduct for suppliers, which comprises ESG criteria.

The product groups that are material for Deutsche Börse Group's supply chain are energy, information and communications technology, IT services and office equipment. The Group also turns to external suppliers and service providers for marketing services and advertising materials. The Group's goal is to implement as reliable a supplier strategy as possible and a stable procurement organisation; it aims to ensure that all suppliers and manufacturers deliver the price and performance of the products and services agreed. When choosing suppliers and service providers, the Group focuses on European vendors and takes care to ensure that their conduct is ethical.

Corporate Purchasing continuously improves the Group's procurement process according to the agreements stipulated in the code of conduct for suppliers. It does this by regularly analysing the suppliers managed by Corporate Purchasing and classifying them using an ABC analysis. This breaks them down into three categories accounting for 70 per cent, 20 per cent and 10 per cent of expenditure volumes, respectively. The Group's objective is to ensure that at least 90 per cent of its global procurement volume stems from suppliers that fulfil the agreements set forth in the code (i.e. all category A and category B suppliers must sign such agreements). Major category C suppliers are naturally also requested to sign.

At present, around 98.8 per cent of the procurement volume is covered by agreements defined by Deutsche Börse Group's code of conduct for suppliers. As a rule, new suppliers must sign this agreement, which has resulted in a continual, steady rise in the number of suppliers committed to the code of conduct for suppliers. In exceptional cases, suppliers must, at a minimum, have a voluntary commitment in place that is equivalent.

The commitment of suppliers and service providers to adhere to the code is only one element in the Group's endeavours to select responsible business partners. In a Group-wide evaluation process, category A suppliers are continuously appraised according to criteria covering, amongst other things, their economic, environmental, social and ethical sustainability.

Category A and B suppliers are monitored and reviewed according to various risk criteria in cooperation with an external service provider. This "risk radar" monitors risks along the entire supply chain from (sub-)suppliers to logistics nodes, right through to the end customer. This process covers all types of risks: supplier risks (e.g. compliance, financial stability and quality), location risks (e.g. related to industrial action or natural disasters), country risks (e.g. political risk or sanctions) and risks related to certain groups of goods (e.g. import restrictions). In the event of any risk materialising, the early warning system will issue alerts by e-mail (611 in 2018), which will then be evaluated manually. Depending on the level of impact, the Group will engage in an active dialogue with the contracting parties. Moreover, analyses facilitate the evaluation of latent risk exposures or negative trends (where no damage has occurred) in order to enact targeted measures designed to prevent such risks.

Moreover, Deutsche Börse Group analyses the extent to which its suppliers have their own guidelines – such as codes of conduct for employees or suppliers and service providers – or have committed to recognised social responsibility standards. In 2018, the Group conducted a survey of suppliers managed by General Purchasing to identify environmental and social risks, especially with regard to human rights, and to close potential gaps. In addition, it was analysed whether suppliers have operations in countries with a poor record as regards human rights abuses, or whether they purchase services or goods from these countries. Those who responded to this survey accounted for 52 per cent of purchasing order volumes in 2018. These suppliers represent the sample on which the following analysis is based.

The analysis revealed that 67 per cent of participating suppliers have their own code of conduct for employees and/or code of conduct for suppliers and service providers, or have committed to at least one set of social responsibility standards (International Labour Organisation, UK Modern Slavery Act, UN Global Compact, UN Declaration of Human Rights). For participating category A suppliers, this figure was 76 per cent, 78 per cent for category B suppliers and 58 per cent for category C suppliers.

Additionally, the supplier survey revealed that 20 per cent of participating suppliers have operations in countries regarded by the United Nations Environment Programme Finance Initiative as involving human rights risks. Of these suppliers, 86 per cent have a code of conduct or supplier code of conduct or have committed to at least one set of the above-mentioned social responsibility standards.

The companies which operate in high-risk countries and/or have suppliers in these countries and have not yet taken the necessary actions to comply with environmental and social standards, have signed Deutsche Börse Group's code of conduct for suppliers.

Non-financial key indicator: respect for human rights

| | 2018<br>% | 2017<br>% |
|---|---|---|
| Share of turnover with suppliers or service providers which have signed the code of conduct, and/or have self-commitments exceeding the standards set by the code | 98.8 | 98.9 |

## Comparison with the forecast for 2018

With regard to the development expected of its non-financial performance indicators for 2018, the Group only partially succeeded in maintaining the previous year's level of systems availability: in the cash market, trading system availability was at 99.912 per cent (2017: 99.968 per cent). The availability of the T7 system for the derivatives market was at 99.963 per cent (2017: 99.967 per cent).

In its endeavours to increase the share of women holding executive positions, as early as in 2010, the Executive Board had adopted a voluntary commitment to increase the share of women holding middle and upper management positions to 20 per cent by 2020 and women holding lower management positions to 30 per cent during the same period. The Group maintains this ambition and has extended the scope of its voluntary commitment over and above the legal requirements. Firstly, the target figures determined in this context relate to Deutsche Börse Group worldwide. Secondly, the definition of management levels/positions was extended to also include heads of teams, for example. On a global level, as at 31 December 2018, Deutsche Börse Group achieved a quota of 14 per cent for the upper and middle management levels (2017: 14 per cent) and 29 per cent for lower management positions (2017: 29 per cent). For Germany, the quotas were 14 per cent (2017: 15 per cent) and 26 per cent (2017: 26 per cent), respectively.

## Risk report

Deutsche Börse Group's core area of expertise includes solutions that enable its customers to efficiently manage risk and collateral. It is therefore all the more important for the Group to protect itself against risk. This section of the combined management report shows how the company deals with risks and threats. Deutsche Börse Group ensures a solid capital base at all times. The proportion of risk to risk-bearing capacity has slightly declined in the 2018 financial year. Whereas Deutsche Börse Group's risk rose by 9 per cent compared to the previous year, the risk-bearing capacity rose by 12 per cent. New risks arose mainly in the areas of taxes and cyber crime.

The first section of this risk report explains the risk strategy and demonstrates how Deutsche Börse Group manages its risk. In the second section of this risk report, approaches and methods employed for monitoring risk will be outlined. In the third section, the various types of risks the Group is exposed to are described and how the Group manages them. The fourth section provides a summary of the risk situation, together with an outlook on future developments for Deutsche Börse Group's risk management. Supplementing the risk report, senior management sets out what it believes the Group's future prospects are in the report on opportunities.

Deutsche Börse Group includes the following entities which are regulated as credit institutions: Clearstream Banking S.A. and Clearstream Banking AG (hereinafter referred to as "Clearstream", including Clearstream Holding AG), as well as Eurex Clearing AG. Furthermore, Eurex Clearing AG and European Commodity Clearing AG are authorised as central counterparties (CCPs) and subject to the requirements of the European Market Infrastructure Regulation (EMIR). In addition, other Group companies hold different licences to provide regulated activities in the financial services sector. As such, these entities are subject to comprehensive statutory requirements, inter alia on risk management (for further information on the regulated entities, please refer to note 15 to the consolidated financial statements). Over and above the statutory requirements of the EU directives (CRD IV and MiFID II) and their implementation into national law, other regulations worth mentioning include primarily EU regulations (CRR and EMIR), the national requirements of the Minimum Requirements for Risk Management (MaRisk) issued by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin), and circular 12/552 issued by the Financial Supervisory Authority of Luxembourg (Commission de Surveillance du Secteur Financier, CSSF). In this context, significant parts of risk management are defined in the scope of the so-called second pillar of the Basel III regime for a number of the Group's companies. Moreover, national regulations implementing the EU Banking Recovery and Resolution Directive (BRRD) and the establishment of recovery plans apply to Clearstream and Eurex Clearing AG. Deutsche Börse Group follows international standards (e.g. COSO) in its risk management and applies these also without or beyond statutory requirements. Hence, the risk management adheres to high standards on a Group-wide level.

The highest regulatory standards within the Group are applicable to Eurex Clearing AG and Clearstream given their regulation as credit institutions. Considering this and their economic importance, this risk report focuses on these two subsidiaries in particular.

In the course of 2018, Deutsche Börse Group has increased its personnel both in central risk management and in the regulated subsidiaries Eurex Clearing AG and Clearstream.

With its range of risk management services, Deutsche Börse Group strives to make a sustainable contribution – primarily through its role as an organiser of capital markets, securing market integrity and security, and also by enhancing market efficiency in distribution, through its price discovery function. On top of this, Deutsche Börse Group assumes key risk management functions for its clients – for example, through a central counterparty (Eurex Clearing AG).

## Risk strategy and risk management

Deutsche Börse Group's risk strategy is aligned with its business model and company strategy. The Group provides the infrastructure for reliable and secure capital markets, assists constructively in their regulation and plays a leading role in all of the areas in which it does business. Deutsche Börse Group's risk strategy is based on three core principles:

### 1. Risk limitation – protecting the company against liquidation and ensuring its continuing operation

"Capital exhaustion should not occur more than once in 5,000 years and an operating loss may not be generated more than once every hundred years." This means that one goal is to ensure a probability of 99.98 per cent or more that the total capital will not be lost within the next twelve months. Another objective is to guarantee for a probability of 99.0 per cent or more that Deutsche Börse will at least break even, expressed in terms of its EBITDA. In other words, this principle establishes how much risk the Group must be able to withstand while also determining its risk appetite.

### 2. Support for growth in the various business segments

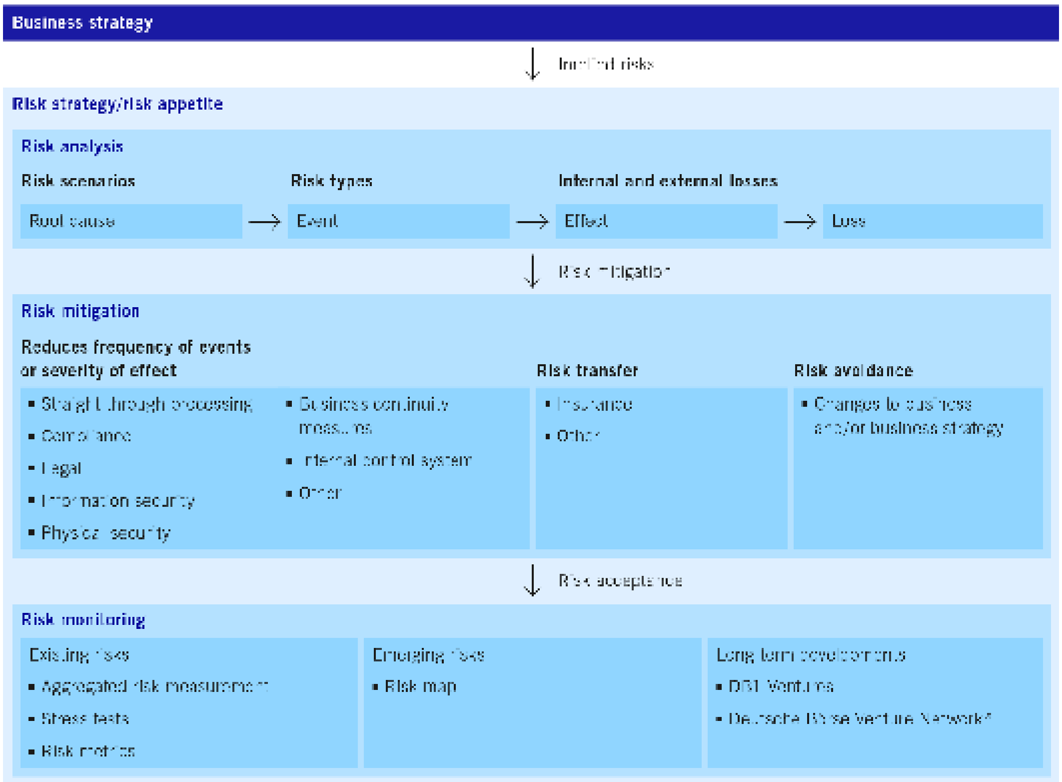
"Risk management supports the business areas in expanding their business by working together to comprehensively identify and communicate risks." This principle aims to permit the Group to make informed strategic decisions within the scope of the risk appetite that it has defined.

### 3. Appropriate risk/return ratio

"The return on equity should exceed the cost of equity." Deutsche Börse Group has set itself the goal of ensuring that risk and return should be reasonably balanced, both for specific business areas in general and for individual regions, products and customers.

Internal risk management is based on the Group-wide detection and management of risk, which is focused on its risk appetite, see the "Interlocking business strategy and risk strategy" chart. Deutsche Börse AG's Executive Board has the overall responsibility and defines the framework for risk management throughout the Group. Under these Group-wide risk management requirements, each business segment and each regulated company is responsible for managing its own risk. This coordinated process ensures, for example, that the Group's and its companies' reaction to the simultaneous failure of several systems and their reaction to the failure of a single system are equally quick and effective.

Interlocking business strategy and risk strategy




**Implementation in the Group’s organisational structure and workflow**
The risk strategy applies to the entire Deutsche Börse Group. Risk management functions, processes and responsibilities are binding for all Group employees and organisational units. To ensure that all employees are risk-aware, risk management is firmly anchored in the Group’s organisational structure and workflows and is flanked by measures such as risk management training. The Executive Board is responsible for risk management overall, whereas within the individual companies it is the responsibility of the management. The boards and committees given below receive comprehensive and timely information on risks.

Deutsche Börse AG’s Supervisory Board evaluates the effectiveness of the risk management system, its continuing development and oversees the monitoring of risks. The Supervisory Board has delegated the regular evaluation of the appropriateness and the effectiveness of the risk management system to the Risk Committee. The Risk Committee reviews the risk management system, its continuing improvement and oversees the monitoring of risks. In addition, it examines the risk strategy and risk appetite on an annual basis.

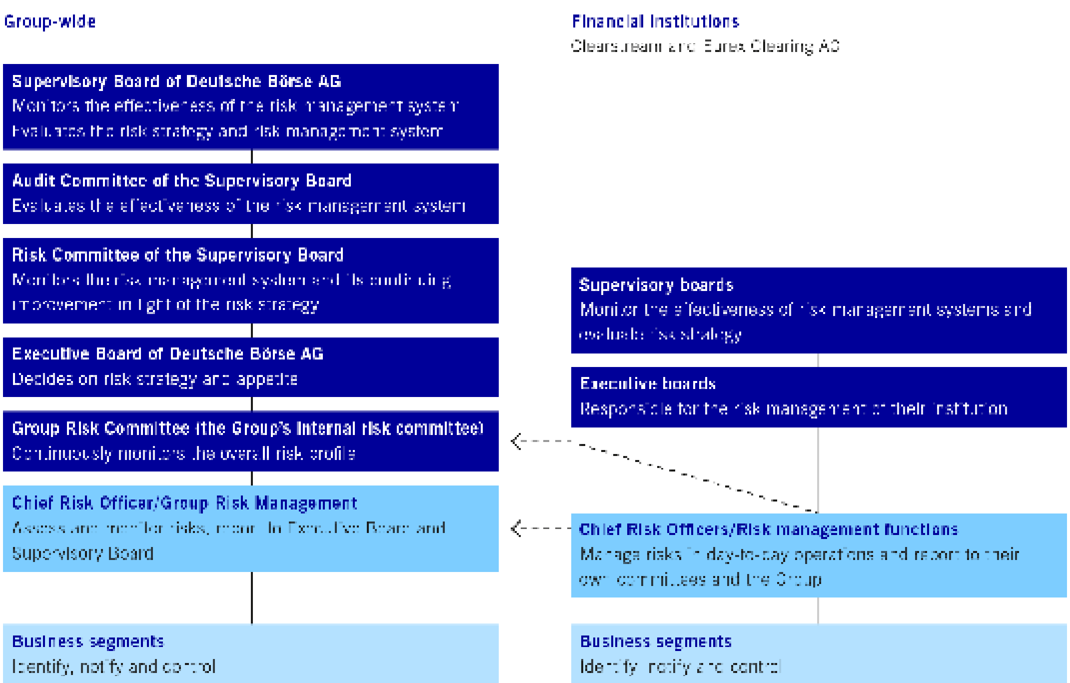
Deutsche Börse AG’s Executive Board determines the Group-wide risk strategy and risk appetite and allocates the latter to the company’s individual business segments and business units, respectively. It ensures that the Group’s risk appetite is and remains compatible with its short- and long-term strategy, business and capital planning, risk-bearing capacity and remuneration systems. The Executive Board of Deutsche Börse AG also determines what parameters are used to assess risks, how risk capital is allocated and what procedures apply. It ensures that all business units comply with these requirements for the risk strategy, risk appetite and risk limits.

The Group Risk Committee (GRC) reviews the risk position of the Group every two months and involves the Executive Board in all decisive questions. The GRC is an internal Group committee, chaired by the Chief Financial Officer. In addition, the GRC regularly checks the levels of all parameters for appropriateness and current status and, where necessary, makes recommendations to the Chief Risk Officer (CRO) or the Executive Board, as to any adjustments that should be made.

Group Risk Management (GRM) is headed by the CRO. This unit prepares the proposals to be adopted for risk levers, i.e. the Group's risk strategy, risk appetite, parameters, capital allocation and procedures. GRM continuously analyses and evaluates risks and produces quantitative and qualitative reports. These are submitted six times a year to the GRC, once a month to the Executive Board, once a quarter to the Risk Committee of the Supervisory Board and twice a year to the Supervisory Board. This system means that the responsible bodies can regularly check whether the defined risk limits are being adhered to consistently. In addition, GRM recommends risk management measures.

The Group's regulated subsidiaries act in the same way, always ensuring that they meet the requirements of the Group. In particular, they adhere to the risk appetite framework allocated to them by Deutsche Börse Group. The relevant supervisory boards and their committees are involved in the process, as are the executive boards and the risk management functions within the various business areas. Clearstream and Eurex Clearing AG implement customised versions of this risk strategy, using parameters and reporting formats that are compatible with the overarching Group-wide structure. In general, the management of the subsidiary bears the responsibility for its risk management and is controlled by the supervisory board of the institute.

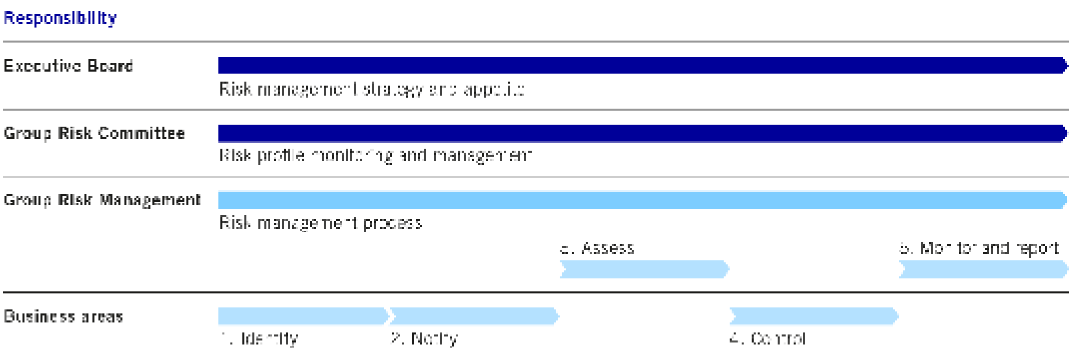
Risk management – organisational structure and reporting lines



**Centrally coordinated risk management – a five-stage process**

Risk management is implemented in a five-stage process. The objective is to identify all potential losses in good time, to record them centrally and to evaluate them in quantitative terms as far as possible; if necessary, management measures must then be recommended and their implementation monitored (see the "The five-stage risk management system" chart). The first stage identifies the risks and the possible causes of losses or operational hitches. In the second stage, the business areas regularly – or immediately, in urgent cases – report to GRM the risks that they have identified and quantified. In the third stage, GRM assesses the risk exposure, while in the fourth stage, the business areas manage the risks by avoiding, mitigating or transferring them, or by actively accepting them. The fifth and final stage involves, for example, monitoring different risk metrics and, where necessary, informing the responsible Executive Board members and committees of significant risks, their assessment and possible emergency measures. In addition to its regular monthly and quarterly reports, GRM compiles ad hoc reports for members of the executive and supervisory boards. The risk management functions at Clearstream and Eurex Clearing AG submit reports to the respective executive boards and supervisory boards. Internal Audit is responsible for monitoring compliance with the risk management system.

The five-stage risk management system




## Approaches and methods for risk monitoring

Deutsche Börse Group uses quantitative and qualitative approaches and methods for risk monitoring, with the objective of providing as complete a picture as possible of its risk situation at all times. To this end, the Group continuously reviews internal events with regard to their risk properties, while also considering regional as well as global developments. The Group is thus able to recognise and analyse existing risks; at the same time, it is able to swiftly and adequately respond to emerging risks, as well as to changes in the market and the business environment.

**Existing risks**

Deutsche Börse Group employs a range of tools to monitor and evaluate its operational, financial and business risk on a continuous basis. The risks are quantified on different confidence levels using the concept of value at risk (VaR). This quantification takes into account the liquidation principle and the going-concern principle. Furthermore, the regulatory capital requirements for Eurex Clearing AG and Clearstream are calculated with regard to the above-mentioned risks. Moreover, so-called stress tests are carried out in order to simulate extreme, yet plausible, events and their impact upon the Group's risk-bearing capacity. Another approach to risk monitoring, which serves as an early warning system for quantified and non-quantified in-house risks, is complementary risk metrics. These risk metrics are based on IT and security risks, potential losses, credit, liquidity and business risks.

**Risk measurement**

The required economic capital (REC) in accordance with the liquidation principle and the regulatory capital (RC) for credit institutions within Deutsche Börse Group are calculated. Earnings at risk (EaR) are also calculated to monitor adherence to the going concern principle.

**1. Liquidation principle: what risk can the capital cover?**

The first part of Principle 1 of its risk strategy specifies that Deutsche Börse Group should not exhaust its risk-bearing capacity in more than 0.02 per cent of all years. For Clearstream and Eurex Clearing AG, REC calculated in this manner also complies with the requirements of the second pillar of Basel III. Deutsche Börse Group determines its risk-bearing capacity on the basis of its reported equity in accordance with International Financial Reporting Standards (IFRSs). It adjusts this figure for precautionary reasons, for example, to take into account the fact that it may not be possible to dispose of intangible assets at their carrying amounts in cases of extreme stress. Clearstream and Eurex Clearing AG determine their risk-bearing capacity on the basis of their regulatory capital (for details, see note 15 to the consolidated financial statements).

For management purposes, GRM regularly determines the ratio of the REC to the risk-bearing capacity. This indicator is known as the utilisation of risk-bearing capacity and it answers a key risk management question: how much risk can the Group afford and what risk is it currently exposed to? The ratio of REC to risk-bearing capacity remained within the stipulated maximum risk throughout the reporting period. If this were not the case, the Group would in a worst-case scenario exhaust its entire risk-bearing capacity and would have to be liquidated ("gone concern").

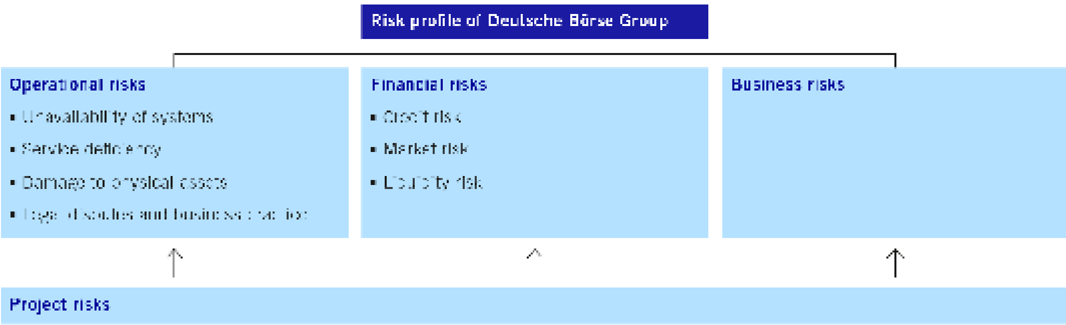
**2. Going-concern principle: what risks can be absorbed by earnings?**

Deutsche Börse Group employs the going-concern principle, which assumes an orderly continuation of the Group and uses EaR as an indicator. This indicator corresponds to the second part of Principle 1 of the Group's risk strategy, i.e. that an operating loss equal to the earnings before interest, tax, depreciation and amortisation (EBITDA) may occur no more than once in a hundred years. In other words, there should be a probability of 99.0 per cent or more that Deutsche Börse should at least break even (net profit/loss expressed in terms of EBITDA). Under the going-concern principle, EaR determined in this way is compared with the Group's risk appetite – which is, in turn, measured in terms of projected EBITDA. EaR are calculated and monitored for Eurex Clearing AG and Clearstream Holding AG with the same objective.

**3. Regulatory capital requirements**

Clearstream and Eurex Clearing AG must calculate their capital requirements for various risk types (see the "Deutsche Börse Group's risk profile" chart) in line with the Pillar I requirements under Basel III. In addition, Eurex Clearing AG must fulfil EMIR requirements. A standardised approach is used for analysing and evaluating credit and market risk; risk weightings for counterparty credit risk are applied on the basis of the relevant counterparty ratings.

Deutsche Börse Group's risk profile




The approach taken for operational risk is different for Eurex Clearing AG and Clearstream: Clearstream has used the advanced measurement approach (AMA) for this in all business units since 2008. This means that it meets the regulatory capital requirements for operational risk set out in the EU's Capital Requirements Regulation (CRR). Similar to REC calculations, the model employed was fundamentally revised and improved in 2016. According to the method – which has been approved and is regularly tested by BaFin – the regulated units calculate the required capital. In contrast, Eurex Clearing AG employs the basic indicator approach in order to calculate regulatory capital requirements (for details, see ⇒ note 15 to the consolidated financial statements).

### Stress tests

Stress tests are being carried out in order to simulate extreme, yet plausible, events for all material types of risk. Using both hypothetical as well as historical scenarios, stress tests simulate the occurrence of extreme losses, or an accumulation of large losses, within a single year. In addition, liquidity risk is evaluated by way of liquidity stress tests as well as so-called inverse stress tests; the latter analyses which loss scenarios would exceed the risk-bearing capacity.

### Risk metrics

Risk metrics are used to quantify the exposure to the most important internal operational risks against set limits. They are complementary to the VaR approach and serve to monitor other factors as well as non-quantifiable risks. Any breach of these limits serves as an early warning signal, which is reported to the Executive Board and other boards and committees on a monthly basis. Furthermore, any such breach immediately triggers the requisite risk mitigation processes.

## Emerging risks

With regard to risk management, Deutsche Börse Group pursues a sustainable, long-term strategy by also evaluating risks beyond a twelve-month horizon. For this purpose, the Group has developed so-called risk maps tailored specifically for expected or upcoming regulatory requirements and IT and information security risks. In addition, other operational and financial risks are also assessed beyond a twelve-month period. The risk maps categorise the risks according to their likelihood of occurrence as well as by their potential financial loss. The probability of occurrence is broken down into four categories: unlikely (less than 1 per cent), possible (between 1 and 10 per cent), probable (from 10 to 50 per cent) and almost certain (between 50 and 100 per cent). The estimated financial impact is also divided into categories:

low (up to €20 million), substantial (between €20 million and €100 million) and critical (over €100 million). The observation period is five years and is based on the development period of the operational risks relevant to Deutsche Börse Group, namely, regulation and IT. Typically, regulatory requirements evolve over a period of up to five years, from the first draft to implementation. This horizon is also appropriate for the evaluation of IT risks, given that technology is subject to ongoing change.

**Long-term developments**
For Deutsche Börse Group, risks that prevail throughout longer consideration periods mainly comprise the failure to respond to global changes in, or mega-trends on, the financial markets and the business environment, or a late response to such developments. In order to compensate for such risks, Deutsche Börse Group aspires to think ahead and to set standards applicable throughout the industry. The Group pursues its targets by promoting mutual exchange with regulators and market participants (e.g. white papers). A further trend worth noting is the potential of start-up companies to come up with innovations that may have a disruptive effect upon markets. Deutsche Börse Group not only actively invests in such enterprises, through its DB1 Ventures subsidiary, it also offers them a platform. Deutsche Börse Venture Network® provides an opportunity to exchange ideas and experience, and also to find investors.

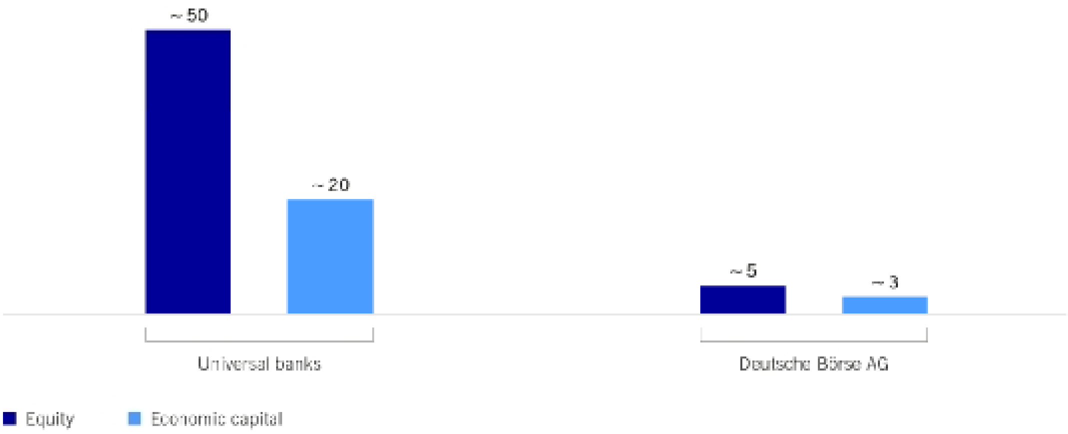
## Risk description

The following section describes the types of risk that Deutsche Börse Group generally has to manage and presents the risks it actually faces. It also explains the measures that Deutsche Börse Group uses to reduce the loss event and to minimise their financial effects. Firstly, however, what follows is a brief explanation of the risk profile, which differs from most other financial services providers, since financial risk plays a comparatively lesser role for Deutsche Börse Group.

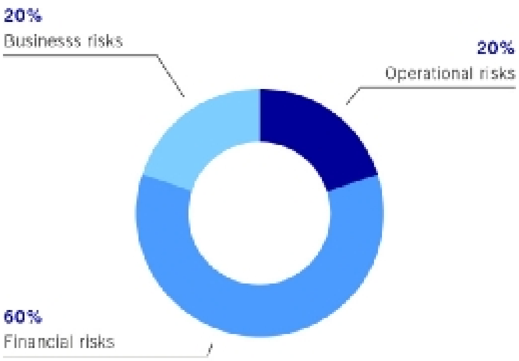
**Risk profile**
The risk profiles of Deutsche Börse Group differ fundamentally from those of other financial services providers. Unlike banks, Deutsche Börse Group has a low risk profile due to its low level of financial risk. Economic capital and balance sheet equity are also lower than that of banks (see the "Risk profile of Deutsche Börse Group in comparison to German universal banks" chart). Deutsche Börse Group differentiates between the three standard types of risk: operational risk, financial risk and business risk. Project risk also exists but the Group does not specifically quantify these as their impact is already reflected in the three traditional risk types. The majority of risks are operational risks (see the "Required economic capital for German universal banks by risk type" and "Required economic capital for Deutsche Börse Group by risk type" charts).

Risk profile of Deutsche Börse Group in comparison to German universal banks

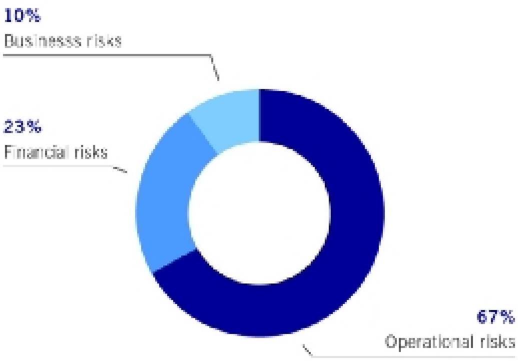
€ billion




Required economic capital for German universal banks by risk type




Required economic capital for Deutsche Börse Group by risk type




**Operational risk greater than financial and business risk**

Risk-bearing capacity in terms of the liquidation principle and risk appetite under the going-concern principle are used as internal management indicators throughout Deutsche Börse Group (see the "Approaches and methods for risk monitoring" section for an explanation of these terms). In addition to the financial and operational risk already mentioned, business risk is also identified and assessed. This relates in particular to potential threats to revenue such as price pressure or loss in market share, as well as cost risks. Under the liquidation principle, financial risk amounts to approximately 23 per cent of Deutsche Börse Group's total risk, while business risk represents 10 per cent of the total. This makes the third typical risk type all the more important for Deutsche Börse Group: at 67 per cent, operational risk accounts for two-thirds of the total risk following the liquidation principle. The overwhelming majority of Deutsche Börse Group's regulatory capital requirements arise from operational risks. The capital requirements of other subsidiaries are also described in note 15 to the consolidated financial statements.

A larger part of the risk is associated with the Clearstream (post-trading) and Eurex (financial derivatives) segments (see the table "Required economic capital by segment as at 31 December 2018"), in keeping with the proportion of sales revenue and earnings accounted for by their business.

## Required economic capital by segment as at 31 December 2018

| | Required economic capital €m | Risk cover amount €m | Utilisation % |
|---|---|---|---|
| Eurex (financial derivatives) | 917.0 | 1,640.0 | 56 |
| EEX (commodities) | 158.0 | 311.0 | 51 |
| 360T (foreign exchange) | 33.0 | 72.0 | 46 |
| Xetra (cash equities) | 233.0 | 300.0 | 78 |
| Clearstream (post-trading) | 806.0 | 1,257.0 | 64 |
| IFS (investment fund services) | 74.0 | 115.0 | 64 |
| GSF (collateral management) | 83.0 | 135.0 | 61 |
| STOXX (index business) | 114.0 | 141.0 | 81 |
| Data (data business) | 155.0 | 198.0 | 78 |
| **Total** | **2,573.0** | **4,619.0** | **56** |

The required economic capital includes the following risk types, which are illustrated with specific examples and then explained in detail:

### 1. Operational risk

- Failure of a trading system
- Cyber attacks
- Incorrect processing of client instructions (e.g. corporate actions)
- Incorrect handling of the default of a large customer
- Losses from ongoing legal disputes
- Conflicting laws of different jurisdictions
- Threat of tax back-payments
-

### 2. Financial risk

- Default of a credit counterparty
- Losses of on-balance sheet and off-balance sheet assets and liabilities, due to market price fluctuations
- Default by a customer and an associated liquidity squeeze

### 3. Business risk

- Market share loss in European trading markets
- The return of the European government debt crisis
- Implementation of a financial transaction tax

Risks which could jeopardise the Group's continued existence could arise only from a combination of extreme events that have a very low probability:

- Failure of a trading system over several days in a highly volatile market environment
- Simultaneous default of multiple large banks with systemic relevance
- Successful serious abuse of banking applications through a coordinated cyber attack

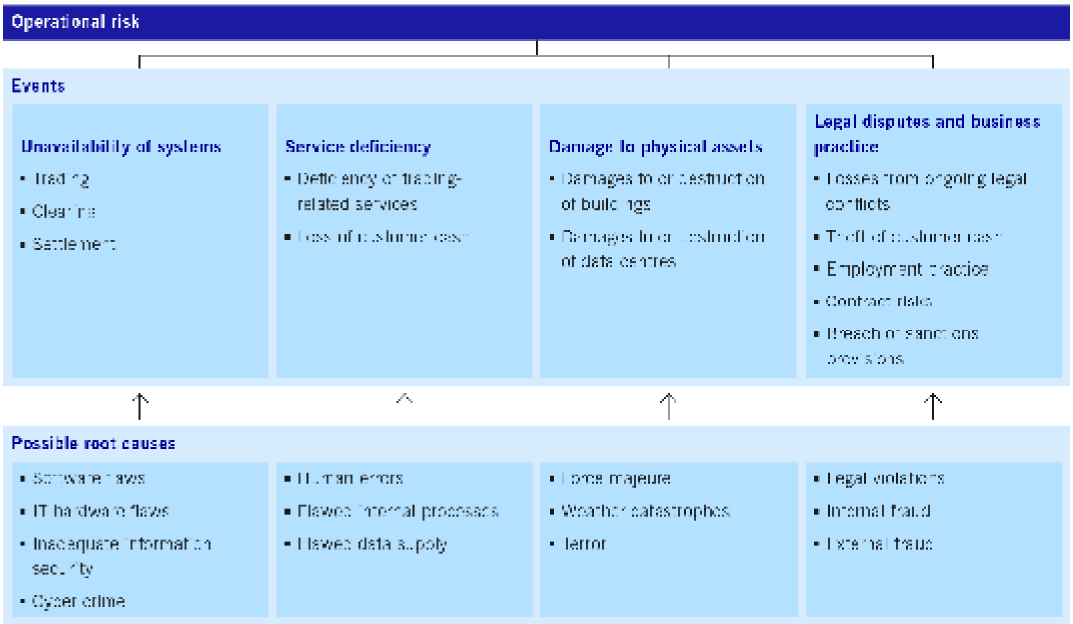
- Failure of key infrastructure providers in extreme market conditions associated with failure of lines of defence

These extreme events that could lead to a loss corresponding to more than 100 per cent of annual EBITDA are rated as having a probability of far less than 0.1 per cent. Such extreme events, also known as “tail risks”, have not occurred to date. Tail risks can turn into existential threats for certain subsidiaries, for example, when sanctions are intentionally violated. GRM assesses these risks continuously and reports the results regularly to the Executive Board of Deutsche Börse Group.

**Operational risk**

For Deutsche Börse Group, operational risk comprises, in particular, the unavailability of systems, service deficiency, damage to physical assets as well as legal disputes and business practice (see the “Operational risk at Deutsche Börse Group” chart). Human resources risks are quantified just like other operational risks. Operational risk accounts for 67 per cent of the total Group risk.

Operational risk at Deutsche Börse Group




### Unavailability of systems

Operational resources such as the Xetra® and T7® trading systems are essential for the services offered by Deutsche Börse Group. They should never fail in order to ensure that market participants can trade securities or derivatives at any time and without delay. The Group therefore calculates the availability of these systems as an important risk indicator. In line with the Group’s risk strategy, the business areas are responsible for monitoring the indicators.

The longer the downtime for one of these systems, the larger the potential loss. An outage could be caused by software or hardware issues, or in unlikely cases, the availability of the systems could be affected by acts of cyber crime or a terrorist attack. In the past, only limited failures have occurred with Xetra and T7 and its predecessor system. In practice, there has never been a system failure lasting longer than one day. Deutsche Börse Group has taken a number of measures to further minimise the risk of failure lasting an entire day or longer. This supports the view that the probability of such a system failure lasting a week in an extremely volatile market is very low. However, the potential financial effect of such an event could be significant if claims are justified and asserted.

In general, availability risk represents the largest operational risk for Deutsche Börse Group. The Group therefore subjects its systems to regular tests that simulate not only what happens when its own systems fail but also when suppliers fail to deliver.

### Service deficiency

Risks can also arise if a service provided to a customer is inadequate and this leads to complaints or legal disputes. One example would be errors in the settlement of securities transactions due to defective products and processes or mistakes in manual entries. Collateral liquidation errors in the event of the default of a large clearing customer are another example. Such errors have not occurred to date in the rare case of a failure. Related processes are tested at least annually, which is why the probability is considered to be very low. The potential financial loss is put at medium.

Other sources of error may be attributable to suppliers or to product defects or mistakes that may lead to the loss of client assets or mistakes in accounting processes. The Group registers all complaints and formal objections as a key indicator of deficient processing risk.

### Damage to physical assets

Natural disasters, accidents, terrorism or sabotage are other operational risks that could, for example, cause the destruction of, or severe damage to, a data centre or office building. Business continuity management (BCM) aims at averting significant financial damage (see the “Business continuity management” chart).

### Legal disputes and business practice

Losses can also result from ongoing legal proceedings. Deutsche Börse judges the probability that this operational risk will occur to be medium, although the losses involved could be substantial. As a result, GRM continually monitors ongoing legal proceedings. These can be brought if Deutsche Börse Group breaches laws or other requirements, enters into inadequate contractual agreements or fails to monitor and observe case law to a sufficient degree. Legal risk also includes losses due to fraud and labour law issues. This could entail, for example, losses resulting from insufficient anti-money laundering controls, breaches of competition law or banking secrecy. Such operational risks can also arise if government sanctions are not observed, e.g. in case of conflicting laws of different jurisdictions or in the event of breaches of other governmental or overarching regulations.

In its 2012 corporate report, Deutsche Börse Group provided information about Peterson vs Clearstream Banking S.A., the first Peterson proceeding. This class action lawsuit was initiated by various plaintiffs seeking to have certain customer positions held in Clearstream Banking S.A.'s securities omnibus account with its US depository bank, Citibank NA, turned over and asserting direct claims against Clearstream Banking S.A. for damages of US$250 million. The matter was settled between Clearstream Banking S.A., and the plaintiffs and the direct claims against Clearstream Banking S.A. were abandoned.

In July 2013, the US court ordered the turnover of the customer positions to the plaintiffs, ruling that these were owned by Bank Markazi, the Iranian central bank. Bank Markazi appealed, and the decision was affirmed on 9 July 2014 by the Second Circuit Court of Appeals and later by the US Supreme Court on 20 April 2016. Once distribution of the funds to the plaintiffs is complete, a related case, Heiser vs Clearstream Banking S.A., also seeking turnover of the same assets, should also be completed.

On 30 December 2013, a number of US plaintiffs from the first Peterson case, as well as other plaintiffs, filed a complaint targeting restitution of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg. In 2014, the defendants in this action, including Clearstream Banking S.A., moved to dismiss the case. On 19 February 2015, the US court issued a decision granting the defendants' motions and dismissing the lawsuit. The plaintiffs lodged an appeal against this ruling at the competent appeals court (Second Circuit Court of Appeals), which on 21 November 2017 confirmed large portions of the decision of the trial court. Regarding another aspect, the appellate court referred the case back to the court of first instance, which shall assess whether the assets held in Luxembourg are subject to execution in the U.S. In opposition to this point, Clearstream Banking S.A. filed a petition to the US Supreme Court on 8 May 2018.

On 14 October 2016, a number of US plaintiffs filed a complaint naming Clearstream Banking S.A. and other entities as defendants. The complaint in this proceeding, Havlish vs Clearstream Banking S.A., is based on similar assets and allegations as in the Peterson proceedings. The complaint seeks turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg. The complaint also asserts direct claims against Clearstream Banking S.A. and other defendants and purports to seek damages of up to approximately US$6.6 billion plus punitive damages and interest. The proceedings have been suspended due to the pending complaint to the US Supreme Court in the second Peterson case.

On 2 April 2014, Clearstream Banking S.A. was informed that the United States Attorney for the Southern District of New York had opened a grand jury investigation against Clearstream Banking S.A. due to Clearstream Banking S.A.'s conduct with respect to Iran and other countries subject to US sanction laws. Clearstream Banking S.A. is cooperating with the US attorney.

In the context of the ongoing disputes regarding assets of Bank Markazi, Clearstream Banking S.A. was served with a complaint from Bank Markazi on 17 January 2018 naming Banca UBAE S.P.A. and Clearstream Banking S.A. as defendants. The complaint filed before the Luxembourg courts primarily seeks the restitution of assets of Bank Markazi, which the complaint alleges are held on accounts of Banca UBAE S.P.A. and Bank Markazi with Clearstream Banking S.A. totalling approximately US$ 4.9 billion plus interest. Alternatively, Bank Markazi seeks damages to the same amount. The assets sought include assets to the amount of approximately US$1.9 billion that were turned over to US plaintiffs pursuant to a 2013 binding and enforceable US court order in a proceeding to which Bank

Markazi was a party. The claim also addresses customer assets of approximately US$2 billion, which include assets that are held at Clearstream Banking S.A. and currently subject to US and Luxembourg litigation brought by US plaintiffs, addressing assets that were previously transferred out of Clearstream Banking S.A. to Banca UBAE S.P.A.

On 15 June 2018, Banca UBAE S.p.A. filed a complaint against Clearstream Banking S.A. in front of the Luxembourg courts. The complaint is a recourse action linked to the complaint that Bank Markazi filed against Clearstream Banking S.A. and Banca UBAE S.p.A. on 17 January 2018 and asks that Banca UBAE S.p.A. be indemnified and held harmless by Clearstream Banking S.A. in case it were to lose in the Bank Markazi complaint and ordered by the court to pay damages to Bank Markazi.

On 26 December 2018, two US plaintiffs filed a complaint naming Clearstream Banking S.A. and other entities as defendants. The plaintiffs hold claims against Iran and Iranian authorities and persons amounting to approximately US$28.8 million. The complaint in this case (Levin vs Clearstream Banking S.A.) is based on similar assets and allegations as in the second Peterson case and the Havlish case. The complaint seeks turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg. The complaint also asserts direct claims against Clearstream Banking S.A. and other defendants and purports to seek damages of up to approximately US$28.8 billion plus punitive damages and interest.

Beginning on 16 July 2010, the liquidators of two investment funds domiciled in the British Virgin Islands and named Fairfield Sentry Ltd. and Fairfield Sigma Ltd. filed complaints in the US Bankruptcy Court for the Southern District New York, asserting claims against more than 300 financial institutions for restitution of redemption payments made to investors of the funds for the redemption of shares in such funds prior to December 2008. On 14 January 2011, the liquidators of such funds asserted claims for restitution against Clearstream Banking S.A. in an amount of USD 13.5 million for redemption payments made by the funds to investors using the settlement system of Clearstream Banking S.A. The proceedings, which were suspended for multiple years, are continuing.

Legal disputes have arisen regarding a bond issued by MBB Clean Energy AG (MBB), which is held in custody by Clearstream Banking AG. MBB issued a first tranche of the bond in April 2013 and a second tranche of the bond in December 2013. The global certificates for the two tranches of the bond were delivered to Clearstream Banking AG by the paying agent of the issuer. The legal disputes relate to the non-payment of the bond and the purported lack of validity of the bond. As a national central securities depository, Clearstream Banking AG's role in the context of the purported lack of validity of the MBB bond is primarily to safekeep the global certificate. Insolvency proceedings have meanwhile been opened in respect of the issuer, MBB.

In September 2017, Clearstream Banking AG and Clearstream Banking S.A. were made aware that the Public Prosecutor's Office in Cologne had initiated proceedings for tax evasion against an employee of Clearstream Banking AG for his alleged involvement in the settlement of transactions of market participants over the dividend date (cum/ex transactions). On 22 January 2018, the Public Prosecutor's Office in Cologne addressed to Clearstream Banking AG a notification of hearing with Clearstream Banking AG and Clearstream Banking S.A. as potential secondary participants (Nebenbeteiligte). Due to the early stage of the investigations, it is not possible to predict the timing, scope or consequences of a potential decision. The companies are cooperating with the competent authorities.

In November 2018, a customer of a trading participant of the Frankfurt Stock Exchange filed a lawsuit at the District Court (Landgericht) of Frankfurt/Main against Deutsche Börse AG. The plaintiff is claiming damages of approximately €2.6 million from Deutsche Börse AG. The alleged damages are said to have arisen (i) on 7 July 2016, from Deutsche Börse AG's publication of an inaccurate ex-dividend date relating to a financial instrument via the Xetra system and (ii) due to the fact that a client of the plaintiff relied on this inaccurate information to conclude transactions.

On 19 December 2018, the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) sent Deutsche Börse AG a formal hearing notification in a penalty proceeding, which refers to the allegation of a supposed lack of self-liberation or, alternatively, an allegedly omitted ad hoc announcement. Specifically, in the search for a successor for Carsten Kengeter, Deutsche Börse AG had omitted to qualify as a price-relevant intermediate step the fact that a few days before the appointment of Theodor Weimer in November 2017, two suitable and interested CEO candidates had been identified and a decision about the appointment was planned. Even after consulting with external experts, Deutsche Börse AG believes this allegation is unfounded.

On 21 December 2018, Deutsche Börse AG informed the public that the District Court of Frankfurt/Main had on the same day issued a fine order against Deutsche Börse AG as an ancillary party after the termination of the preliminary investigation against its former CEO, Carsten Kengeter. The decision provides for fines of €5 million and €5.5 million against Deutsche Börse AG for an alleged breach of the insider trading ban in December 2015 and for an alleged omission of an ad hoc announcement in January 2016. Following this decision of the District Court of Frankfurt am Main, the proceedings were concluded.

The Executive Board of Deutsche Börse AG had previously decided, after detailed consultation with the Supervisory Board, not to take action against a corresponding fine decision by the District Court. The company remains firmly convinced that the allegations were unfounded. This is supported by the results of extensive audits by several independent external experts. However, after a detailed examination and weighing all relevant aspects, Deutsche Börse AG concluded that a termination of the proceedings on this basis was in the best interest of the company.

Despite the ongoing proceedings described above, the Executive Board is not aware of any material changes to the Group's risk situation.

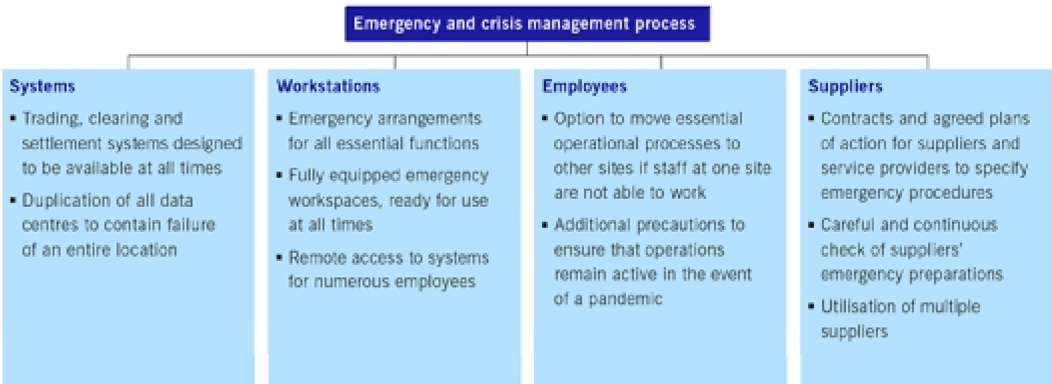
**Measures to mitigate operational risk**

Deutsche Börse Group takes specific measures to reduce its operational risk. Among them are emergency and contingency plans, insurance policies, measures concerning information security and the physical safety of employees and buildings as well as precautions to ensure that the applicable rules are observed (compliance).

### Emergency and contingency plans

It is essential for Deutsche Börse Group to provide its products and services as reliably as possible. The Group has to maintain its business operations and safeguard against emergencies and disasters. If its core processes and resources are not available, this represents not only a substantial risk for the entire Group but also even a potential systemic risk for the financial markets in general. As a result, Deutsche Börse Group has set up a system of emergency and disaster plans covering the entire Group (business continuity management, BCM). This covers all processes designed to ensure continuity of operations in the event of a crisis and significantly reduces availability risk. Measures include precautions relating to all important resources (systems, workstations, employees, suppliers), including the redundant design of essential IT systems and the technical infrastructure, as well as emergency measures designed to mitigate the unavailability of employees or workspaces in core functions at all important locations. Examples of such precautions are listed in the "Business continuity management" chart.

Business continuity management




### Preparations for emergencies and crises

The Group has introduced and tested a management process for emergencies and crises that enables it to respond quickly and in a coordinated manner. This is intended to minimise the effects on business processes and on the market and to enable a quick return to regular operations. All business segments have appointed emergency managers to act as central contacts and take responsibility during emergencies and crises. The emergency managers inform the Executive Board or raise the alarm with them in the case of severe incidents. In the event of a crisis, the Executive Board member responsible for the affected business acts as the crisis manager. The emergency and contingency plans are tested regularly by realistically simulating critical situations. Such tests are generally carried out unannounced. The test results are evaluated based on the following criteria:

- Functionally effective: the measures must be technically successful.
- Executable: the employees must be familiar with the emergency procedure and be able to execute it.
- Timely: emergency measures must ensure that operations restart within the intended time period.

### Information security

Attacks on information technology systems and their data – especially due to cyber crime – represent operational risks for Deutsche Börse Group, which is continuously confronted with rising threats in this respect, as are other financial services providers and the entire sector. Unauthorised access, change and loss of information, as well as non-availability of information and services, may all arise as a result of these attacks (such as phishing, distributed-denial-of-service/DDoS and ransomware attacks). Please note that there was no successful attack on Deutsche Börse Group's core systems in 2018.

In order to maintain the Group's integrity as a transaction services provider and mitigate and control the risks, Deutsche Börse is continuously implementing measures to increase information security. The aim is to proactively boost the robustness of procedures, applications and technologies against cyber crime in such a way that they are adjusted to the threatening situation and regulatory requirements at an early stage. The foundation for this is formed by an Information Security Management System (ISMS), together with specific control measures based on the established international information security standards ISO/IEC 27000.

The Information Security function checks that the information security and risk management requirements are adhered to; it also monitors the systemic integration of (and adherence to) security standards within the scope of product and application development.

The Group operates a situation centre (Computer Emergency Response Team, CERT), which detects and assesses threats from cyber crime at an early stage in cooperation with national and international financial intelligence units and coordinates risk mitigation measures in cooperation with the business units.

Information Security operates an extensive Group-wide programme designed to raise staff awareness for the responsible handling of information and to improve staff conduct in this aspect. All in all, Deutsche Börse Group's security approach includes overall measures in accordance with ISO 27000 covering both the development phase and the operational phase.

Furthermore, Deutsche Börse Group has been a full member of national associations (Cyber Security Sharing and Analytics, CSSA), trade associations (World Federation of Exchanges) and international networks (Financial Services Information Sharing and Analysis Center, FS-ISAC), which contribute significantly towards a forward-looking stance vis-à-vis cyber threats and the development of strategies to fend off such threats.

**Physical security**

Deutsche Börse Group places great importance on physical security issues due to the constant change in global security risks and threats. Corporate Security has developed an integral security concept to protect the company, its employees and values from internal and external attacks and threats – in a proactive as well as reactive manner. Highly qualified analysts are continuously assessing the security situation at Deutsche Börse Group's locations and are in close contact with authorities (Federal Criminal Police Office – BKA, Federal Office for the Protection of the Constitution – BVf, etc.), security services providers, and security departments of other companies. Multi-level security processes and controls ensure physical safety at the Group's locations. Physical access to buildings and values is monitored permanently based on the access principle of "least privilege" (need-to-have). Penetration tests, inter alia, are carried out on a regular basis to verify the efficiency and effectiveness (as well as the quality) of the security processes at the locations.

In an increasingly competitive global market environment, access to know-how and confidential company information could turn into a potential major financial advantage to outsiders or competitors. Deutsche Börse applies state-of-the-art technology to prevent its knowledge from being obtained illegally, e.g. through wiretapping.

Furthermore, Corporate Security is tasked with providing support to employees while they are travelling or on foreign assignment, i.e. protecting them from risks in the areas of crime, civil unrest, terrorism and natural disasters. In this context, a worldwide travel security programme was established which guarantees a risk assessment before, during and after travelling, supported by a travel-tracking system and a central 24/7 emergency telephone number.

### Insurance policies

Operational risks that Deutsche Börse Group cannot or does not wish to bear itself are transferred to insurance companies if this is possible at a reasonable price. The insurance policies are checked individually and approved by Deutsche Börse AG's Chief Financial Office.

### Compliance

Compliance at Deutsche Börse Group is responsible for supporting the individual legal entities in ensuring that regulatory requirements are observed and generally protecting the Group against financial and non-financial risks, such as reputational damage in the markets it serves, in cooperation with supervisory authorities and the general public. Although Group Compliance operates independently of the business units, it still fulfils the task of enabling business areas to establish business relationships, while focusing on the clients and markets the Group wants to serve. Compliance has to take the steps necessary to systematically and pre-emptively mitigate compliance risks, which requires both the identification of compliance risks and a risk-based assessment of the appropriate measures.

Deutsche Börse Group pursues an enterprise-wide approach to its compliance function, ensuring that applicable laws and regulatory requirements are followed by individual Group entities. Under applicable law, the compliance functions of the individual Group entities report to the respective member of the Executive Board responsible for Compliance. Moreover, the compliance functions and their staff report directly to the Group Chief Compliance Officer via a uniform reporting structure. Wherever possible, Deutsche Börse Group's compliance follows a synergistic and holistic approach by applying Group-wide compliance regulations and standards to ensure that the related concepts permeate throughout the Group.

Deutsche Börse Group's compliance function has been consistently strengthened over recent years. During the course of 2018, the Group significantly increased its Compliance personnel in major offices around the world, with the objective of coordinating and enhancing the strength of the individual business segments' compliance function and integrating Compliance officers with the control functions of the individual business segments and other control functions, as required by supervisory bodies. This close alignment strengthened the second line of defence. In order to be able to act pre-emptively and to mitigate the compliance risks referred to above, the Group continues to invest into the acquisition and further development of IT tools. This provides a validated data inventory, which enables the Group to consistently and appropriately respond to compliance risk. In 2018, the focus was on standardising and digitalising the compliance processes that impact the relevant business units. Deutsche Börse Group also improved its due diligence procedures with respect to clients, market participants, counterparties and business partners.

Group Compliance continuously promotes legally compliant and ethically correct conduct, as well as integrity amongst all Deutsche Börse Group employees. For instance, staff have been made aware of (and enhanced emphasis has been placed on) compliance-relevant aspects throughout the respective business units and Deutsche Börse Group's regulatory required control functions. The new code of business conduct comprises the aforementioned activities and creates a holistic regulatory environment for Deutsche Börse Group.

Over the last few years, Deutsche Börse Group has devoted itself to the development of market-leading compliance standards. The Group promotes and reflects these standards across its entire product-related value creation chain, particularly from the perspective of a leading global provider of financial markets infrastructure. At the end of 2018, Deutsche Börse AG decided to align its compliance management system with the globally recognised ISO 19600 standard. This is a crucial next step designed to exploit Group-wide synergies and go beyond the scope of supervisory requirements. These efforts will continue in 2019. A special focus lies on compliance monitoring and controls based on a Group-wide procedural approach.

**Financial risk**

Deutsche Börse Group classifies its financial risk into credit, market and liquidity risk (see the "Financial risk at Deutsche Börse Group" chart). At Group level, these risks account for about 23 per cent of the entire risk profile (this information only includes credit and market risk; liquidity risk is not quantified as part of the REC; see note 25 to the consolidated financial statements). They primarily apply to the Group's institutions. As a result, the following explanation focuses on Clearstream and Eurex Clearing AG.

Financial risk at Deutsche Börse Group


### Credit risk

Credit risk describes the danger that a counterparty might not meet its contractual obligations, or not meet them in full. Measurement criteria include the degree to which the credit line has been utilised, the collateral deposited and concentration risk. Although Clearstream and Eurex Clearing AG often have short-term claims against counterparties totalling several billion euros overall, these are generally secured by collateral deposited by the market participants. Moreover, the Group regularly evaluates the reliability of its emergency plans at Clearstream and Eurex Clearing AG in the event of client defaults and the resulting credit risk.

Furthermore, Clearstream Banking S.A. is exposed to credit risk arising from its strategic securities lending transactions (ASLplus). Only selected banks act as borrowers. All borrowing transactions are fully collateralised. Only selected bonds may be used as collateral; these must be rated at least BBB – by the Standard & Poor's rating agency or the equivalent from other agencies. In the case of short-term securities without individual ratings, the issuers must be rated at least A–1.

Clearstream extends credit to customers in order to make settlement more efficient. This type of credit business is fundamentally different, however, from the classic lending business. First, credit is extended solely on a very short-term basis and generally for less than a day. Second, it is generally collateralised and granted to those clients with high creditworthiness. Furthermore, the credit lines granted can be revoked at any time.

Under its terms and conditions, Eurex Clearing AG enters into transactions only with its clearing members. Clearing mainly relates to defined securities, rights and derivatives that are traded on specific stock exchanges. Eurex Clearing AG also offers this service for some over-the-counter (OTC) products such as interest rate swaps and forward rate agreements. As a central counterparty, it steps in between transactional counterparties. Through offsetting mutual claims and requiring clearing members to post collateral, Eurex Clearing AG mitigates its clients' credit risk exposure.

To date, no default by a client with a secured credit line has resulted in financial losses. Deutsche Börse Group continues to view the probability as low that one of its customers could become insolvent and that this could lead to losses for the Group. It considers the impact of such an event to be low if the credit line in question is collateralised and medium if it is uncollateralised. The probability of a counterparty to an uncollateralised credit defaulting is considered to be very low. If several large, systemically relevant banks were to default simultaneously, the financial impact may be significant. The probability of this scenario is considered to be very low.

Credit risk can also arise from cash investments. The Treasury department is responsible here and has Group-wide authority. Treasury largely makes collateralised investments of funds belonging to Group companies as well as Clearstream and Eurex Clearing AG customers. To date, counterparty default has not led to any loss for the Group. The probability that the default of a counterparty to an uncollateralised cash investment could lead to a loss is considered to be low; the financial loss itself could have a medium impact.

Investment losses on currencies for which Eurex Clearing AG has no access to the respective central banks, will be borne on a pro-rata basis by Eurex Clearing AG and by those clearing members active in the currency where losses were incurred. The maximum amount each clearing member will have to contribute in this manner is the total amount that the clearing member has pledged with Eurex Clearing AG as cash collateral in this currency. The maximum amount to be borne by Eurex Clearing AG is €50 million.

### Reducing credit risk

Clearstream and Eurex Clearing AG assess the creditworthiness of potential customers or counterparties to an investment before entering into a business relationship with them in a uniform manner: they determine the size of individual customers' credit lines based on regular creditworthiness checks, which they supplement with ad hoc analyses if necessary. They define haircuts for securities posted as collateral depending on the risk involved, and continually review their appropriateness. They include all relevant risk factors when determining the haircut and allocate a specific deduction to each. The total haircut is calculated by adding together the individual margins for the risk factors concerned.

Given the size and volatility of its clients' liabilities, Eurex Clearing AG has developed a leading-edge collateral management system, which is described in detail in the following section.

### Safety for both participants and the clearing house

Each clearing member must prove that it has liable capital equal at least to the amounts that Eurex Clearing AG has defined for the different markets. The amount of capital for which evidence must be provided depends on the risk. To mitigate Eurex Clearing AG's risk that clearing members might default before settling open transactions, members are obliged to deposit collateral in the form of cash or securities (margins) on a daily basis and, if required, to meet additional intraday margin calls.

Eurex Clearing AG only permits securities with a high credit quality to be used as collateral. It continually reviews what collateral it will accept and uses haircuts with a confidence level of at least 99.9 per cent to cover market risk. As a result, securities of issuers with lower credit quality receive higher haircuts than securities with the highest credit quality. When in doubt, collateral with insufficient quality will be excluded. Risk inputs are checked regularly and the safety margins are calculated daily for each security. In addition, a minimum safety margin applies to all securities.

Margins are calculated separately for clearing member accounts and client accounts. Gains and losses resulting from intraday changes to the value of financial instruments are either settled in cash by the counterparties (variation margin) or deposited with Eurex Clearing AG as collateral by the seller due to the change in the equivalent value of the item (premium margin). In the case of bond, repo or equity transactions, the margin is collected from either the buyer or the seller (current liquidating margin), depending on how the transaction price performs compared to the current value of the financial instruments. The purpose of these margins is to offset accumulated gains and losses.

In addition, Eurex Clearing AG uses additional collateral to protect itself in the case of default by a clearing member against any risk that the value of the positions in the member's account will deteriorate in the period before the account is settled. This additional collateral is known as the initial margin. The target confidence level here is at least 99.0 per cent (with a minimum two-day holding period) for exchange-traded transactions, or 99.5 per cent (with a five-day holding period) for OTC transactions. Eurex Clearing AG checks regularly whether the margins match the requested confidence level: initial margin is currently calculated using the legacy risk-based margining method and the Eurex Clearing Prisma® method, which is already available for all derivative contracts traded. The method takes the clearing member's entire portfolio – as well as historical and stress scenarios – into account when calculating margin requirements. The objective is to cover market fluctuations for the entire liquidation period until the account is settled. At present, the risk-based margining method is still used for cash market products and physical deliveries, as well as for securities lending and repo transactions. The Prisma method is set to fully replace risk-based margining in the future.

In addition to the margins for current transactions, each clearing member makes contributions to a default fund, based on the member's individual risk profile. The default fund is jointly liable for the financial consequences of a default by a clearing member to the extent that this cannot be covered by the member's individual margin, or the contributions it or Eurex Clearing AG make to the default fund. Eurex Clearing AG uses regular stress tests to check whether its default fund is adequate enough to absorb a default of its two largest clearing members. This involves subjecting all current transactions and their collateral to market price fluctuations at a confidence level of at least 99.9 per cent. In order to be able to determine potential losses in excess of a clearing member's individual margins, the impact on the clearing fund of a potential default is simulated. Eurex Clearing AG has defined limits which, when exceeded, trigger an immediate adjustment to the size of the default fund if necessary. The following lines of defence are available in case a clearing member is unable to meet its obligations to Eurex Clearing AG due to a delay in performance or a default:

- First, the relevant clearing member's outstanding positions and transactions can be netted and/or closed from a risk perspective by entering into appropriate back-to-back transactions, or they can be settled in cash.
- Any potential shortfall that might be incurred in connection with such a closing or cash settlement, as well as the associated costs, would be covered in the first instance by the collateral provided by the clearing member concerned. As at 31 December 2018, collateral amounting to €52,623.1 million had been provided for the benefit of Eurex Clearing AG (after haircuts).
- After this, the relevant clearing member's contribution to the clearing fund would be used to cover the open amount. Contributions ranged from €1 million to €414 million as at 31 December 2018.
- Any remaining shortfall would initially be covered by a contribution to the clearing fund by Eurex Clearing AG. Eurex Clearing AG's contribution amounted to €150 million as at 31 December 2018.
- Only then would the other clearing members' contributions to the clearing fund be used proportionately. As at 31 December 2018, aggregate clearing fund contribution requirements for all clearing members of Eurex Clearing AG amounted to €4,076.4 million. After the contributions have been used in full, Eurex Clearing AG can request additional contributions from each clearing member, which can be at most twice as high as their original clearing fund contributions. In parallel to these additional contributions, Eurex Clearing AG provides additional funds of up to €300 million, provided via a letter of comfort from Deutsche Börse AG (see below). These additional funds will be used together with the additional clearing member contributions, on a pro-rata basis.
- Next, the portion of Eurex Clearing AG's equity would be used that exceeds the minimum regulatory equity.
- Finally, the remaining minimum regulatory equity of Eurex Clearing AG would be drawn upon.
- Deutsche Börse AG has issued a letter of comfort in favour of Eurex Clearing AG. With this letter of comfort, Deutsche Börse AG commits to provide the funds to Eurex Clearing AG required to fulfil its duties – including the duty to provide additional funds of up to €300 million, as mentioned before. The maximum amount to be provided under the letter of comfort amounts to €600 million, including payments already made. Third parties are not entitled to any rights under the letter of comfort.

In the event of default by a clearing member, Eurex Clearing AG triggers its tried-and-tested default management process (DMP), in order to rebalance the central counterparty. This process not only contributes to the security and integrity of capital markets but also protects non-defaulted clearing members from any negative effects resulting from the default.

Essentially, within the DMP framework, products which share similar risk characteristics are assigned to liquidation groups that are liquidated using the same process. Within a liquidation group, Eurex Clearing AG will balance its position by transferring defaulted positions to other clearing members either via an auction or by way of bilateral independent sales.

Historically, the DMP of Eurex Clearing AG has been used four times, involving the defaults of Gontard & MetallBank (2002), Lehman Brothers (2008), MF Global (2011) and Maple Bank (2016).

In all of the cases mentioned above, the funds pledged as collateral by the defaulted clearing member were sufficient to cover losses incurred upon closing out positions – in fact, a significant portion of resources was returned to the defaulted clearing member.

Deutsche Börse Group reduces its risk when investing funds belonging to Group companies and client funds by distributing investments across multiple counterparties with high credit quality by defining investment limits for each counterparty and by investing funds primarily in the short term and in collateralised form if possible. Investment limits are established for each counterparty on the basis of regular credit checks and using ad hoc analyses, as necessary. Since extending its licence as an investment and credit institution under the Kreditwesengesetz (German Banking Act), Eurex Clearing AG can also use Deutsche Bundesbank's permanent facilities.

Clearstream and Eurex Clearing AG run stress tests to analyse scenarios such as the default of their largest counterparty. The figures determined in this way are compared with the limits defined as part of the companies' risk-bearing capacity. In addition, the impact of several clearing counterparties defaulting at the same time is calculated for Eurex Clearing AG. A special stress test examines Clearstream Banking S.A.'s credit risk exposure from the settlement procedure with Euroclear. Moreover, inverse stress tests are run to determine the number of counterparties that would have to default for losses to exceed the risk cover amount. In the course of the stress tests run in financial year 2017, the identified risks have been further analysed and appropriate measures to reduce risk have been implemented.

Deutsche Börse Group tracks a variety of risk indicators in addition to its risk measures (REC, EaR and the credit risk stress tests performed). These include the extent to which individual clients utilise their credit lines, and credit concentrations.

### Market risk

Market risk includes risks of a reverse development of interest rates, exchange rates or other market prices. Deutsche Börse Group measures these risks using Monte Carlo simulations based on historical price data, as well as corresponding stress tests.

Clearstream and Eurex Clearing AG invest parts of their equity in securities with the highest credit quality. The majority of these securities have a variable interest rate, with a low sensitivity to interest rate fluctuations. The Group avoids open currency positions whenever possible. Furthermore, market risk could result from Deutsche Börse Group's ring-fenced pension plan assets (Contractual Trust Arrangement (CTA), Clearstream pension plan in Luxembourg). The Group reduced its risk of extreme losses by deciding to invest a predominant proportion of the CTA on the basis of a value preservation mechanism.

### Liquidity risk

Liquidity risk applies if a Deutsche Börse Group company is unable to meet its daily payment obligations or if it can only do so at a higher refinancing cost. Operational liquidity requirements are met primarily internally by retaining funds generated. The aim is to maintain liquidity at about the same level of operating costs for one quarter (currently between €150 million and €250 million). An intra-Group cash pool is used to pool surplus cash from subsidiaries on a Deutsche Börse AG level, as far as regulatory and legal provisions allow. Liquid funds are invested in short-term investments to ensure that they are available. Short-term investments are also largely secured by liquid bonds from first-class issuers.

Deutsche Börse AG has access to short-term external sources of financing, such as agreed credit lines with individual banks or consortia, as well as through a commercial paper programme. In recent years, Deutsche Börse AG has leveraged its access to the capital markets to issue corporate bonds in order to meet its structural financing needs.

Since Clearstream's investment strategy aims to be able to repay customer deposits at all times, liquidity limits are set carefully. In addition, extensive sources of financing are available at all times, such as ongoing access to the liquidity facilities at Deutsche Bundesbank and Banque Centrale du Luxembourg.

Due to its role as a central counterparty, Eurex Clearing AG has strict liquidity guidelines, and its investment policy is correspondingly conservative. Regular analyses ensure the appropriateness of the liquidity guidelines. In addition, Eurex Clearing AG can use Deutsche Bundesbank's permanent facilities.

The key liquidity risk for Deutsche Börse Group lies in customer default. If a clearing member of Eurex Clearing AG defaults, its membership is liquidated. If a Clearstream customer defaults, the generally collateralised, intraday credit line granted to increase settlement efficiency would be called in, and the collateral provided by the client could then be liquidated. Deutsche Börse Group estimates the probability of this liquidity risk to be low when there is the possibility of medium financial losses. A decline in market liquidity, following a counterparty default, would further increase Deutsche Börse Group's liquidity risk exposure. On a daily basis, Clearstream and Eurex Clearing AG calculate the liquidity needs that would result if two of their biggest clients would default and maintain sufficient liquidity in order to cover the liquidity needs determined.

To consider different scenarios, regular stress tests are being carried out to examine the liquidity risk exposure of Clearstream and Eurex Clearing AG. Risks identified in the course of stress tests carried out during the 2018 financial year were analysed further, and corresponding risk-reduction measures initiated.

**Business risk**

Business risk reflects the fact that the Group depends on macroeconomic developments and is influenced by other external events, such as changes in the competitive environment or regulatory initiatives. It therefore expresses the risks associated with the Group's business environment and sector. It also includes business strategy risk, i.e. the impact of risks on the business strategy and possible adjustments to it. These business risks are represented as variance analyses of planned and actual EBIT and are monitored constantly by the divisions. They account for about 10 per cent of the Group's total risk. Business risk may result in revenues lagging budget projections or in higher costs.

Business risk includes the risk that competitors, such as the exchanges Euronext, Singapore Exchange (SGX), ICE Futures Europe and Mercado Español de Futuros Financieros (MEFF), as operators of derivatives markets, might increase their market shares on the European trading markets (both on- and off-exchange). Deutsche Börse Group estimates the probability of a minor loss in market share as medium but the resulting impact as rather low.

Additional business risk may arise from regulatory requirements or the geopolitical or economic environment – for example, in the event of an intra-Europe crisis affecting monetary union, or a tariff conflict with an adverse effect on trading activity.

This might have a negative influence on Deutsche Börse Group's clients and reduce their trading volume in the future. While the Group still views the probability of this risk occurring as low, and the possible consequences on client business as medium, there is a significant residual macroeconomic risk which would materialise if political or financial turmoil was to trigger declining prices on equity markets.

The United Kingdom's exit from the European Union ("Brexit") was analysed in terms of the risks to customers, products and internal processes. To mitigate these risks, licences were requested for the UK domestic market and a Steering Committee convened to assess the risks on a regular basis. Deutsche Börse Group believes it is well prepared for Brexit and, among others, considers the OTC clearing of interest rate swaps to be an opportunity. Eurex Clearing AG has already admitted the majority of its clearing mambers located in the UK via a unit of the Group located inside EU-27; the remainder is currently being admitted and will be admitted until the end of March 2019.

The introduction of a financial transaction tax, which continues to be supported by some European states, might have a negative impact upon Deutsche Börse Group's business activities. Likewise, a sustained period of weak trading activity on the market following a significant downturn on the equity markets (whatever the reasons), for example, also represents a risk to the Group.

**Project risk**
Projetct risk is a risk driver with a significant impact on one or more of the three other risk categories (operational, financial and business risk) described above. Project risk is not broken down further. Ongoing monitoring and checks ensure that project risk is continually analysed and evaluated.

## Overall assessment of the risk situation by the Executive Board

Deutsche Börse AG's Executive Board is responsible for risk management throughout the Group and regularly reviews the entire Group's risk situation. Its summary of the situation in 2018 is given here and is followed by a brief look at the coming financial year.

**Summary**
Additional external risk factors emerged for Deutsche Börse Group's business in the past financial year, particularly higher operational risk in the fields of cybercrime and taxes. Deutsche Börse Group's risks were covered by sufficient risk-bearing capacity at all times during 2018, i.e. the allocated risk appetite limits were complied with. The Group's risk profile has not changed significantly.

As at 31 December 2018, the Group's REC amounted to €2,573 million, a 9 per cent increase year-on-year (31 December 2017: €2,362 million). The available risk-bearing capacity increased by 12 per cent to €4,619 million year-on-year (31 December 2017: €4,128 million). EaR as at 31 December 2018 were €1,121 million, while risk appetite was €1,941 million, based on the adjusted budgeted EBITDA in 2018.

Deutsche Börse AG's Executive Board is convinced that the risk management system is effective. The Board continues to strengthen the system and the control function responsible for it. The Group-wide strategy to capture and manage risk, which focuses on risk appetite, forms the basis for internal risk management. It is codified in the three principles described in the "Risk strategy and risk management" section.

**Outlook**
Deutsche Börse Group continually assesses its risk situation. Based on the calculated REC in stress tests and based on the risk management system, Deutsche Börse AG's Executive Board concludes that the available risk cover amount is sufficient. Furthermore, it cannot identify any risk that could endanger the Group's existence as a going concern.

In 2019, the Group intends to further strengthen Group-wide risk management, as well as the control functions within the Group, supported by additional personnel and structural improvements. In addition, a cross-divisional initiative regarding the risk culture within the company will be carried out. Business continuity precautions should also be expanded to ensure that the company can continue in the case of an emergency or crisis and to ensure an orderly process in cases of restructuring and liquidation of regulated institutions.

## Report on opportunities

### Organisation of opportunities management

Deutsche Börse Group's opportunities management aims to identify, evaluate and assess opportunities as early as possible and to take appropriate measures in order to transform opportunities into business success.

Deutsche Börse Group evaluates organic growth opportunities in the individual business areas both on an ongoing basis throughout the year and systematically at the Group level as part of its annual budget planning process. Suggestions from the Group's business areas for new products, services or technologies serve as the starting point for the evaluation. The process begins with a careful analysis of the market environment that considers both customer wishes as well as market developments, competitors and regulatory changes.

Ideas for growth initiatives are developed further using uniform, Group-wide templates and subjected to a profitability analysis. Qualitative aspects are documented in a business plan, and revenues and expenses are projected in detail for several years in the future.

Once a business plan and profitability analysis have been prepared for a specific growth initiative, the Executive Board of Deutsche Börse AG decides on its implementation. This decision is either taken as part of the annual budget planning process or as part of the regular budget review meetings that happen throughout the year.

Once a growth initiative has been approved and the budget has been made available, the initiative's progress against the presented business plan is tracked as part of the Group's general budget steering mechanisms. Regular reporting on the progress of the initiatives is an important steering tool, which is coordinated by central functions and created in cooperation with the individual projects from the business areas. Through these reports, if required, the financial planning is adjusted, forecasts are updated and changes to the scope of the project are made transparent. These reports also serve as a control mechanism to determine whether milestones have been reached and if project-specific risks have been described and if countermeasures have been implemented.

## Organic growth opportunities

Deutsche Börse Group has a very broad portfolio of products and services which covers all areas of a market infrastructure provider's value creation chain:

- Pre-trading: data and index business
- Trading and clearing: financial derivatives, commodities, foreign-exchange trading, cash equities
- Post-trading: settlement and custody, investment fund services, collateral management

Thanks to this portfolio, the Group is one of the most broadly-diversified exchange organisations – it is also one of the leading providers worldwide in terms of trading volumes. In order to maintain and expand this position, the company is pursuing a growth strategy called Roadmap 2020. To this end, Deutsche Börse Group is currently concentrating largely on organic growth opportunities in order to achieve its strategic objectives. The Group makes a basic distinction between structural and cyclical opportunities: structural opportunities arise, for example, as a result of regulatory changes, new client requirements (such as the growing demand for exchange-traded solutions to over-the-counter (OTC) transactions) and the trend where an increasing portion of assets are allocated in passive investment strategies (e.g. index funds). The company can actively exploit these opportunities. Cyclical opportunities, on the other hand, cannot be influenced directly by the company and are driven by macroeconomic changes. In addition, Deutsche Börse Group intends to seize long-term opportunities arising as a result of the technological transformation.

### Structural growth opportunities

When taking advantage of structural growth potential, Deutsche Börse Group focuses on product- and service-driven initiatives designed to satisfy new client needs as well as regulatory requirements. In order to ensure the Group is optimally positioned and can explore new opportunities, the Group realigned its structure with its growth strategy in 2018. For instance, the Group implemented clear responsibilities at the management level reporting directly to the Executive Board. These managers are not only responsible for net revenue growth, but also for costs and, therefore, the earnings growth of the individual business areas – which can also be achieved through cost management. This approach allows the Group to manage processes in a disciplined manner and to achieve targets at a business area level, and hence at a Group level overall. This is also reflected by leaner hierarchies, the strengthened consequences management and the remuneration structure. The number of reporting segments was also increased from four to nine, thus creating additional transparency for the Group's growth areas.

Moreover, the Group regularly examines whether it can better achieve growth in high-potential asset classes, products or services organically or through external acquisitions and collaborations. In this connection, the company has defined the following five areas of business that focus beyond the organic options to external growth as well: commodities, foreign exchange trading, investment funds services, data and index business and fixed-income trading.

The Group anticipates the strongest revenue increases in the years ahead in trading and clearing. Among other things, this is due to the clearing of over-the-counter (OTC) derivatives and further growth in the trading of power and gas products. Foreign exchange trading via 360T® is also expected to provide a contribution to net revenue growth. In the post-trading area, the focus is on further developing the investment funds business, cross-border securities settlements via TARGET2-Securities (T2S), as well as collateral and liquidity management. The growth focus in pre-trading is on expanding the index and data business. The business potential of the initiatives stated here are described in more detail below.

**Clearing of OTC derivatives**

The liquidity problems experienced by major market participants during the financial crisis were triggered by the failure to settle bilateral OTC transactions that were mainly entered into on an unsecured basis. In light of this, the leading industrialised nations (G20) agreed to create an effective regulatory environment to make off-exchange derivatives transactions more transparent and more secure. In response, the European Union developed the European Market Infrastructure Regulation (EMIR), which is aimed at regulating OTC trading in derivatives. EMIR covers the following aspects:

- The obligation to clear standardised OTC derivatives transactions using a central counterparty
- Special risk management requirements for transactions in non-standardised derivatives
- The obligation to report the transactions to a trade repository

With the entry into force and gradual implementation of EMIR since June 2016, market participants have been obliged to meet its requirements. Preparing for mandatory clearing, Eurex Clearing AG had developed set up a central counterparty to clear OTC derivatives transactions. The offering is aimed primarily at institutional clients and their interest rate derivatives business (interest rate swaps). It especially focuses on security and efficiency, allowing customers to gain the full benefit of Eurex Clearing's risk and collateral management services for their OTC transactions as well. In line with expectations, Eurex's clearing volumes in OTC interest rate derivatives have increased significantly since the beginning of 2018.

Brexit – and the associated uncertainty as to whether clearing houses outside the scope of EU regulation will be permitted to clear euro-denominated interest rate swaps in the future – offers another opportunity for Eurex Clearing to increase its market share in this product area. With the Eurex Clearing Partnership Program, which was started in October 2017, Eurex Clearing created an alternative for clearing interest rate swaps within the EU. The programme met with broad market acceptance: by the beginning of February 2019, 33 market participants from the US, the UK, Asia and Continental Europe had already opted to participate in the programme. Hence, the notional outstanding volume on Eurex Clearing increased considerably in 2018 year on year. The company anticipates another significant increase in 2019.

Within the framework of the performance-based partnership programme, Eurex Clearing AG shares a substantial portion of the economic success of its interest rate swap segment with the ten most active participants. These are also given a seat on the Eurex Clearing AG Supervisory Board or on the newly established Fixed Income and Currency (FIC) Board Advisory Committee. Clients are thus directly involved in further developing the strategy and expanding the clearing house's products and services. At the end of 2018, Eurex Clearing announced that it plans to extend the partnership programme to include the repo business and foreign exchange trading.

### Trading and clearing of power and gas products on EEX

The Leipzig-based European Energy Exchange AG (EEX) allows Deutsche Börse Group to offer a broad product range for the trading and clearing of spot and derivatives contracts on power and gas and emission certificates. In turn, EEX benefits from the markedly higher demand for energy trading and clearing services. The double-digit growth rates in this area are not only the result of external growth but also structural organic growth thanks to Deutsche Börse Group's good market position. For instance, EEX has evolved into the central marketplace for energy, energy-related and commodities products in Continental Europe; its product range includes the markets in Germany, France, the Netherlands, Belgium, Italy and Spain. It has also been active in the US market since May 2017, through the acquisition of Nodal Exchange. EEX also generated organic growth, especially in the power and gas business. While this growth momentum is based on the changing importance of renewable energy sources – wind power in particular – for power generation, the resulting gains in the availability of power are difficult to predict, also due to the strong fragmentation of the European energy market, and the fact that market participants predominantly trade off-exchange. Owing to this high degree of fragmentation, as well as the inefficiency of OTC markets, demand for on-exchange trading and clearing solutions for such transactions has been growing over recent years. On 12 June 2018, the European Cross-Border Intraday Initiative (XBID) was launched – a power market platform developed under the initiative of the European Commission. At year-end 2013, Deutsche Börse had won the tendering process to develop and operate a pan-European intraday trading platform. The start of XBID – and hence, the opening up of national European markets for competition – mark an important step towards creating an integrated European intraday energy market. EEX believes it is well positioned in this changing competitive environment to achieve structural growth and gain additional market share by providing more efficient trading and clearing solutions. EEX has already succeeded in significantly increasing its market share in recent years; its energy derivatives share, for example, was around 37 per cent at the end of 2018.

### Growth in foreign-exchange trading (360T)

With the full acquisition of 360T, Deutsche Börse AG successfully explored a new asset class – foreign-exchange trading. 360T® is a leading, globally active foreign-exchange trading platform, whose broad customer base includes companies, buy-side customers and banks. The acquisition offers the potential for revenue synergies amounting to an eight-figure sum (in euros) over the medium term, with 360T leveraging Deutsche Börse Group's international sales network and expertise to grow its business. By combining the skills and experience of 360T in the foreign-exchange market with Deutsche Börse Group's IT competence, the Group will be able to tap the resulting revenue potential. 360T has thus made progress with various measures for achieving synergies: The technology for the central order book has been completed and is in the roll-out phase. The pilot phase of the clearing services for OTC foreign exchange transactions will start in the first half of 2019. Having successfully completed the test operations, market participants will be able to use clearing services for OTC foreign exchange transactions for the first time. The third project is the introduction of the rolling spot futures and classic futures contracts, which were rolled out at the beginning of June 2018. For 360T, the goal of all three measures over the coming months will be to attract market participants who will use these offers regularly, in order to gradually build liquidity.

Thanks to its leading position, 360T further benefits from a structural trend: even though, at present, the vast majority of daily foreign-exchange trading volumes is still executed off-exchange, demand for transparent, electronic multi-bank trading platforms such as 360T is rising. With this in mind, Deutsche Börse Group acquired the GTX Electronic Communication Network (ECN) business of GAIN Capital Holdings, Inc. in 2018 to expand its position in the global currency market and in the US market. The acquisition represents another step taken by 360T to expand its business. With GTX, 360T has won a spot interbank FX platform whose product range and customer base complement 360T's existing business.

To date, regulatory obligations such as EMIR have not yet been expanded to cover the foreign-exchange market. If this were to happen in the near future, Deutsche Börse Group would be able to tap further opportunities from its extensive portfolio of products and services it offers in the context of regulatory requirements.

### Cross-border settlement of investment funds

Clients of Deutsche Börse Group can use Clearstream's settlement and custody services for their entire fund portfolio – covering traditional investment funds, exchange-traded funds (ETFs) as well as hedge funds. Given that supervisory authorities are also calling for more efficient settlement and custody solutions in order to guarantee maximum security for client assets under custody, the Group expects to acquire additional client portfolios in the future. For example, portfolios from Lombard Odier and Banque Internationale à Luxembourg were acquired already in 2018. The Group is also continuously expanding its range of products and services. For instance, Clearstream S.A. acquired Swisscanto Funds Centre Ltd., London, (SFCL), from Zürcher Kantonalbank during the year under review. The company was renamed Clearstream Funds Centre Ltd. as at 2 November 2018. Through the transaction, Clearstream has extended its range of fund services, to include the management of distribution agreements as well as data compilation. In addition to SFCL's existing client base, Clearstream plans to offer the company's range of services to its existing clients, too. Extending the product and service range, Clearstream expects to generate additional net revenue by realising cross-selling synergies.

### Cross-border securities settlement (T2S)

Initiated by the ECB, the purpose of the T2S project is to harmonise cross-border securities settlement using central bank funds across Europe. For Deutsche Börse Group, this holds the opportunity of winning new clients for Clearstream's innovative services, such as global liquidity management. The Group expects higher custody volumes and additional new services from T2S in the long term, which can only be provided through Clearstream via its integrated international central securities depository (ICSD). Clients can now use Clearstream as a central point of access for domestic and international settlements, both in central bank and commercial bank funds. National central securities depositories (CSDs) – Clearstream Banking AG in Germany and LuxCSD S.A. in Luxembourg – offer their clients T2S settlements at ECB terms, without any mark-up. Full interoperability between national and international CSDs will enhance liquidity and collateral management.

### Collateral and liquidity management

Clearstream's collateral and liquidity management offering helps clients cope with the structural changes they are facing, such as those resulting from the additional liquidity requirements under Basel III and the clearing obligations under EMIR which have been applicable since December 2015. Banks can use the assets held in custody by Clearstream on their behalf more efficiently across different platforms and countries.

### Expansion of the index business

Deutsche Börse Group's objective in its index business is to position its established European index provider STOXX with an even more global profile in order to develop further indices (on top of its DAX® and STOXX® index families) and market them on a worldwide basis. Diversifying the range of indices should allow the acquisition of new client groups within Europe as well as in Asia and the Americas. In addition, we will position our index business to better exploit the structural trend towards passive investment products (ETFs). An increasing number of private clients and asset managers now follow this trend; not only are the costs lower, but many active investment strategies have been returning under-average performance.

### Other structural growth opportunities

In addition to these initiatives, the Group has identified a number of other structural factors that could have a positive impact on its future business success.

- The importance of risk management has risen continuously in the wake of the financial crisis and is also likely to increase further in the future. The company expects market participants to make greater use of Eurex Clearing's clearing services to net out transactions in different asset classes and hence to eliminate counterparty risk.
- With respect to the Clearstream (post-trading) segment, the company anticipates a long-term increase in capital raising through equity and debt financing on the capital markets. This ties in with the higher capital and liquidity requirements for banks and the resulting negative impact on the total volume of available credit. For the Clearstream (post-trading) segment, this could have a positive effect on custody volumes, especially for international bonds. In addition, given the growing internationalisation of the capital markets, the company is continuing to expect a sharper rise in the bond volume issued internationally compared with national bond issues.
- The Group's Regulatory Reporting Hub has been live since the beginning of January 2018. Developed in cooperation with the Group's clients, the Hub offers a one-stop shop for solutions, helping clients to fulfil their reporting duties under MiFID II. Altogether, more than 2,200 institutions have connected to the Regulatory Reporting Hub.

## Cyclical opportunities

In addition to its structural growth opportunities, Deutsche Börse Group has cyclical opportunities, for instance as a result of positive macroeconomic developments. Although the company cannot influence these cyclical opportunities directly, they could lift Deutsche Börse Group's net revenue and net profit for the period attributable to Deutsche Börse AG shareholders significantly in the medium term:

- The volumes of interest rate derivatives traded on the Group's derivatives markets could rise if speculation on trends in long-term yields on German and other European government bonds grows, and if the spread between the various European government bonds continues to narrow.
- While the company does not expect a substantial change in the ECB's low interest rate policy during the forecast period, the US Federal Reserve may continue to gradually hike its key interest rates during 2019, following the turnaround of its policy. Among other things, this would positively impact net interest income from banking business in the Clearstream (post-trading) segment, as some 50 per cent of its daily cash balances are denominated in US dollars. An average rise in key interest rates of 1 basis point affecting all customer cash deposits could lift income by some €130 million.

- In the cash and derivatives market segments – Xetra (cash equities) and Eurex (financial derivatives) – positive economic development, a lasting rise in investor confidence in the capital markets leading to a renewed rise in risk appetite among market participants and a sustained increase in market volatility could again stimulate trading activity by market participants and boost trading volumes.

**Technological opportunities**
New developments such as cloud-based services related to artificial intelligence (AI), big data, robotics and blockchain technology, combined with the innovation potential of fintechs, are driving change in the financial services sector. This new wave of technology might help overcome barriers to market harmonisation, while creating additional efficiency and mitigating risks. This development is expected to last for the next ten years, with digitisation set to accelerate. The challenge for incumbent providers is in finding the right way to open up new business models and innovative technologies.

The Group has optimised internal processes, particularly in relation to cloud services; HR processes, purchasing and settlement of travel expenses, among other things, are now executed in the cloud. This has significantly streamlined the processes and is having a positive effect on the Group's costs. The Group is also working on transferring services and processes with clients to the cloud. For instance, the introduction of new trading platforms or the updating of existing infrastructure may potentially be tested beforehand by clients, via the cloud. This would lead to significantly more agile processes within the Group, as new processes would be introduced at more frequent intervals, allowing the Group to respond more effectively to clients' requirements. However, regulatory approval is required to implement this successfully. The Group is currently coordinating closely with both the regulators and providers of cloud services, in order to meet the regulatory requirements.

Besides cloud-based applications, the Group is also making progress in the area of robotics. The Group will implement this technology, in particular, within the scope of coordinating or standardised creation of invoices, client reports etc. To leverage the potential improvements in this area, the Group put together a team that not only has the necessary expertise but is also focused exclusively on developing and implementing the corresponding processes.

Blockchain technology constitutes another aspect of technological opportunities. It is considered a disruptive technology at times – at present, the financial services sector is evaluating the associated opportunities. Thanks to its decentralised nature, it facilitates direct interaction between participants, thus offering the potential for simplifying complex processes. Established market infrastructure providers such as Deutsche Börse Group, which covers the entire value creation chain from a single source, play an important role when it comes to tapping this potential – meeting existing industry standards at the same time. Besides legal and regulatory requirements, this also involves adhering to security standards, as well as limiting risks and ensuring cost efficiency.

As part of its corporate strategy, Deutsche Börse Group pursues a cooperative approach with regard to new technological developments. This approach is designed to further strengthen the Group's leading technological role, while gauging the potential of new technologies along the value creation chain (from the issue of securities to trading, clearing, and settlement). Against this background, for example, the Group developed various blockchain prototypes in cooperation with Deutsche Bundesbank, Eurex Clearing as the central counterparty, and other central securities depositories, in order to showcase how this technology might be applied to solve business issues. One of these prototypes involved a concept for the risk-free transfer of commercial bank money, based on blockchain technology. The goal is to enhance efficiency by integrating blockchain technology into the Group's post-trading infrastructure. Through Deutsche Börse Group's central counterparty, it will be possible to reduce the risks involved in the transfer of digital commercial bank money. Moreover, through the interface between Eurex Clearing and Clearstream, the Group's central securities depository, the new concept could also contribute to enhancing the efficiency of post-trading processes such as settlement services or asset servicing.

As at 7 August 2018, Deutsche Börse Group acquired a minority interest in HQLAx S. à r. l. – a fintech company specialising in liquidity and collateral management for institutional clients on the international securities lending and repo markets. The Group is thus strengthening its collaboration with HQLAx, to use innovative technologies to improve efficiency in the fragmented securities lending market. To this end, it announced that it is working with HQLAx on developing a solution for securities lending on the basis of a blockchain platform. The first banks are already in the process of being connected and extensive talks are being held with the relevant supervisory authorities.

Further Group projects are the newly-created Content Lab, working on improving the use of data in providing client services, and the Product Development Lab, which develops micro-services. Beyond this, Deutsche Börse Group is currently examining whether to offer application programming interface (API) connectivity to its systems, in order to facilitate new data and analytical offers to clients using cloud technologies.

## Report on expected developments

The report on expected developments describes Deutsche Börse Group's expected performance for the financial year 2019. It contains statements and information on events in the future, and is based on the company's expectations and assumptions at the time of publication of this corporate report. In turn, these are subject to known and unknown opportunities, risks and uncertainties. Numerous factors, many of which are outside the company's control, influence the Group's success, its business strategy and its financial results. Should opportunities, risks or uncertainties materialise or should one of the assumptions made turn out to be incorrect, the Group's actual performance could deviate either positively or negatively from the expectations and assumptions contained in the forward-looking statements and information contained in this report on expected developments.

### Developments in the operating environment

#### Macroeconomic environment

With global economic growth already slowing during the course of 2018, inflation rising, and monetary policy becoming more restrictive (especially in the US), Deutsche Börse Group expects a further weakening of global growth during the forecast period. The ongoing trade conflict, mainly between China and the US, pressure on emerging markets due to the tighter US interest rate policy, the appreciation of the US dollar, as well as the political situation in Europe, especially with regard to the imminent exit of the United Kingdom from the European Union, are some of the reasons. Against this background, uncertainty should increase among market participants, and market volatility could rise temporarily. A settlement of the trade dispute, a stabilisation of the political situation in Europe, and a clear direction in the central banks' monetary policy would have a stabilising effect on markets and a positive impact on economic growth. Regarding interest rate trends, the Group does not expect to see any fundamental departure from the current low interest rate policy in Europe. While the ECB terminated its bond-buying programme at the end of 2018, the central bank also promised that deposit rates would remain at a level of –0.4 per cent at least until the summer of 2019. The US Fed continued its policy of gradual interest rate hikes in 2018, indicating further increases may be possible in 2019 – provided that the economy (and inflation) accelerate further.

In its economic development forecast published in January 2019, the International Monetary Fund (IMF) predicted economic growth of around 1.6 per cent in the euro area and growth of 1.3 per cent in Germany for the year 2019, i.e. now expecting significantly lower growth than in October 2018. Expectations for the United States are higher than for the euro area: the US economy is forecast to grow by around 2.5 per cent. The highest economic growth by far in 2019 – approximately 6.3 per cent – is anticipated again in Asian countries (especially India and China), due to expected strength in domestic demand. Given the extremely varied estimates for the different economic regions, global economic growth is projected to be around 3.5 per cent in 2019.

**Regulatory environment**

Governments and central banks have been working to enhance regulation of the financial markets since 2008, so as to stabilise the financial sector and prevent future systemic crises. The initiated measures (in some cases already implemented) range from revising the legal framework for banking business and capital adequacy requirements, through rules for clearing over-the-counter (OTC) derivatives transactions, down to improving financial market supervision (for more information, please see the “Regulatory environment” section of the report on economic position). For Deutsche Börse Group itself, the various regulatory projects will have both positive and negative consequences. Overall, however, the Group sees the changing regulatory environment as an opportunity to expand its business further; see the report on opportunities for further details.

## Future development of results of operations

Given its diversified business model and multiple sources of revenue, Deutsche Börse Group continues to consider itself very well positioned and expects to see a positive trend in results of operations over the medium and long term. This expectation is based on, among other things, the structural growth opportunities that the company intends to exploit. The Group expects net revenue to increase further in the forecast period. This assumption is essentially based on a further increase of the contribution from its structural growth initiatives as well as from new growth opportunities (for details, please refer to the report on opportunities). Moreover, market speculation on future interest rate developments in the US and Europe may boost trading activity in interest rate derivatives at Eurex derivatives exchange in 2019 – while higher or potentially increasing US interest rates could lead to a further increase in net interest income from banking business in the Clearstream (post-trading) segment. Statements on the further development of equity market volatility, which increased significantly in the past financial year, are difficult to make at the beginning of 2019. On the one hand, the company continues to anticipate high uncertainty on the markets, among other things, due to numerous unresolved political issues. On the other hand, past experience has shown that too much uncertainty can also lead to market participants taking a very cautious stance, thus resulting in low trading volumes. The company expects a slightly more reticent market environment in the 2019 financial year compared to 2018, due to the slowdown in global economic growth, increased economic risks, and political uncertainties, especially in Europe.

As in financial year 2018, Deutsche Börse Group expects net revenue growth of at least 5 per cent from structural opportunities. This growth is driven by the Group's investments which follow the objective to transfer market share from OTC to on-exchange trading and clearing and to further expand its positions in existing asset classes by introducing new products and functionalities (for details, see the report on opportunities). In comparison, the development of the business areas depending on cyclical factors largely depends on the degree of speculation regarding future interest rate developments in Europe and on the level of equity market volatility, potentially resulting in further positive or in a negative impact on the Group's net revenue growth. Net revenue growth expected during the forecast period is based on adjusted net revenue of €2,770.4 million achieved in 2018.

Even if, contrary to expectations, the operating environment turns out to be worse than described above, and clients were to significantly scale back their business activities (particularly in the business divisions which depend upon the development of trading volumes), Deutsche Börse Group believes it is in a position to continue to do business very profitably thanks to its successful business model and cost discipline.

Within the scope of its growth strategy, Deutsche Börse Group pursues clearly defined principles for managing operating costs. The core element of these principles is to ensure the scalability of the Group's business model. To this end, the Group continuously manages operating costs adjusted for exceptional effects relative to the development of net revenue. Essentially, the Group achieves the necessary flexibility in managing operating costs through two different initiatives designed to enhance operating efficiency. Firstly, the Group has implemented a continuous process to improve operating efficiency by focusing even more on client needs in order to further enhance the quality and efficiency of the services offered. At the same time, this results in simplifying Group-internal processes and saving costs. Secondly, the Group resolved a series of structural cost reduction measures in 2018, and has already commenced the implementation of said measures.

As at the publication date of this combined management report, the company expects that operating costs will be affected by exceptional effects of some €100 million during the 2019 financial year. The majority of these effects are attributable to costs incurred for restructuring and efficiency measures, costs incurred in connection with existing criminal proceedings, and to the integration of already acquired companies.

Given the expected increase in net revenue driven by structural factors of at least 5 per cent, and also given the scalability of the Group's business model and its efficient cost management, the Group anticipates a growth rate of approximately 10 per cent for (adjusted) net profit for the period attributable to Deutsche Börse AG shareholders during the forecast period. Provided that stock market volatility does not decline significantly compared with 2018, growth of adjusted net profit for the period could also be somewhat higher. At the same time, growth of adjusted net profit for the period could amount to slightly below 10 per cent in the event of less stock market volatility than in 2018 – despite the possibilities of taking countermeasures with regard to operating costs. This assumption is based on an adjusted figure of €1,002.7 million for 2018. In addition, within the scope of its "Roadmap 2020", the Group confirms its medium-term growth targets of between 10 and 15 per cent on average per year for the adjusted net profit for the period attributable to Deutsche Börse AG shareholders.

Forecast for results of operations 2019

| | Based on 2018 €m | Forecast for 2019 |
|---|---|---|
| Net revenue from structural opportunities (excluding exceptional effects) | 2,770.4 | + >5% |
| Exceptional effects impacting operating costs | 244.2 | ~€100 million |
| Net profit for the period attributable to Deutsche Börse AG shareholders (excluding exceptional effects) | 1,002.7 | + ~10% |

**Eurex (financial derivatives) segment**
Deutsche Börse Group believes that, over the long term, structural growth factors will result in higher trading volumes on the market for financial derivatives in all product segments (see the report on opportunities for further details). In the short term, a further increase in equity market volatility could lead to a more pronounced increase in trading volumes, particularly with regard to equity index derivatives. Speculation regarding money market policy, especially in Europe, could also have a positive impact on interest rate derivatives trading.

Eurex will continue to systematically invest in expanding its product offering throughout the forecast period in order to take advantage of structural factors, such as regulation or changing customer needs. The focus of our efforts will be on the acquisition of new business which is currently neither traded on an exchange nor settled through a clearing house. Regulatory requirements, such as the provision entered into force in 2016 determining that OTC derivative transactions must be settled via central counterparties, can provide significant impetus. The Group plans to further increase net revenue from the OTC derivatives business in 2019. Over the medium to long term, the Group anticipates generating significant revenue with this business – not least due to the extra potential which might arise from uncertainty concerning the outcome of the ongoing Brexit process, and potential changes for the clearing of euro-denominated interest rate swaps which might emanate therefrom.

**EEX (commodities) segment**
Due to the continuously positive market environment for trading in power and gas products, the Group expects business activity in the commodities sector to continue to exhibit structural growth during the forecast period, e.g. by gaining additional market share at the expense of OTC energy markets and further increasing the share from renewable energy for power generation.

**360T (foreign exchange) segment**
In foreign-exchange (FX) trading, the Group expects rising demand for multi-bank platforms to further boost trading volumes on the 360T® FX platform in 2019. The platform has gained further attractiveness through the launch of fully electronic FX trading and clearing. During the current financial year, the company expects to increasingly realise the revenue synergies projected in the context of the acquisition of 360T.

**Xetra (cash equities) segment**
As well as enhancing its cash market offering, the company will continue to closely track changes in the competitive environment in Europe. It considers itself well positioned to retain its status as the market leader for trading German blue chips and to offer its customers across the globe an attractive range of products and services for cash trading in German and European equities and equities clearing. The stronger competition in the cash market means that further shifts in the market shares of all competitors cannot be ruled out in the next years. Net revenue in the Xetra (cash equities) segment will depend heavily on stock market cyclicality and volatility.

**Clearstream (post-trading) segment**
In the medium to long term Clearstream expects demand for its TARGET2-Securities (T2S) services to grow, thanks to increasing regulatory requirements and its strong position in the T2S network. Following Clearstream's migration to T2S in 2017, the Group anticipates a moderate contribution from these activities to net revenue, however, not earlier than in the year 2019. This is partly due to the fact that connecting customers is taking slightly longer than originally planned. Another factor to impact Clearstream's business in the forecast period will be central bank monetary policy. Despite the phasing-out of the ECB's programme for purchasing government and corporate bonds last year, the interest rate policy could have a further dampening effect on securities issuance. If, contrary to expectations, monetary policy becomes more restrictive, this would have positive consequences for issuance and for net interest income in the banking business. As a significant portion of customer balances are denominated in US dollars, the ongoing trend of interest rate hikes in the US – initiated at the end of 2016 – will cause a rise in net interest income in 2019, at steady cash balance levels.

Although Deutsche Börse Group faces especially intense competition in the settlement and custody of international bonds, the company does not expect this to have a major negative impact on its net revenue or market share during the forecast period.

**IFS (investment fund services) segment**
The Clearstream subgroup covers all types of funds – from traditional investment funds to exchange-traded funds (ETFs) and hedge funds. Given that supervisory authorities are also calling for more efficient settlement and custody solutions in order to guarantee maximum security for client assets under custody, Deutsche Börse Group expects to acquire additional client portfolios. In line with this expectation, the IFS (investment fund services) segment anticipates continued growth in the forecast period, due to the attractiveness of its fund services.

With regard to its customer structure, the segment expects that consolidation in the financial sector will persist and that customers in Clearstream's domestic and international business will merge. These larger customers would benefit from greater discounts, which could lead to a decline in average fees.

**GSF (collateral management) segment**
Central bank monetary policy will heavily impact collateral management in the forecast period, especially regarding activity in the repo business, but also in securities lending. Despite the phasing-out of the ECB's programme for purchasing government and corporate bonds, the interest rate policy could have a further dampening effect on liquidity management. A positive product mix change could possibly partially compensate for this cyclical development. If, contrary to expectations, monetary policy becomes more restrictive, this would have positive consequences for the use of collateral and liquidity management services.

**STOXX (index business) segment**
The company anticipates that net revenue in the STOXX segment will further increase during the forecast period. This expectation is based on the continuous expansion of the product range in all areas and greater marketing of these products in growth regions. The Group's index business is set to benefit from this development in particular. Moreover, the Group considers the significant structural growth in the market for passively managed assets as an additional growth driver that is expected to further strengthen demand for index licences for ETFs. In addition to distributing index licences, the Group also benefits from the growing investment volumes in these products. In this light, the Group believes it is well placed to increasingly extend the positioning of its globally focused range of indices to the Asian market.

**Data segment**
This segment aims to accelerate the expansion of Deutsche Börse's technology leadership and expertise in the area of market data by pooling all relevant resources within the company in a dedicated, market-driven business unit. The goal is to open up new growth opportunities in the medium to long term. The segment also envisages additional growth from the Regulatory Reporting Hub, launched in 2018, in the forecast period. Developed in cooperation with the Group's clients, the Hub offers a one-stop shop for solutions, helping clients to fulfil their reporting duties under MiFID II.

**Changes in pricing models**
Deutsche Börse Group anticipates sustained price pressure in some of its business areas during the forecast period. The company's objective is to cushion this price pressure by continually improving its products and services and offering selective incentives for price-elastic business.

Over the long term, the average net revenue per unit (e.g. trading or clearing fees per transaction, or fees for custody services) is expected to decline slightly in all areas of the Group. This is a result of laddered pricing models that lead to a decline in income per unit as customers' business activities increase.

### Trends in non-financial performance indicators

Initiatives to promote the transparency and security of the markets will continue to be a key focus during the forecast period, ensuring that Deutsche Börse Group adds value to society. Against this backdrop, the company expects to maintain the availability of the different trading systems for the cash and derivatives market at the very high level seen in previous years throughout the forecast period.

Responsible management that focuses on long-term value creation is of considerable importance for Deutsche Börse Group as a service company. Given demographic change and the resulting shortage of specialist staff, the company aims to continue to position itself adequately and – among other things – to increase the number of women in management positions.

In accordance with the Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwitschaft und im öffentlichen Dienst (FührposGleichberG, German Act on the Equal Participation of Women and Men in Leadership Positions in the Private and Public Sectors), Deutsche Börse AG's Executive Board has defined target quotas for women on the two management levels beneath the Executive Board pursuant to section 76 (4) of the AktG, in each case referring to Deutsche Börse AG. By 31 December 2021, the proportion of women holding positions in the first and second management levels beneath the Executive Board is planned to reach 15 per cent and 20 per cent, respectively.

Moreover, as early as in 2010, the Executive Board had voluntarily committed to increasing the share of women holding middle and upper management positions to 20 per cent by 2020, and women holding lower management positions to 30 per cent during the same period. The Group maintains this ambition, and has extended the scope of its voluntary commitment, over and above legal requirements. Firstly, the target figures determined in this context relate to Deutsche Börse Group worldwide. Secondly, the definition of management levels/positions was extended to also include heads of teams, for example.

### Future development of the Group's financial position

The company expects operating cash flow, which is Deutsche Börse Group's primary funding instrument, to remain clearly positive in the future. The Group expects that two significant factors will influence changes in liquidity. Firstly, the company plans to invest some €180 million in intangible assets and property, plant and equipment at Group level. These investments will serve primarily to develop new products and services in the Eurex (financial derivatives) and Clearstream (post-trading) segments, and to enhance existing ones. The total amount essentially comprises investments in trading infrastructure and in risk management functionalities. Secondly, the Executive Board and Supervisory Board of Deutsche Börse AG will propose a dividend of €2.70 per share to the Annual General Meeting to be held in May 2019. This would correspond to a cash outflow of about €495 million. Against the background of the growth strategy, the company anticipates that, in future, freely available funds will increasingly also be applied to the Group's complementary external growth options. Apart from the above, no other material factors were expected to impact the Group's liquidity at the time the combined management report was prepared. As in previous years, the Group assumes that it will have a sound liquidity base in the forecast period due to its positive cash flow from operating activities, adequate credit lines (see note 25 to the consolidated financial statements for details), and flexible management and planning systems.

Deutsche Börse Group generally aims to distribute dividends equivalent to between 40 and 60 per cent of adjusted net profit for the period attributable to Deutsche Börse AG shareholders. Within this range, the Group manages the actual payout ratio mainly relative to the business performance and based on continuity considerations. In addition, the company plans to invest the remaining available funds primarily into organic growth, but also, secondarily, for the Group's complementary external development. Should the Group be unable to invest these funds, additional payouts, particularly share buy-backs, present another opportunity for the use of funds. To maintain its strong credit ratings at Group level, the company aims at a ratio of net debt to EBITDA of no more than 1.75, and a ratio of free funds from operations to net debt of at least 50 per cent.

The parent company, Deutsche Börse AG, plans to invest some €50 to 60 million in intangible assets and property, plant and equipment during the forecast period.

### Overall assessment by the Executive Board

The Executive Board of Deutsche Börse AG believes that the company continues to be in a very good position compared with the international competition, thanks to its comprehensive offering along the securities trading value chain and its innovative strength. Against this background, the Executive Board therefore expects to see a positive trend in the company's results of operations over the long term. The purpose of the measures as part of the growth strategy is to further accelerate the Group's growth. In this context, the Group aims to act in a more agile and effective manner, and with increased client focus, to turn Deutsche Börse into the global market infrastructure provider of choice, being top-ranked in all its activities. Looking at the economic and regulatory framework over the forecast period, uncertainty persists concerning capital market participants' behaviour; therefore, it is impossible to come up with a concrete forecast for cyclical growth in net revenues. Nonetheless, Deutsche Börse Group endeavours to further expand its structural growth areas and to further increase their contribution to net revenues by at least 5 per cent. At the same time, the Group plans to safeguard the scalability of its business model throughout the forecast period. To this end, the Executive Board will actively manage operating costs in a way that net profit for the period attributable to Deutsche Börse AG shareholders will grow at a stronger rate than net revenue. Specifically, growth rates of about 10 per cent (excluding exceptional effects) are projected for the forecast period. Overall, the Executive Board assumes on this basis that cash flow from operating activities will be clearly positive and that, as in previous years, the liquidity base will be sound. The overall assessment by the Executive Board is valid as at the publication date for this combined management report.

## Deutsche Börse AG (disclosures based on the HGB)

The annual financial statements of Deutsche Börse AG are prepared in accordance with the provisions of the German Commercial Code (Handelsgesetzbuch, HGB) and the supplementary provisions of the German Stock Corporation Act (Aktiengesetz, AktG) and are the underlying basis for the explanations that follow.

### Business and operating environment

**General position**
Deutsche Börse AG is the parent company of Deutsche Börse Group. The parent company's business activities include first and foremost the cash and derivatives markets, which are reflected in the Eurex (financial derivatives) and Xetra (cash equities) segments, as well as the data and index businesses. Deutsche Börse AG also operates essential parts of Deutsche Börse Group's information technology. The development of Deutsche Börse Group's Clearstream (post-trading) segment is reflected in Deutsche Börse AG's business development, primarily due to the profit and loss transfer agreement with Clearstream Holding AG. Deutsche Börse Group's IFS (investment fund services) and GSF (collateral management) segments, in contrast, play a lesser role for Deutsche Börse AG. Nevertheless, the business and framework conditions at Deutsche Börse AG essentially correspond to those of Deutsche Börse Group and are described in the "Macroeconomic and sector-specific environment" section.

**Deutsche Börse AG's course of business in the reporting period**
Deutsche Börse AG's revenues increased by 3.6 per cent in the 2018 financial year, coming in slightly below the company's expectations. Total costs (staff costs, amortisation of intangible assets and depreciation of property, plant and equipment and other operating expenses) increased by 0.7 per cent. Net profit fell compared to 2017 which, among other things, had been positively impacted by proceeds of €139.5 million from the sale of the stake in Eurex Zürich AG to Eurex Global Derivatives AG. On an adjusted basis – i.e. excluding the aforementioned one-off proceeds included in the previous year – the company's net profit for the 2018 financial year increased by 11.8 per cent and, therefore, exceeded the expectation of an increase of at least 10 per cent. Based on these results, Deutsche Börse AG Executive Board assesses the development in the 2018 financial year as satisfactory.

Performance figures for Deutsche Börse AG

| | 2018 €m | 2017 €m | Change % |
|---|---|---|---|
| Sales revenue | 1,396.5 | 1,348.0 | 3.6 |
| Total costs | 921.2 | 915.2 | 0.7 |
| Net profit from equity investments | 242.3 | 346.6 | –30.1 |
| EBITDA | 831.2 | 887.8 | –6.4 |
| Net profit for the period | 532.2 | 615.7 | –13.6 |
| Earnings per share (€) | 2.88[1] | 3.30[1] | –12.1 |

1) Calculation based on weighted average of shares outstanding

## Results of operations of Deutsche Börse AG

Deutsche Börse AG's net revenue rose by 3.6 per cent in 2018 to €1,396.5 million (2017: €1,348.0 million). At €836.6 million (2017: €780.9 million), the largest contribution to revenue came from the Eurex (financial derivatives) segment. The breakdown of revenue by company segment is provided in the "Sales revenue by segment" table.

Sales revenue by segment

| | 2018 €m | 2017 €m | Change % |
|---|---|---|---|
| Eurex (financial derivatives) | 836.6 | 780.9 | 7.1 |
| EEX (commodities) | 13.5 | 14.3 | –5.6 |
| 360T (foreign exchange) | 2.9 | 0.7 | 314.3 |
| Xetra (cash equities) | 229.8 | 235.2 | –2.3 |
| Clearstream (post-trading) | 75.7 | 96.3 | –21.4 |
| IFS (investment fund services) | 8.7 | 9.7 | –10.3 |
| GSF (collateral management) | 3.1 | 3.7 | –16.2 |
| STOXX (index business) | 27.4 | 26.8 | 2.2 |
| Data | 198.8 | 180.4 | 10.2 |
| **Total** | **1,396.5** | **1,348.0** | **3.6** |

For more information on the development of the Eurex (financial derivatives) segment, please refer to the "Eurex (financial derivatives) segment" section.

The revenue contributed by the EEX (commodities) and 360T (foreign exchange) segments is generated mainly by IT services. Therefore, the explanations in the "EEX (commodities) segment" and "360T (foreign exchange) segment" sections relate only indirectly to Deutsche Börse AG. The earnings situation of the Data and STOXX (index business) segments is shown in the "Data segment" and "STOXX (index business) segment" sections. It is important to note that the business performance of the STOXX Ltd. subsidiary, in particular, has no direct impact on the on the business performance of Deutsche Börse AG. An explanation of the business development in the Xetra (cash equities) segment can largely be found in the "Xetra (cash equities) segment" section. Revenues attributable to the Clearstream (post-trading), IFS (investment fund services) and GSF (collateral management) segments result from the IT services Deutsche Börse AG provides to companies belonging to the Clearstream Holding subgroup.

Other operating income increased to €54.3 million in the year under review (2017: €43.3 million, adjusted for the proceeds from the sale of shares in Eurex Zürich AG in the amount of €139.5 million). Other operating income in the year under review resulted primarily from the sale of licences in the amount of €38.7 million.

At €921.2 million, the company's total costs were 0.7 per cent higher than in the previous year (2017: €915.3 million). The composition of total costs can be found in the "Overview of total costs" table. Staff costs rose 33.5 per cent to €301.5 million (2017: €225.9 million) in the year under review. This increase resulted primarily from the restructuring programme initiated in the 2018 financial year, which amounted to €47.3 million. Furthermore, additions to pension provisions increased by €26.9 million. There was also an increase in the number of employees from an average of 1,368 in the prior year to 1,469 in the 2018 financial year. Adjusted for exceptional effects, total costs decreased by €69.0 million to €802.0 million (2017: €871.0 million). The decline is mainly due to the restructuring programme and streamlining of the management structure.

## Overview of total costs

| | 2018<br>€m | 2017<br>€m | Change<br>% |
|---|---|---|---|
| Staff costs | 301.5 | 225.9 | 33.5 |
| Depreciation and amortisation | 57.8 | 37.3 | 55.0 |
| Other operating expenses | 561.9 | 652.1 | –13.8 |
| **Total** | **921.2** | **915.3** | **0.7** |

Amortisation of intangible assets and depreciation of property, plant and equipment increased to a total of €57.8 million in the year under review (2017: €37.3 million). This increase resulted from the takeover of the trading and clearing systems as part of the merger of Finnovation Software GmbH with Deutsche Börse AG, with effect from 1 October 2017. The 2018 reporting year was the first year that the software, acquired in 2017, was amortised for an entire financial year. As a result, the amortisation of purchased software increased by €18.9 million to €31.2 million (2017: €12.3 million). The carrying amount of intangible assets decreased to €117.9 million (2017: €126.6 million).

Other operating expenses fell by 13.8 per cent year-on-year to €561.9 million (2017: €652.1 million). This decline resulted mainly from lower operating management fees of €158.6 million (2017: €200.8 million). The software of Deutsche Börse AG and Eurex Global Derivatives AG used by Eurex Clearing AG and Eurex Frankfurt AG was made available to users free of charge as at 1 January 2018 within the context of operational management. In addition, agency fees to affiliated companies fell to €25.2 million (2017: €67.2 million).

Deutsche Börse AG's net income from strategic investments in the 2018 financial year totalled €242.3 million (2017: €346.6 million) and, among others, consisted of dividend income of €90.6 million (2017: €129.7 million) and income from the transfer of profits from Clearstream Holding AG in the amount of €152.7 million (2017: €84.7 million). The previous year's result had also included income in the amount of €139.5 million from the sale of shares in Eurex Zürich AG to Eurex Global Derivates AG.

Earnings before interest, tax, depreciation and amortisation (EBITDA) decreased to €831.2 million (2017: €887.8 million). The adjusted EBITDA rose by 22.2 per cent to €949.4 million (2017: €777.1 million). This increase resulted from net revenue growth coupled with a decrease in adjusted operating costs. Net profit for the period amounted to €532.2 million, representing a decline of 13.6 per cent (2017: €615.7 million). The decline in the reported EBITDA and the reported net profit for the period resulted from the absence of the proceeds from the sale of shares in Eurex Zürich AG in the prior year.

**Development of profitability**

Deutsche Börse AG's return on equity expresses the ratio of net profit after taxes to average equity available to the company in 2018. Return on equity declined from 24 per cent in 2017 to 21 per cent due to the lower net profit.

## Financial position of Deutsche Börse AG

As at the reporting date, cash and cash equivalents amounted to €716.5 million (2017: €912.0 million) and included bank deposits on current accounts as well as term deposits and other short-term deposits.

Deutsche Börse AG has external credit lines available of €605.0 million (2017: €605.0 million), which were not yet drawn upon as at 31 December 2018. The company also has a commercial paper programme providing flexible, short-term financing options in different currencies up to a total of €2.5 billion. No commercial paper was outstanding as at the end of the reporting year.

Deutsche Börse AG allocates the liquidity within Deutsche Börse Group optimally through a Group-wide cash-pooling system, which ensures that all subsidiaries are in a position to meet their payment obligations at all times.

Deutsche Börse AG has issued three corporate bonds, each with a nominal value of €600 million, as well as a corporate bond with a nominal value of €500 million. For more details about these bonds, please refer to the "Financial position" section.

In the 2018 financial year, Deutsche Börse AG generated cash flow from operating activities of €642.3 million (2017: €700.1 million). The decline is mainly due to the low net profit and higher receivables from affiliated companies.

Cash flow from investing activities amounted to €–444.1 million (2017: €688.8 million). This decline is related, among other things, to the purchase of shares in European Energy Exchange (EEX) (€356.4 million) and Taiwan Futures Exchange (TAIFEX) (€34.8 million) from Eurex Zürich AG. In addition, there was a loan granted to 360TGTX in the amount of US$70.0 million. In the previous year, cash flow from investing activities was influenced in particular by the capital reduction of Eurex Frankfurt AG (€435.0 million) and the sales proceeds recognised from the sale of the stake in Eurex Zürich AG (€308.4 million).

Cash flow from financing activities amounted to €–807.8 million in the year under review (2017: €–835.0 million). In addition to the payment of a dividend of €453.3 million for the 2017 financial year, 3.4 million shares were repurchased for a total of €364.2 million. Cash and cash equivalents amounted to €–906.6 million as at the 31 December 2018 reporting date (2017: €–297.1 million) and consisted of liquid funds of €716.5 million (2017: €912.0 million), less cash-pooling liabilities of €1,623.1 million (2017: €1,209.1 million).

Cash flow statement (condensed)

| | 2018<br>€m | 2017<br>€m |
|---|---|---|
| Cash flows from operating activities | 642.3 | 700.1 |
| Cash flows from investing activities | –444.1 | 688.8 |
| Cash flows from financing activities | –807.8 | –835.0 |
| **Cash and cash equivalents as at 31 December** | **–906.6** | **–297.1** |

## Net assets of Deutsche Börse AG

As at 31 December 2018, the non-current assets of Deutsche Börse AG amounted to €5,892.9 million (2017: €5,509.9 million). At €5,520.9 million, most of the non-current assets was attributable to shares in affiliated companies (2017: €5,235.7 million), mainly from the investment in Clearstream Holding AG, in STOXX Ltd. and the investment in Eurex Frankfurt AG. The increase in shares in affiliated companies resulted primarily from the acquisition of a 75.05 per cent stake in EEX from Eurex Zürich AG for a purchase price of €356.4 million.

Non-current assets (condensed)

| | 2018<br>€m | 2017<br>€m |
|---|---|---|
| Intangible assets | 117.9 | 126.7 |
| Tangible assets | 74.9 | 68.8 |
| Financial assets | 5,700.1 | 5,314.4 |
| **Non-current assets as at 31 December** | **5,892.9** | **5,509.9** |

Deutsche Börse AG's investments in intangible assets and property, plant and equipment amounted to €56.1 million in the year under review (2017: €155.2 million). This year-on-year decline mainly resulted from the acquisition of assets by Deutsche Börse AG in the amount of €120.0 million as part of the merger with Finnovation Software GmbH in 2017. Depreciation and amortisation in 2018 amounted to €57.8 million (2017: €37.3 million).

Receivables from and liabilities to affiliated companies include settlements for intra-Group services and amounts invested by Deutsche Börse AG in cash-pooling agreements. Receivables from affiliated companies amounted to €152.7 million (2017: €84.7 million) and originated primarily from the existing profit transfer agreement with Clearstream Holding AG. Liabilities to affiliated companies resulted mainly from cash-pooling amounting to €1,623.1 million (2017: €1,209.1 million) and trade liabilities in the amount of €43.9 million (2017: €52.3 million).

Working capital amounted to €–1,652.9 million in 2018 (2017: €–1,844.7 million). The change is mainly due to the repayment of the bond and an increase in liabilities to affiliated companies.

## Deutsche Börse AG employees

The number of employees at Deutsche Börse AG rose by 74 in the reporting year and totalled 1,469 as at 31 December 2018 (31 December 2017: 1,395 employees). The average number of employees at Deutsche Börse AG for the 2018 financial year was 1,437 (2017: 1,368 employees).

During the 2018 financial year, 70 employees left Deutsche Börse AG, resulting in a staff turnover rate of 5 per cent.

As at 31 December 2018, Deutsche Börse AG employed staff at six locations worldwide. Information on the countries, regions, the employees' age structure and length of service are provided in the tables that follow.

### Employees per country/region

| | 31 Dec 2018 | % |
|---|---|---|
| Germany | 1,436 | 97.8 |
| United Kingdom | 22 | 1.5 |
| France | 5 | 0.3 |
| Rest of Europe | 4 | 0.3 |
| Asia | 2 | 0.1 |
| **Total Deutsche Börse AG** | **1,469** | **100** |

### Employee age structure

| | 31 Dec 2018 | % |
|---|---|---|
| Under 30 years | 156 | 10.6 |
| 30 to 39 years | 443 | 30.2 |
| 40 to 49 years | 410 | 27.9 |
| 50 years and older | 460 | 31.3 |
| **Total Deutsche Börse AG** | **1,469** | **100** |

Employee length of service

| | 31 Dec 2018 | % |
|---|---|---|
| Less than 5 years | 658 | 44.8 |
| 5 to 15 years | 292 | 19.9 |
| Over 15 years | 519 | 35.3 |
| **Total Deutsche Börse AG** | **1,469** | **100** |

As at 31 December 2018, a total of 77 per cent of the employees at Deutsche Börse AG were graduates. The ratio is based on the number of employees holding a degree from a university, college or vocational academy, as well as the employees who have completed degrees abroad. In 2018, the company invested an average of 3.3 days in training per employee.

### Remuneration report of Deutsche Börse AG

The principles governing the structure and design of the remuneration system at Deutsche Börse AG are the same as those for Deutsche Börse Group. Therefore, please refer to the remuneration report for Deutsche Börse Group.

### Corporate governance statement in accordance with section 289f HGB

The corporate governance statement in accordance with section 289f HGB corresponds to that of Deutsche Börse Group. Therefore, please refer to the "Combined corporate governance statement and corporate governance report" section.

### Opportunities and risks facing Deutsche Börse AG

The opportunities and risks facing Deutsche Börse AG, as well as the measures and processes for dealing with these opportunities and risks, are essentially the same as those for Deutsche Börse Group. Therefore, please refer to the risk report and the report on opportunities of Deutsche Börse Group. In principle, Deutsche Börse AG participates in the opportunities and risks of its equity investments and subsidiaries in proportion to the size of its shareholding. Risks that could potentially threaten the existence of the Eurex Clearing AG subsidiary would also have had a direct influence on Deutsche Börse AG based on a letter of comfort issued by Deutsche Börse AG. As of the reporting date, there were no risks jeopardising the company's existence. For further information regarding the letter of comfort to Eurex Clearing AG, please refer to the section entitled "Other financial obligations and transactions not included in the balance sheet" in the notes to the annual financial statements of Deutsche Börse AG.

The description of the internal control system (ICS) required by section 289 (4) HGB is provided in the "Group management" section.

### Report on expected developments at Deutsche Börse AG

The expected business development of Deutsche Börse AG is essentially subject to the same factors that influence the business development of Deutsche Börse Group. For Deutsche Börse AG, the factors provided in the report on expected developments regarding the cyclical environment and the structural growth initiatives were taken into account. For 2019, the company expects sales revenue to be above the level of the previous year by at least 5 per cent (2018: €1,396.5 million). Given the expected increase in Deutsche Börse AG's sales revenue, and taking efficient cost management into account, the Group anticipates a growth rate of about 10 per cent (excluding exceptional effects) for adjusted net profit for the forecast period (2018: €621.0 million).

## Remuneration report

This remuneration report outlines the principles governing the remuneration system applicable to the members of Deutsche Börse AG's Executive Board and describes the structure and amount of remuneration payable to them. Furthermore, it outlines the principles governing Supervisory Board remuneration and describes the amounts payable. The remuneration report is part of the combined management report and complies with the requirements of the Handelsgesetzbuch (HGB, German Commercial Code), the International Financial Reporting Standards (IFRSs) and the Deutscher Rechnungslegungs Standard Nr. 17 (DRS 17, German Accounting Standard No. 17, Reporting on the Remuneration of Members of Governing Bodies). In addition, it complies with almost all recommendations of the German Corporate Governance Code (the Code); see the "Combined corporate governance statement and corporate governance report" section for details. The remuneration report comprises two sections: "remuneration system and total Executive Board remuneration" and "Supervisory Board remuneration".

### Remuneration system and total Executive Board remuneration

**Principles and targets**
The remuneration system for the Executive Board members was adopted by the Supervisory Board with the effective date 1 January 2016, and it was approved by the Annual General Meeting on 11 May 2016 in accordance with section 120 (4) of the Aktiengesetz (AktG, German Stock Corporation Act). Changes made to the remuneration system during the financial year 2017 are explained in the sections entitled "Principles governing the PSP and assessing target achievement for performance shares", "Automated share purchase designed to fulfil the plan conditions as well as the share ownership guidelines" and "Caps on the total amount of remuneration".

The remuneration system is based on three pillars: firstly, a clear performance orientation and a highly detailed assessment based on ambitious internal and external targets ensure the focus is on the company's goal of above-average growth. Secondly, multi-year bases for assessment, sustainability elements, and the use of deferred payouts discourage excessive risk-taking. Thirdly, the remuneration system promotes a strong equity culture and, in this way, helps align the interests of shareholders, management and other stakeholders.

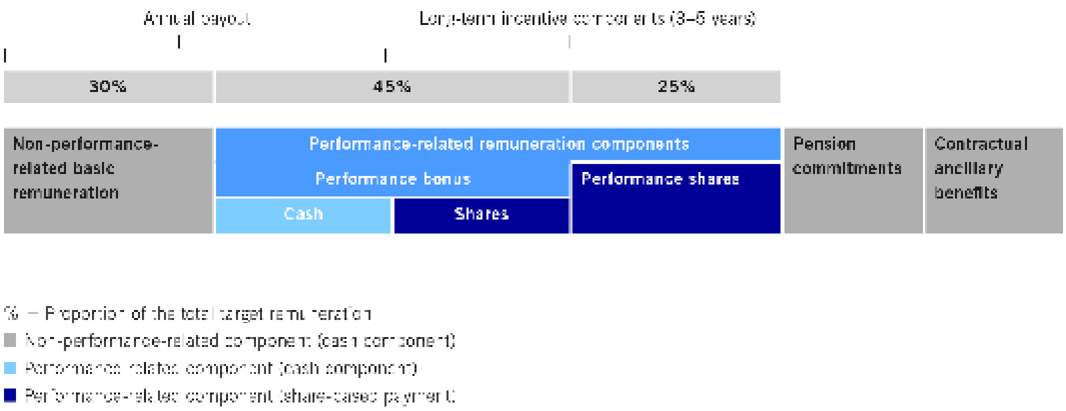
Executive Board remuneration is set by the full Supervisory Board; the Nomination Committee is responsible for preparing the Supervisory Board's decision. The Supervisory Board reviews the appropriateness of Executive Board remuneration on a regular basis, and at least every two years. Factors examined in this context include the relationship between Executive Board remuneration and the salaries paid to senior managers and the workforce as a whole, as well as how pay grades have developed over time. The remuneration system applies equally to all members of the Executive Board.

### Structure and remuneration components

The remuneration system for Executive Board members consists of four components:

- Non-performance-related basic remuneration
- Performance-related remuneration components
- Contractual ancillary benefits
- Pension commitments

Composition of the total target remuneration




In addition, the company's share ownership guidelines require Executive Board members to invest a substantial amount of money in Deutsche Börse AG shares during their term of office.

The individual components of the Executive Board's remuneration are explained in detail below.

### Non-performance-related basic remuneration

The members of the Executive Board receive a fixed base salary, which is payable in twelve equal monthly instalments. This non-performance-related remuneration comprises approximately 30 per cent of the total target remuneration payable each year.

### Performance-related remuneration components

Performance-related remuneration accounts for approximately 70 per cent of total target remuneration for the year. It comprises a performance bonus and performance shares.

#### Performance bonus

The performance bonus is calculated on the basis of Deutsche Börse AG's Performance Bonus Plan (PBP). It accounts for roughly two-thirds of Executive Board members' performance-related remuneration and for approximately 45 per cent of their total target remuneration. The performance bonus is split 50:50 between a share-based component (the share-based performance bonus) and a cash component.

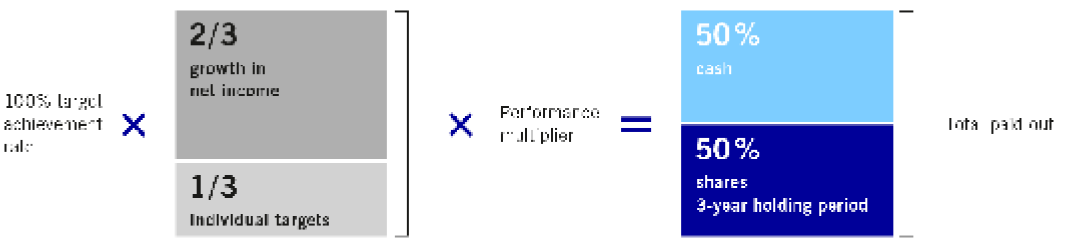
**Performance shares**
Performance shares are calculated and granted on the basis of the Performance Share Plan (PSP). They are paid out after the reporting period since they reflect the performance of Deutsche Börse AG's share price over a five-year performance period. Performance shares account for approximately one-third of the performance-related remuneration and for approximately 25 per cent of their total target remuneration.

The criteria used by the Supervisory Board to assess the extent to which Executive Board members have met their individual targets are described below. These criteria are used to calculate the performance bonus due to Executive Board members, as well as the number of performance shares to be granted and their value.

**Principles governing the PBP and assessing target achievement for the performance bonus**
The extent to which Executive Board members have met their targets for the performance bonus is determined for each financial year on the basis of the PBP. The basic assessment procedure is based on two components: two-thirds of the bonus reflects the increase in the adjusted net profit attributable to Deutsche Börse AG's shareholders for the remuneration year concerned (hereinafter referred to as net income), while one-third reflects the Executive Board members' individual performance.

Once the Supervisory Board has determined the overall extent to which Board members have met their targets using these two components, it may then review this figure and adjust it using a performance multiplier; this can be done either for individual Executive Board members or for the Executive Board as a whole. The total performance bonus is paid out in cash, at the latest together with the regular salary payment for the calendar month following the approval of Deutsche Börse AG's consolidated financial statements for the year. Executive Board members are obliged to invest 50 per cent of the total payout after tax in Deutsche Börse AG shares, which they have to hold for at least three years. For further details regarding the share purchase process, please refer to the section entitled "Automated share purchase designed to fulfil the plan conditions as well as the share ownership guidelines".

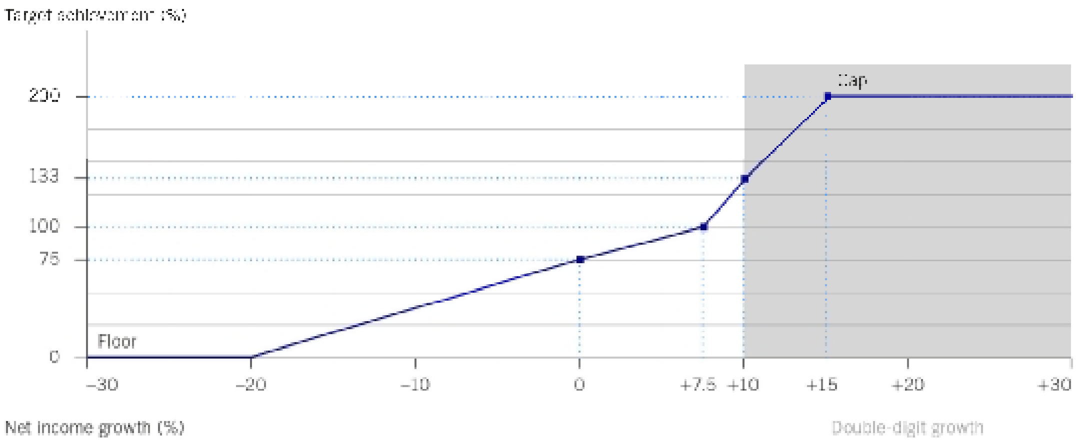
Breakdown of the performance bonus




**Assessing the adjusted net income growth**
Net income growth is calculated independently of the financial planning concerned by comparing the adjusted net income for the remuneration year with the prior-year figure. The target achievement rate may range between 0 and 200 per cent, with a decline in net income of 20 per cent or more being taken to mean a 0 per cent target achievement (floor). Where net income remains stable (i.e. unchanged year-on-year), this is deemed to represent a target achievement rate of 75 per cent, while a 7.5 per cent

increase is equivalent to a target achievement rate of 100 per cent. Net income growth of 15 per cent or more corresponds to a 200 per cent target achievement rate (cap). This means that there is a stronger incentive to achieve net income growth of between 7.5 per cent and 15 per cent, because the target achievement curve is steeper (see the “Assessing net income growth for the performance bonus” chart).

Assessing net income growth for the performance bonus




### Assessing individual target achievement

The Supervisory Board sets the individual performance targets for each Executive Board member at the beginning of the financial year, taking into account both the general corporate strategy and targets that are particularly relevant to individual Executive Board portfolios (e.g. targets for financial indicators, customers, employees and control systems). The Supervisory Board assesses the extent to which each member of the Executive Board has achieved his or her targets after the end of the remuneration year in question. As with the assessment of net income growth, a range of 0 per cent (floor) to 200 per cent (cap) has been defined for individual target achievement rates.

**Determining the performance multiplier**

The performance multiplier for the performance bonus is used e.g. in the event of mergers, acquisitions or divestments to allow the Supervisory Board to account for any dilution of equity, or to reflect the achievement of qualitative or quantitative targets (especially integration parameters) when finally assessing the extent to which an Executive Board member has achieved his or her overall targets. The performance multiplier has a minimum value of 0.8 and a maximum value of 1.2; it is multiplied by the performance assessment for the performance bonus, taking the 200 per cent cap into account.

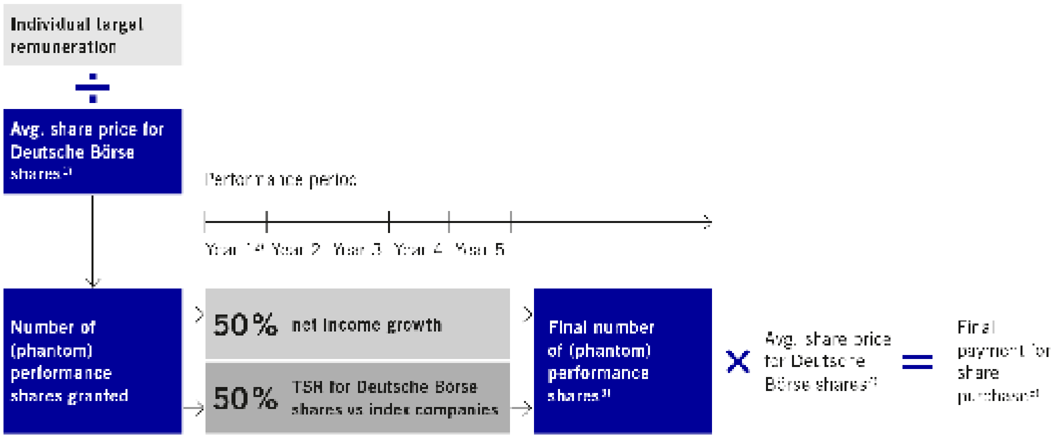
**Principles governing the PSP and assessing target achievement for performance shares**

At the beginning of each financial year, the PSP allots a potential number of so-called performance shares to each member of the Executive Board. The number of initial (phantom) performance shares thus allotted is determined by dividing the amount of the individual target remuneration (in euros) by the average Xetra® closing price of Deutsche Börse shares in the calendar month preceding the start of the performance period (fair value of the performance shares). Target achievement regarding performance shares is determined after the end of a five-year performance period. The respective target achievements are assessed on the basis of two components: firstly, the adjusted net income growth over the five-year period, and, secondly, the relative total shareholder return (TSR) for Deutsche Börse shares compared to the TSR for the STOXX® Europe 600 Financials index (the industry benchmark) during the same period. The final number of phantom performance shares is multiplied by the average Xetra closing price for Deutsche Börse shares in the calendar month preceding the end of the performance period. This results in the amount to be paid out to purchase the tradeable shares (adjusted for the dividends per share paid out during the performance period). The rules governing the due dates of the amounts to be paid out were amended with effect from 1 January 2017. According to the amendment, each payout amount is generally due in three equal instalments: the first instalment is due at the latest together with the regular salary payment for the calendar month following the approval of Deutsche Börse AG's consolidated financial statements after the end of the performance period in question; the second and third instalments are due at the corresponding dates in the two years subsequent to the payment of the first instalment. The members of the Executive Board are obliged to invest the amount paid out after tax in Deutsche Börse AG shares. For further details regarding the share purchase process, please refer to the section "Automated share purchase designed to fulfil the plan conditions as well as the share ownership guidelines".

The PSP has two variables:

- The first variable is the number of performance shares. This is derived from the net income growth and from the TSR for Deutsche Börse shares in comparison to the TSR of the reference index, over a five-year period in each case. The maximum number of performance shares is capped at 250 per cent of the number of performance shares determined at the beginning of the performance period.
- The second variable is the change in the share price and the dividend during the performance period; no cap is applied to the share price.

Principles governing the Performance Share Plan (PSP)



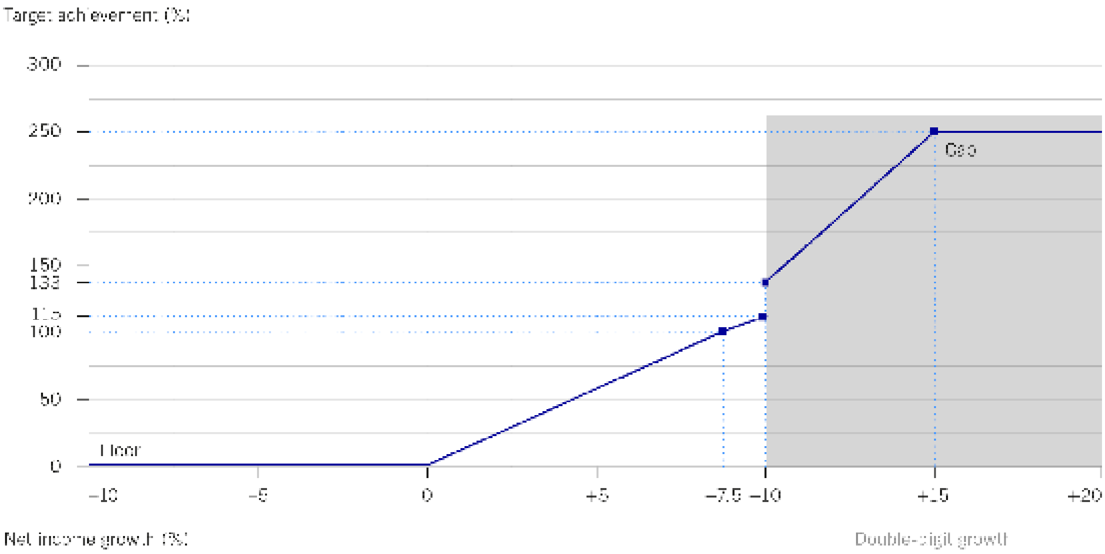

Absolute KPI

Relative KPI

1) In the calendar month preceding the start of the performance period
2) Year in which performance shares are granted
3) Capped at 250 per cent of number granted
4) In the last calendar month of the performance period, including all dividends paid during the performance period
5) Due in three tranches

**Assessing net income for performance shares**
The Supervisory Board determines the target achievement rate for adjusted net income growth at the end of each financial year during the five-year performance period and determines them for the Executive Board members. The target achievement rate at the end of the performance period in question is calculated by adding together the annual target achievement rates for each of the five years and dividing the total produced by five. Target achievement rates may range between 0 and 250 per cent. If net income declines or remains unchanged year-on-year, this is deemed to represent a target achievement rate of 0 per cent (floor). Net income growth of 7.5 per cent corresponds to a 100 per cent target achievement rate. Net income growth of 15 per cent or more corresponds to a 250 per cent target achievement rate (cap). The target achievement rate increases more strongly for growth rates between 10 and 15 per cent than for single-digit growth rates, providing a greater incentive for Executive Board members to aim for double-digit net income growth. See also the “Assessing net income growth for performance shares” chart.

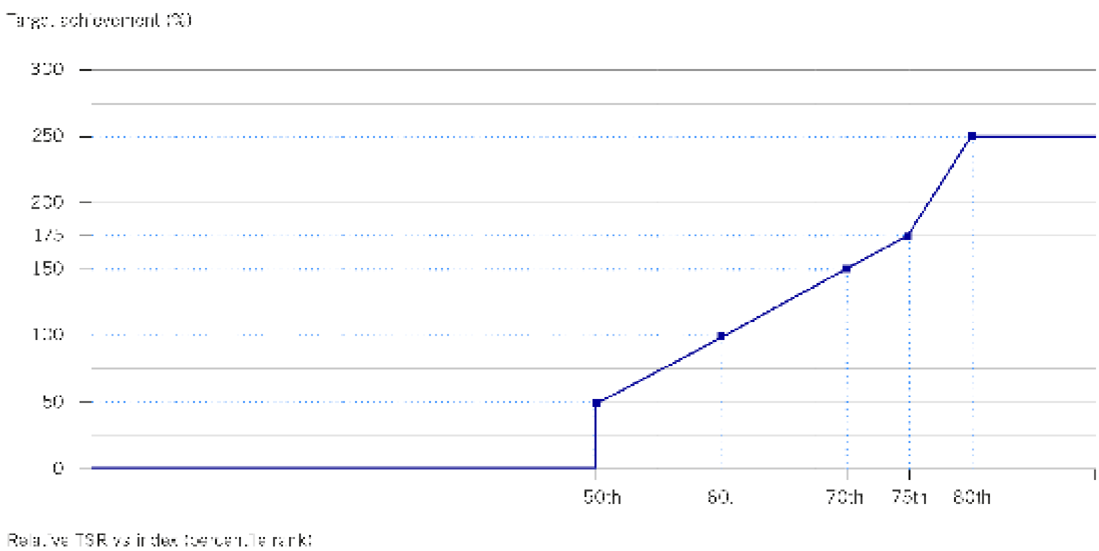
## Assessing net income growth for performance shares



**Assessing the TSR performance for Deutsche Börse shares**

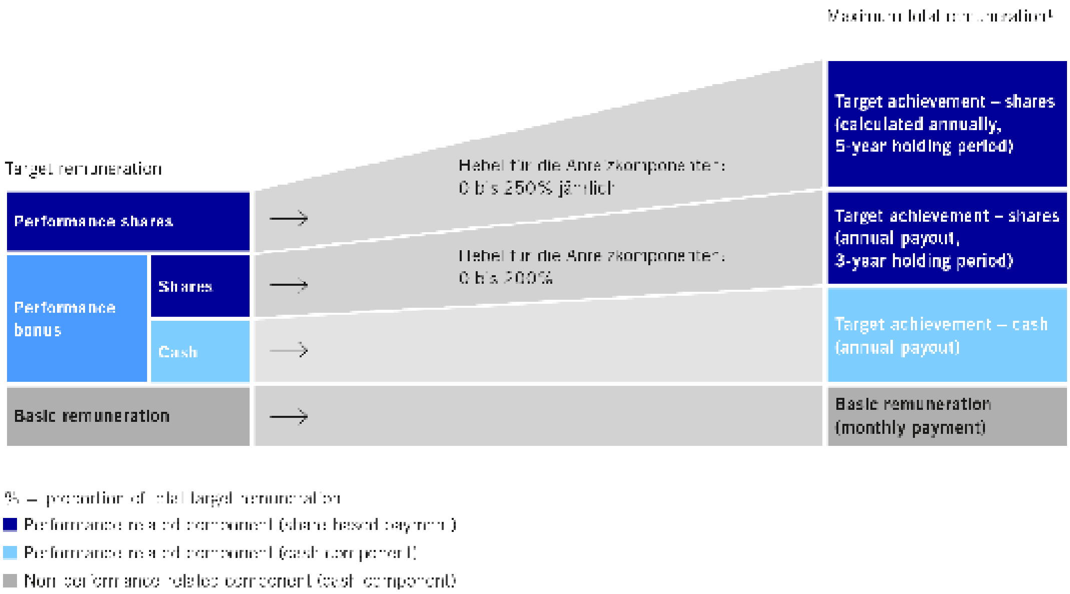
The TSR performance for Deutsche Börse shares is derived from Deutsche Börse AG's ranking relative to the companies included in the STOXX Europe 600 Financials index. The target achievement rates for Executive Board members can range from 0 per cent (floor) to 250 per cent (cap). A 0 per cent target achievement rate is assumed where Deutsche Börse AG's relative five-year TSR falls short of the median, i.e. where it is lower than that for at least half of the index constituents. Where Deutsche Börse AG's TSR has outperformed 60 per cent of index constituents, this represents a target achievement rate of 100 per cent. Where Deutsche Börse AG's TSR has outperformed at least 75 per cent of index constituents, this represents a target achievement rate of 175 per cent. The cap of 250 per cent is reached if Deutsche Börse AG's TSR ranks in the top 20 per cent of index constituents – in other words, if it is in the 80th percentile of the index or higher. Please also refer to the "Assessing the total shareholder return (TSR) for Deutsche Börse shares for performance shares" chart.

Assessing the total shareholder return (TSR) for Deutsche Börse shares for performance shares



Performance-related remuneration for Executive Board members is predominantly share-based. In addition, it is largely calculated on a long-term basis, with various target criteria being assessed over a period of five years (performance shares) or four years (share-based performance bonus: annual payout and three-year holding period for shares to be invested), respectively (see also the "Basic remuneration, and annual and long-term incentive components" chart). The cash component of the performance bonus (annual payout) is the only short-term variable remuneration component.

Basic remuneration, and annual and long-term incentive components




1) No cap on share price performance

## Contractual ancillary benefits

The members of the Executive Board receive contractual ancillary benefits such as the provision of an appropriate company car for business and personal use (with the tax on the pecuniary benefit from personal use being payable by the member concerned). They also receive taxable contributions towards private pensions. In addition, the company has taken out insurance cover for them, such as personal accident insurance and directors & officers (D&O) insurance.

## Pension commitments

### Retirement benefits

The members of the Executive Board are generally entitled to receive retirement benefits upon reaching the age of 60, provided that they are no longer in the service of Deutsche Börse AG at that time – Thomas Book and Andreas Preuss (Executive Board member until 31 October 2018) on reaching the age of 63. As a matter of principle, the Supervisory Board reviews and determines the pensionable income that is used as the basis for retirement benefits. There are two different retirement benefit systems for Executive Board members. Those members who were appointed for the first time prior to 1 January 2009 or who continue being subject to an existing agreement from prior appointments within Deutsche Börse Group, receive a defined benefit pension. Executive Board members who were appointed for the first time after that date receive a defined contribution pension. The pensionable income and the present value of the pension commitments existing as at 31 December 2018 are shown in the "Retirement benefits" table.

**Defined benefit pension system:** After reaching the contractually agreed retirement age, members of the Executive Board covered by the defined benefit pension system receive a specified percentage (known as the "replacement rate") of their individual pensionable income as a pension. A precondition for this is that the Executive Board member in question served on the Executive Board for at least three years and was reappointed at least once. The pensionable income is determined and regularly reviewed by the Supervisory Board. The replacement rate when the Executive Board members' term of office began was 30 per cent and it rose by 5 percentage points with each reappointment, up to a maximum of 50 per cent. From among the active members of the Executive Board, the defined benefit pension system applies to Mr Book.

**Defined contribution pension system:** For Executive Board members covered by the defined contribution pension system, the company makes an annual capital contribution to the scheme for each calendar year that a member serves on the Executive Board. This contribution is determined by applying an individual replacement rate to the pensionable income. As with the defined benefit pension system, the pensionable income is determined and regularly reviewed by the Supervisory Board. The annual capital contributions calculated in this way bear interest of 3 per cent per annum. The defined contribution pension system applies to Theodor Weimer, Christoph Böhm, Stephan Leithner, Gregor Pottmeyer and Hauke Stars.

### Early retirement pension

Members of the Executive Board who have a defined benefit pension are entitled to an early retirement pension if the company does not extend their contract, unless the reasons for this are attributable to the Executive Board member or would justify termination without notice of the Executive Board member's contract. The amount of the early retirement pension is calculated in the same way as the retirement benefits – by applying the applicable replacement rate to the pensionable income. Once again, a precondition is that the Executive Board member served on the Executive Board for at least three years and was reappointed at least once. Members of the Executive Board who have a defined contribution pension are not eligible for an early retirement pension.

### Permanent incapacity to work and death benefits

In the event that a member of the Executive Board becomes permanently incapable of working, the company is entitled to send him or her into retirement. Executive Board members are deemed to be permanently incapable of working if they are unable to perform their professional activities for more than six months, and if they are not expected to regain their capacity to work within a further six months. In such cases, those Executive Board members who have a defined benefit pension plan receive the amount calculated by applying the applicable replacement rate to the pensionable income. Executive Board members with a defined contribution pension plan receive the plan assets that have accrued at the time when the benefits fall due, plus a supplement corresponding to the full annual pension contribution that would have been due in the year in which the Executive Board member left the company's service, multiplied by the number of years between the time at which the benefits fell due and the Executive Board member reaching the age of 60 or 63, as appropriate.

If an Executive Board member dies, his or her spouse receives 60 per cent and each dependent child receives 10 per cent of the above amount (25 per cent for full orphans), up to a maximum of 100 per cent of the pension contribution.

### Transitional payments

In the event that an Executive Board member becomes permanently incapable of working, the defined benefit pension agreements for Executive Board members provide for a transitional payment in addition to the benefits described above. The amount of this payment corresponds to the target variable remuneration (performance bonus and performance shares) in the year in which the event triggering the benefits occurs. It is paid out in two tranches in the two following years. If an Executive Board member dies, his or her spouse receives 60 per cent of the transitional payment.

### Severance payments

In the event that an Executive Board member's contract of service is terminated early for a reason other than good cause, any payments made to the Executive Board member may not exceed the remuneration for the residual term of his or her contract of service or the value of two total annual remuneration payments (severance cap). The payment is calculated on the basis of the total remuneration for the past financial year and, where appropriate, the expected total remuneration for the current financial year. The Supervisory Board may exceed the cap in exceptional, justified cases. Prospective performance shares will lapse if the company has good cause for an extraordinary termination of the Executive Board member's employment or if an Executive Board member terminates his or her contract before the end of the performance period without good cause and without reaching a mutual agreement.

### Change of control

If an Executive Board member is asked to step down within six months of a change of control, he or she is entitled to a severance payment equal to two total annual remuneration payments or the value of the residual term of his or her contract of service, where this is less than two years. This entitlement may be increased to 150 per cent of the severance payment. If an Executive Board member resigns within six months of the change of control taking effect because his or her position as a member of the Executive Board is negatively impacted to a significant degree as a result of the change of control, the Supervisory Board may decide at its discretion whether to grant a severance payment in the above-mentioned amount. In the case of a change of control, all current performance periods shall end on the day on which the contract of service is terminated. The corresponding performance shares will be settled early.

## Share ownership guidelines

Under Deutsche Börse's share ownership guidelines, members of the Executive Board are obliged to continuously hold a multiple of their average basic remuneration in Deutsche Börse AG shares during their term of office. A multiple of 3 applies to the CEO, and a multiple of 2 to the ordinary Executive Board members. Shares belonging to the following three categories are used to assess compliance with the share ownership guidelines: shares purchased from the performance bonus; shares received under the allocation of performance shares; and shares held in private ownership. In each case, such shareholdings must be built up over a three-year period. The shareholdings of Mr Pottmeyer and Ms Stars were evaluated as at 31 December 2018 and were found to be compliant with the share ownership guidelines. Such compliance shall be evaluated on 31 December 2020 with regard to the shareholdings of Mr Weimer and on 31 December 2021 at the latest with regard to the shareholdings of Mr Böhm, Mr Book and Mr Leithner. For details regarding the procedures for the share purchases, please refer to the section entitled "Automated share purchase designed to fulfil the plan conditions as well as the share ownership guidelines".

**Automated share purchase designed to fulfil the plan conditions as well as the share ownership guidelines**

For members of the Executive Board, the share purchase agreed upon under the Performance Bonus Plan and the Performance Share Plan, as well as any share purchase from private funds, has been settled since 2017 by a service provider appointed by Deutsche Börse AG and assigned by the beneficiary; the service provider invests the investment amounts independently, i.e. without any influence from the beneficiary or the company, on behalf of the beneficiary into Deutsche Börse AG shares. The share purchase takes place during the first four trading days (consecutive calendar days) in June every year.

**Caps on the total amount of remuneration**

The annual remuneration – comprising fixed salary, variable remuneration components and pension expenses – is capped at an aggregate gross amount of €9.5 million (total cap) for each Executive Board member. Ancillary benefits are not included in this amount. Although these are subject to fluctuation, no extraordinary fluctuations are expected and therefore it is not necessary to include them in the total cap. In the interest of shareholders, the company will continue to provide competitive incentives for good personal performance and the company's sustainable success to Executive Board members, while preventing any unintended excesses that might otherwise be possible.

### Miscellaneous

**Post-contractual non-compete clause**

A post-contractual non-compete clause applies to members of Deutsche Börse AG's Executive Board who were appointed or reappointed to the Board on or after 1 October 2014. This means that the Executive Board members in question are contractually prohibited from acting for a competing company, or from undertaking competing activities, for one year following the end of their service. Compensation of 75 per cent of the member's final fixed remuneration and 75 per cent of his or her final performance bonus is payable during the non-compete period. Pension agreement benefits are offset against the compensation. In addition, 50 per cent of other earnings are deducted if these – together with the compensation – exceed the Executive Board member's final remuneration. The company may waive the post-contractual non-compete clause before the Executive Board member's contract of service ends.

**Sideline activities**

Additional appointments assumed, or sideline activities entered into, by individual members of the Executive Board, require the approval of the full Executive Board and the Chairman of the Supervisory Board or, in certain cases, of the full Supervisory Board (which has delegated granting such approval to the Nomination Committee). If a member of the Executive Board receives any remuneration for an office performed at an affiliate of Deutsche Börse AG, this remuneration is offset against the Executive Board member's entitlement to remuneration from Deutsche Börse AG.

**Loans to Executive Board members**

The company did not grant any loans or advances to members of the Executive Board during financial year 2018, and there are no loans or advances from previous years to members of the Executive Board.

**Payments to former members of the Executive Board**

Former members of the Executive Board or their surviving dependants received payments of €4.4 million in the year under review (2017: €4.3 million). The actuarial present value of the pension obligations as at the reporting date was €67.5 million in the year under review (2017: €69.9 million).

### Benefits in connection with the termination of Executive Board appointments

The former Deputy CEO, Mr Preuss, has resigned from his appointment as at 31 October 2018. His contract of service will terminate on 31 May 2019. For the remainder of his contract of service in 2018 (1 November until 31 December 2018), he received the following remuneration:

- Fixed remuneration: €133,300
- Performance bonus November to December 2018: €350,700
- Performance shares November to December 2018: 1,201
- Ancillary benefits: €5,700

The long-term member of the Executive Board Jeffrey Tessler has resigned from his appointment as of 30 June 2018. His contract of service regularly terminated on 31 December 2018. For the remainder of his contract of service (1 July until 31 December 2018), he received the following remuneration:

- Fixed remuneration: €390,300
- Performance bonus July to December 2018: €835,000
- Number of granted performance shares July to December 2018: 2,859
- Ancillary benefits: €123,500

With regard to both Mr Preuss and Mr Tessler, the company has decided to waive the post-contractual non-compete clause

### Remuneration of former CEO Carsten Kengeter

The former Chief Executive Officer, Carsten Kengeter, who stepped down with effect from 31 December 2017, participated in the Co-Performance Investment Plan (CPIP) that was resolved by the Supervisory Board in 2015. In December 2015, during the investment period provided for in the CPIP, he used private funds to invest €4,500,000 in Deutsche Börse AG shares (investment shares). In return for his acquisition of the investment shares, Mr Kengeter was granted 68,987 co-performance shares in the company; these are basically subject to the same financial criteria as for performance shares, which are explained in the section entitled “Principles governing the PSP and assessing target achievement for performance shares”. Thus, the performance of the co-performance shares was measured on the basis of (i) Deutsche Börse AG’s net income growth and (ii) the ratio of the change in TSR for Deutsche Börse shares to that for the companies included in the STOXX Europe 600 Financials index. The performance period for the co-performance shares commenced on 1 January 2015 and will end on 31 December 2019. Notwithstanding any diverging agreement regarding amounts and disbursement dates, their equivalent will fall due and be disbursed in three instalments, on 31 March 2019 (first prepayment), 31 March 2020 (second prepayment), and 31 March 2021 (final payout). Based on a pro-rata entitlement of 60 per cent (i.e. three-fifths) for Mr Kengeter’s term of office, the company has recognised a provision amounting to €9,594,080.40.

For the period from 1 January until the regular termination of his contract of service on 31 March 2018, Mr Kengeter received the following remuneration:

- Fixed remuneration: €375,000
- Performance bonus January to March 2018: €704,000
- Performance shares January to March 2018: 3,339
- Ancillary benefits: €3,700

Additionally, subject to a set-off of other income (if any), he received the contractually agreed non-competition compensation in the gross monthly amount of €222,087 to compensate him for the post-contractual non-compete clause (see also the "Post-contractual non-compete clause" section). The compensation was paid for the period from 1 April until 31 August 2018 as the company had waived the non-compete clause's full term with six months' notice by declaration dated February 2018.

Prior to Mr Kengeter's resignation in 2017, no agreement was concluded with him for the implementation of the overall cap of an aggregate gross remuneration of €9.5 million, as outlined in the "Caps on the total amount of remuneration" section. In any case, the remuneration paid to Mr Kengeter in 2017 remained below this threshold; the same applies to the remuneration paid in 2018.

Mr Kengeter has no pension claims; his previous claim on pension benefits lapsed when he left the company.

### Amount of Executive Board remuneration

The following tables contain the figures for the individual Executive Board remuneration components mentioned above for financial years 2018 and 2017. The remuneration awarded to each Executive Board member in accordance with section 4.2.5 (3) of the German Corporate Governance Code is shown in the "Benefits granted" and "Benefits received" tables. The information disclosed in accordance with section 314 of the HGB is shown in the "Benefits received" tables.

## Retirement benefits

| | Pensionable income | Replacement rate | | Present value/defined benefit obligation | | Pension expense | |
|---|---|---|---|---|---|---|---|
| | 2018 | as at 31 Dec 2018 | as at 31 Dec 2017 | as at 31 Dec 2018 | as at 31 Dec 2017 | 2018 | 2017 |
| | € thous. | % | % | € thous. | € thous. | € thous. | € thous. |
| **Defined benefit system** | | | | | | | |
| Thomas Book[1] | 500.0 | 45.0 | – | 4,829.0 | 0 | 356.1 | 0 |
| Andreas Preuss | 800.0 | 50.0 | 50.0 | 12,800.2 | 11,928.9 | 969.0 | 1,000.2 |
| Jeffrey Tessler | 700.0 | 50.0 | 45.0 | 4,829.0 | 4,515.6 | 216.0 | 288.2 |
| **Total** | **2,000.0** | **145.0** | **95.0** | **22,458.2** | **16,444.5** | **1,541.1** | **1,288.4** |
| | | | | | | | |
| **Defined contribution system** | | | | | | | |
| Theodor Weimer | 1,000.0 | 40.0 | – | 560.8 | 0 | 677.8 | 0 |
| Christoph Böhm | 500.0 | 48.0 | – | 114.1 | 0 | 147.9 | 0 |
| Stephan Leithner | 500.0 | 48.0 | – | 256.5 | 0 | 295.2 | 0 |
| Gregor Pottmeyer | 500.0 | 48.0 | 48.0 | 3,517.8 | 3,207.3 | 300.1 | 293.3 |
| Hauke Stars | 500.0 | 40.0 | 36.0 | 1,918.2 | 1,549.1 | 269.6 | 225.1 |
| **Total** | **3,000.0** | **224.0** | **84.0** | **6,367.4** | **4,756.4** | **1,690.6** | **518.4** |

1) Until 30 June 2018, Thomas Book was remunerated by Eurex Frankfurt AG. Since 1 July 2018, Deutsche Börse AG pays out the total amount of Mr Book's remuneration. Thus, Deutsche Börse AG contributes €178.1 thousand to total remuneration for Thomas Book.

## 2018 total expense for share-based payments (Prior-year figures in brackets)

| | Expense recognised (total) € thous. | Carrying amount as at the reporting date (total) € thous. |
|---|---|---|
| Theodor Weimer | 588.3 | 588.3 |
| | – | – |
| Christoph Böhm | 42.2 | 42.2 |
| | – | – |
| Thomas Book | 116.9 | 116.9 |
| | – | – |
| Stephan Leithner | 126.7 | 126.7 |
| | – | – |
| Gregor Pottmeyer | 1,200.7 | 1,864.4 |
| | (532.6) | (663.7) |
| Hauke Stars | 1,107.9 | 1,720.3 |
| | (491.4) | (612.4) |
| Carsten Kengeter[1)] | – | – |
| | (7,965.7) | (12,057.0) |
| Andreas Preuss[2)] | 4,789.7 | 5,620.9 |
| | (667.0) | (831.2) |
| Jeffrey Tessler[3)] | 3,801.7 | 4,461.4 |
| | (529.4) | (659.7) |
| **Total** | **11,774.1** | **14,541.1** |
| | **(10,186.1)** | **(14,824.0)** |

1) Chief Executive Officer until 31 December 2017
2) Member of the Executive Board until 31 October 2018; expense recognised / carrying amount as at the reporting date relate to full financial year 2018.
3) Member of the Executive Board until 30 June 2018; expense recognised / carrying amount as at the reporting date relate to full financial year 2018.

## Number of phantom shares

| | | Number of phantom shares on the grant date | Adjustments of number of phantom shares since the grant date | Number of phantom shares as at 31 Dec 2018 |
|---|---|---|---|---|
| Theodor Weimer | Tranche 2018 | 13,353 | 14,021 | 27,374 |
| | **Total 2018 tranche** | | | **27,374** |
| | | | | |
| Christoph Böhm | Tranche 2018 | 959 | 1,007 | 1,966 |
| | **Total 2018 tranche** | | | **1,966** |
| | | | | |
| Thomas Book | Tranche 2018 | 2,654 | 2,786 | 5,440 |
| | **Total 2018 tranche** | | | **5,440** |
| | | | | |
| Stephan Leithner | Tranche 2018 | 2,876 | 3,020 | 5,896 |
| | **Total 2018 tranche** | | | **5,896** |
| | | | | |
| Gregor Pottmeyer | Tranche 2018 | 5,752 | 6,040 | 11,792 |
| | Tranche 2017 | 7,464 | 7,175 | 14,639 |
| | Tranche 2016 | 7,148 | 7,229 | 14,377 |
| | **Total 2016 to 2018 tranches** | | | **40,808** |
| | | | | |
| Hauke Stars | Tranche 2018 | 5,307 | 5,573 | 10,880 |
| | Tranche 2017 | 6,887 | 6,621 | 13,508 |
| | Tranche 2016 | 6,595 | 6,670 | 13,265 |
| | **Total 2016 to 2018 tranches** | | | **37,653** |
| | | | | |
| Carsten Kengeter[1)] | Tranche 2018 | – | – | – |
| | Tranche 2017 | – | – | – |
| | Tranche 2016 | – | – | – |
| | Tranche 2015 | – | – | – |
| | **Total 2015 to 2018 tranches** | | | **–** |
| | | | | |
| Andreas Preuss[2)] | Tranche 2018 | 7,204 | 7,565 | 14,769 |
| | Tranche 2017 | 9,348 | 8,986 | 18,334 |
| | Tranche 2016 | 8,952 | 9,053 | 18,005 |
| | **Total 2016 to 2018 tranches** | | | **51,108** |
| | | | | |
| Jeffrey Tessler[3)] | Tranche 2018 | 5,718 | 6,004 | 11,722 |
| | Tranche 2017 | 7,420 | 7,133 | 14,553 |
| | Tranche 2016 | 7,105 | 7,185 | 14,290 |
| | **Total 2016 to 2018 tranches** | | | **40,565** |
| | **Total 2015 to 2018 tranches** | | | **210,810** |

1) Chief Executive Officer until 31 December 2017
2) Member of the Executive Board until 31 October 2018; the number of phantom shares relates to the balance as at 31 December 2018.
3) Member of the Executive Board until 30 June 2018; the number of phantom shares relates to the balance as at 31 December 2018.

## Benefits granted

| | Theodor Weimer (CEO) | | | | Christoph Böhm (CIO/COO) (since 1 November 2018) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 € thous. | 2018 (min) € thous. | 2018 (max) € thous. | 2017 € thous. | 2018 € thous. | 2018 (min) € thous. | 2018 (max) € thous. | 2017 € thous. |
| Fixed remuneration | 1,500.0 | 1,500.0 | 1,500.0 | – | 120.0 | 120.0 | 120.0 | – |
| Ancillary benefits | 22.9 | 22.9 | 22.9 | – | 11.4 | 11.4 | 11.4 | – |
| **Total** | **1,522.9** | **1,522.9** | **1,522.9** | **–** | **131.4** | **131.4** | **131.4** | **–** |
| One-year variable remuneration | | | | | | | | |
| Cash component performance bonus (50%) | 1,100.0 | 0 | 2,200.0 | – | 93.3 | 0 | 186.6 | – |
| Multi-year variable remuneration | 2,400.0 | 0 | no max. | – | 186.6 | 0 | no max. | – |
| Share component performance bonus (50%, 3-year holding period)[1] | 1,100.0 | 0 | no max. | – | 93.3 | 0 | no max. | – |
| Performance shares (5-year term)[2] | 1,300.0 | 0 | no max. | – | 93.3 | 0 | no max. | – |
| **Total** | **5,022.9** | **1,522.9** | **no max.** | **–** | **411.3** | **131.4** | **no max.** | **–** |
| Pension expense | 677.8 | 677.8 | 677.8 | – | 147.9 | 147.9 | 147.9 | – |
| **Total remuneration** | **5,700.7** | **2,200.7** | **9,500.0[3]** | **–** | **559.2** | **279.3** | **9,500.0[3]** | **–** |

1) The level of target achievement is capped at 200 per cent. No cap on the share price performance – therefore, no maximum can be stated (no max.). For more information, please refer to the "Combined corporate governance statement and corporate governance report" section.
2) The target achievement rates for net income and total shareholder return, and for the maximum number of performance shares are all capped at 250 per cent. No cap on the share price performance – therefore, no maximum can be stated for the individual remuneration components (no max.). For more information, please refer to the "Combined corporate governance statement and corporate governance report" section.
3) The total remuneration (excluding ancillary benefits) is capped at €9.5 million.

## Benefits granted

| | Thomas Book (since 1 July 2018) | | | | Stephan Leithner (since 2 July 2018) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 € thous. | 2018 (min) € thous. | 2018 (max) € thous. | 2017 € thous. | 2018 € thous. | 2018 (min) € thous. | 2018 (max) € thous. | 2017 € thous. |
| Fixed remuneration | 325.0 | 325.0 | 325.0 | – | 360.0 | 360.0 | 360.0 | – |
| Ancillary benefits | 15.7[4] | 15.7[4] | 15.7[4] | – | 5.7 | 5.7 | 5.7 | – |
| **Total** | **340.7** | **340.7** | **340.7** | **–** | **365.7** | **365.7** | **365.7** | **–** |
| One-year variable remuneration | | | | | | | | |
| Cash component performance bonus (50%) | 258.3 | 0 | 516.6 | – | 280.0 | 0 | 560.0 | – |
| Multi-year variable remuneration | 516.6 | 0 | no max. | – | 560.0 | 0 | no max. | – |
| Share component performance bonus (50%, 3-year holding period)[1] | 258.3 | 0 | no max. | – | 280.0 | 0 | no max. | – |
| Performance shares (5-year term)[2] | 258.3 | 0 | no max. | – | 280.0 | 0 | no max. | – |
| **Total** | **1,115.6** | **340.7** | **no max.** | **–** | **1,205.7** | **365.7** | **no max.** | **–** |
| Pension expense | 356.1 | 356.1 | 356.1 | – | 295.2 | 295.2 | 295.2 | – |
| **Total remuneration** | **1,471.7** | **696.8** | **9,500.0[3]** | **–** | **1,500.9** | **660.9** | **9,500.0[3]** | **–** |

4) Until 30 June 2018, Thomas Book was remunerated by Eurex Frankfurt AG. Since 1 July 2018, Deutsche Börse AG pays out the total amount of Mr Book's remuneration. Thus, Deutsche Börse AG contributes €178.1 thousand to total remuneration for Thomas Book.

## Benefits granted

| | Gregor Pottmeyer (CFO) | | | | Hauke Stars (Director of Labour Relations) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 € thous. | 2018 (min) € thous. | 2018 (max) € thous. | 2017 € thous. | 2018 € thous. | 2018 (min) € thous. | 2018 (max) € thous. | 2017 € thous. |
| Fixed remuneration | 720.0 | 720.0 | 720.0 | 720.0 | 650.0 | 650.0 | 650.0 | 650.0 |
| Ancillary benefits | 29.2 | 29.2 | 29.2 | 30.5 | 24.9 | 24.9 | 24.9 | 24.8 |
| **Total** | **749.2** | **749.2** | **749.2** | **750.5** | **674.9** | **674.9** | **674.9** | **674.8** |
| One-year variable remuneration | | | | | | | | |
| Cash component performance bonus (50%) | 560.0 | 0 | 1,120.0 | 560.0 | 516.7 | 0 | 1,033.4 | 516.7 |
| Multi-year variable remuneration | 1,120.0 | 0 | no max. | 1,120.0 | 1,033.4 | 0 | no max. | 1,033.4 |
| Share component performance bonus (50%, 3-year holding period)[1] | 560.0 | 0 | no max. | 560.0 | 516.7 | 0 | no max. | 516.7 |
| Performance shares (5-year term)[2] | 560.0 | 0 | no max. | 560.0 | 516.7 | 0 | no max. | 516.7 |
| **Total** | **2,429.2** | **749.2** | **no max.** | **2,430.5** | **2,225.0** | **674.9** | **no max.** | **2,224.9** |
| Pension expense | 300.1 | 300.1 | 300.1 | 293.3 | 269.6 | 269.6 | 269.6 | 225.1 |
| **Total remuneration** | **2,729.3** | **1,049.3** | **9,500.0[3]** | **2,723.8** | **2,494.6** | **944.5** | **9,500.0[3]** | **2,450.0** |

1) The level of target achievement is capped at 200 per cent. No cap on the share price performance – therefore, no maximum can be stated (no max.). For more information, please refer to the "Combined corporate governance statement and corporate governance report" section.
2) The target achievement rates for net income and total shareholder return, and for the maximum number of performance shares are all capped at 250 per cent. No cap on the share price performance – therefore, no maximum can be stated for the individual remuneration components (no max.). For more information, please refer to the "Combined corporate governance statement and corporate governance report" section.
3) The total remuneration (excluding ancillary benefits) is capped at €9.5 million.

## Benefits granted

| | Andreas Preuss[4] (Deputy CEO until 31 October 2018) | | | | Jeffery Tessler[5] (until 30 June 2018) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2018 € thous. | 2018 (min) € thous. | 2018 (max) € thous. | 2017 € thous. | 2018 € thous. | 2018 (min) € thous. | 2018 (max) € thous. | 2017 € thous. |
| Fixed remuneration | 666.7 | 666.7 | 666.7 | 800.0 | 390.3 | 390.3 | 390.3 | 780.6 |
| Ancillary benefits | 28.3 | 28.3 | 28.3 | 33.0 | 104.1 | 104.1 | 104.1 | 18.2 |
| **Total** | **695.0** | **695.0** | **695.0** | **833.0** | **494.4** | **494.4** | **494.4** | **798.8** |
| One-year variable remuneration | | | | | | | | |
| Cash component performance bonus (50%) | 584.5 | 0 | 1,169.0 | 701.4 | 278.4 | 0 | 556.7 | 556.7 |
| Multi-year variable remuneration | 1,169.0 | 0 | no max. | 1,402.8 | 556.7 | 0 | no max. | 1,113.4 |
| Share component performance bonus (50%, 3-year holding period)[1] | 584.5 | 0 | no max. | 701.4 | 278.4 | 0 | no max. | 556.7 |
| Performance shares (5-year term)[2] | 584.5 | 0 | no max. | 701.4 | 278.4 | 0 | no max. | 556.7 |
| **Total** | **2,448.5** | **695.0** | **no max.** | **2,937.2** | **1,329.5** | **494.4** | **no max.** | **2,468.9** |
| Pension expense | 807.5 | 807.5 | 807.5 | 1,000.2 | 108.0 | 108.0 | 108.0 | 288.2 |
| **Total remuneration** | **3,256.0** | **1,502.5** | **9,500.0[3]** | **3,937.4** | **1,437.5** | **602.4** | **9,500.0[3]** | **2,757.1** |

4) Deputy CEO until 31 October 2018, contract of service will terminate on 31 May 2019.
5) Member of the Executive Board until 30 June 2018, contract of service terminated on 31 December 2018.

## Benefits received

| | Theodor Weimer (CEO) | | Christoph Böhm (CIO/COO since 1 November 2018) | | Thomas Book (since 1 July 2018) | |
|---|---|---|---|---|---|---|
| | 2018 € thous. | 2017 € thous. | 2018 € thous. | 2017 € thous. | 2018 € thous. | 2017 € thous. |
| Fixed remuneration | 1,500.0 | – | 120.0 | – | 325.0 | – |
| Ancillary benefits [1] | 22.9 | – | 11.4 | – | 15.7[2] | – |
| **Total** | **1,522.9** | **–** | **131.4** | **–** | **340.7** | **–** |
| | | | | | | |
| One-year variable remuneration | | | | | | |
| Cash component performance bonus (50%) | 2,117.5 | – | 155.6 | – | 439.2 | – |
| Multi-year variable remuneration | 2,117.5 | – | 155.6 | – | 439.2 | – |
| Share component performance bonus (50%, 3-year holding period) | 2,117.5 | – | 155.6 | – | 439.2 | – |
| Performance shares (5-year term) | – | – | – | – | – | – |
| **Total** | **5,757.9** | **–** | **442.6** | **–** | **1,219.1** | **–** |
| | | | | | | |
| Pension expense | 677.8 | – | 147.9 | – | 356.1 | – |
| **Total remuneration (German Corporate Governance Code)[3]** | **6,435.7** | **–** | **590.5** | **–** | **1,575.2** | **–** |
| | | | | | | |
| Plus performance shares | 1,300.0 | – | 93.3 | – | 258.3 | – |
| Less variable share component | – | – | – | – | – | – |
| Less pension expense | –677.8 | – | –147.9 | – | –356.1 | – |
| **Total remuneration (section 314 of the HGB)** | **7,057.9** | **–** | **535.9** | **–** | **1,477.4** | **–** |
| | | | | | | |
| Number of phantom shares (no-par value share)[4] | 13,353 | – | 959 | – | 2,654 | – |

1) Ancillary benefits (other benefits) comprise salary components such as taxable contributions towards private pensions, company car arrangements, travel arrangements, and expenses for tax and legal advice.
2) Until 30 June 2018, Thomas Book was remunerated by Eurex Frankfurt AG. Since 1 July 2018, Deutsche Börse AG pays out the total amount of Mr Book's remuneration. Thus, Deutsche Börse AG contributes €178.1 thousand to total remuneration for Thomas Book.
3) The total remuneration (excluding ancillary benefits) is capped at €9.5 million.
4) The number of prospective performance shares for the performance period determined at the 2018 grant date is calculated by dividing the target amount by the average share price (Xetra® closing price) for Deutsche Börse shares in December 2017 (€97.36).

## Benefits received

| | Stephan Leithner (since 2 July 2018) | | Gregor Pottmeyer (CFO) | | Hauke Stars (Director of Labour Relations) | |
|---|---|---|---|---|---|---|
| | 2018 € thous. | 2017 € thous. | 2018 € thous. | 2017 € thous. | 2018 € thous. | 2017 € thous. |
| Fixed remuneration | 360.0 | – | 720.0 | 720.0 | 650.0 | 650.0 |
| Ancillary benefits [1] | 5.7 | – | 29.2 | 30.5 | 24.9 | 24.8 |
| **Total** | **365.7** | **–** | **749.2** | **750.5** | **674.9** | **674.8** |
| | | | | | | |
| One-year variable remuneration | | | | | | |
| Cash component performance bonus (50%) | 476.0 | – | 856.8 | 604.8 | 759.5 | 558.0 |
| Multi-year variable remuneration | 476.0 | – | 856.8 | 604.8 | 759.5 | 558.0 |
| Share component performance bonus (50%, 3-year holding period) | 476.0 | – | 856.8 | 604.8 | 759.5 | 558.0 |
| Performance shares (5-year term) | – | – | – | – | – | – |
| **Total** | **1,317.7** | **–** | **2,462.8** | **1,960.1** | **2,193.9** | **1,790.8** |
| | | | | | | |
| Pension expense | 295.2 | – | 300.1 | 293.3 | 269.6 | 225.1 |
| **Total remuneration (German Corporate Governance Code)[2]** | **1,612.9** | **–** | **2,762.9** | **2,253.4** | **2,463.5** | **2,015.9** |
| | | | | | | |
| Plus performance shares | 280.0 | – | 560.0 | 560.0 | 516.7 | 516.7 |
| Less variable share component | – | – | – | – | – | – |
| Less pension expense | –295.2 | – | –300.1 | –293.3 | –269.6 | –225.1 |
| **Total remuneration (section 314 of the HGB)** | **1,597.7** | **–** | **3,022.8** | **2,520.1** | **2,710.6** | **2,307.5** |
| | | | | | | |
| Number of phantom shares (no-par value share)[3] | 2,876 | – | 5,752 | 7,464 | 5,307 | 6,887 |

1) Ancillary benefits (other benefits) comprise salary components such as taxable contributions towards private pensions, company car arrangements, travel arrangements, and expenses for tax and legal advice.
2) The total remuneration (excluding ancillary benefits) is capped at €9.5 million.
3) The number of prospective performance shares for the performance period determined at the 2018 grant date is calculated by dividing the target amount by the average share price (Xetra® closing price) for Deutsche Börse shares in December 2017 (€97.36).

## Benefits received

| | Andreas Preuss[4] (Deputy CEO until 31 October 2018) | | Jeffrey Tessler[5] (until 30 June 2018) | | Total | |
|---|---|---|---|---|---|---|
| | 2018 € thous. | 2017 € thous. | 2018 € thous. | 2017 € thous. | 2018 € thous. | 2017[6] € thous. |
| Fixed remuneration | 666.7 | 800.0 | 390.3 | 780.6 | 4,732.0 | 2,950.6 |
| Ancillary benefits[1] | 28.3 | 33.0 | 104.1 | 18.2 | 242.2 | 106.5 |
| **Total** | **695.0** | **833.0** | **494.4** | **798.8** | **4,974.2** | **3,057.1** |
| | | | | | | |
| One-year variable remuneration | | | | | | |
| Cash component performance bonus (50%) | 876.7 | 757.5 | 417.5 | 601.2 | 6,098.8 | 2,521.5 |
| Multi-year variable remuneration | 876.7 | 757.5 | 417.5 | 601.2 | 6,098.8 | 2,521.5 |
| Share component performance bonus (50%, 3-year holding period) | 876.7 | 757.5 | 417.5 | 601.2 | 6,098.8 | 2,521.5 |
| Performance shares (5-year term) | – | – | – | – | – | – |
| **Total** | **2,448.4** | **2,348.0** | **1,329.4** | **2,001.2** | **17,171.8** | **8,100.1** |
| | | | | | | |
| Pension expense | 807.5 | 1,000.2 | 108.0 | 288.2 | 2,962.2 | 1,806.8 |
| **Total remuneration (German Corporate Governance Code)[2]** | **3,255.9** | **3,348.2** | **1,437.4** | **2,289.4** | **20,134.0** | **9,906.9** |
| | | | | | | |
| Plus performance shares | 584.5 | 701.4 | 278.4 | 556.7 | 3,871.2 | 2,334.8 |
| Less variable share component | – | – | – | – | – | – |
| Less pension expense | –807.5 | –1,000.2 | –108.0 | –288.2 | –2,962.2 | –1,806.8 |
| **Total remuneration (section 314 of the HGB)** | **3,032.9** | **3,049.4** | **1,607.8** | **2,557.9** | **21,043.0** | **10,434.9** |
| | | | | | | |
| Number of phantom shares (no-par value share)[3] | 6,003 | 9,348 | 2,859 | 7,420 | 39,763 | 31,119 |

1) Ancillary benefits (other benefits) comprise salary components such as taxable contributions towards private pensions, company car arrangements, travel arrangements, and expenses for tax and legal advice.

2) The total remuneration (excluding ancillary benefits) is capped at €9.5 million.

3) The number of prospective performance shares for the performance period determined at the 2018 grant date is calculated by dividing the target amount by the average share price (Xetra® closing price) for Deutsche Börse shares in December 2017 (€97.36).

4) Deputy CEO until 31 October 2018, contract of service will terminate on 31 May 2019.

5) Member of the Executive Board until 30 June 2018, contract of service terminated on 31 December 2018.

6) Prior-year figures were adjusted due to the resignation of Carsten Kengeter (former Chief Executive Officer); thus, they do not match the figures published in the previous year.

## Supervisory Board remuneration

The members of the Supervisory Board receive fixed annual remuneration of €70,000. The Chairman receives remuneration of €170,000 and the Deputy Chairman receives €105,000. Members of Supervisory Board committees receive additional fixed annual remuneration of €30,000 for each committee position they hold. The relevant amount for members of the Audit Committee is €35,000. The remuneration paid to committee chairs is €40,000, or €60,000 in the case of the Chairman of the Audit Committee. If a Supervisory Board member belongs to several Supervisory Board committees, only their work on a maximum of two committees (the two most highly remunerated ones) is remunerated. Supervisory Board members who only hold office for part of the financial year receive one-twelfth of the fixed annual remuneration and, if applicable, of the remuneration payable for their membership of committees, for each month or part-month in which they are members.

Members of the Supervisory Board or a Supervisory Board committee receive an attendance fee of €1 thousand for each Board or committee meeting that they attend in person, either as a member or as a guest. Where two or more meetings are held on the same day or on consecutive days, the attendance fee is only paid once.

**Remuneration paid to members of the Supervisory Board for advisory and agency services**
No agreements for advisory and agency services had been entered into in the reporting period with members of the Supervisory Board, or with companies that employ members of the Supervisory Board of Deutsche Börse AG or in which Supervisory Board members hold an interest.

## Supervisory Board remuneration[1)]

| | 2018 | 2017 | 2018[2)] € thous. | 2017[2)] € thous. |
|---|---|---|---|---|
| Joachim Faber (Chairman) | full year | full year | 260.0 | 266.0 |
| Nadine Absenger[3)] | 16 May – 31 Dec | – | 95.0 | 0 |
| Ann-Kristin Achleitner | full year | full year | 118.5 | 142.0 |
| Markus Beck[4)] | 15 Aug – 31 Dec | – | 55.8 | 0 |
| Richard Berliand (Deputy Chairman until 16 May 2018) | full year | full year | 168.3 | 196.0 |
| Karl-Heinz Flöther | full year | full year | 146.0 | 149.0 |
| Marion Fornoff[5)] | 1 Jan – 15 Aug | full year | 84.2 | 114.0 |
| Hans-Peter Gabe[5)] | 1 Jan – 15 Aug | full year | 86.8 | 112.0 |
| Craig Heimark[6)] | 1 Jan – 16 May | full year | 45.7 | 108.0 |
| Martin Jetter[7)] | 24 May – 31 Dec | – | 89.7 | 0 |
| Susann Just-Marx[4)] | 15 Aug – 31 Dec | – | 53.2 | 0 |
| Achim Karle[8)] | 28 Aug – 31 Dec | – | 53.2 | 0 |
| Cornelis Kruijssen[4)] | 15 Aug – 31 Dec | – | 53.2 | 0 |
| Barbara Lambert[3)] | 16 May – 31 Dec | – | 114.7 | 0 |
| Monica Mächler[6)] | 1 Jan – 16 May | full year | 61.3 | 146.0 |
| Joachim Nagel[7)] | 24 May – 31 Dec | – | 102.7 | 0 |
| Florian Rodeit[5) 9)] | 16 May – 15 Aug | – | 45.3 | 0 |
| Carsten Schäfer[8)] | 28 Aug – 31 Dec | – | 53.2 | 0 |
| Erhard Schipporeit[6)] | 1 Jan – 16 May | full year | 71.7 | 172.0 |
| Jutta Stuhlfauth (Deputy Chairperson since 16 May 2018) | full year | full year | 172.7 | 145.0 |
| Gerd Tausendfreund[3)] | 16 May – 31 Dec | – | 72.7 | 0 |
| Johannes Witt[6)] | 1 Jan – 16 May | full year | 61.3 | 154.0 |
| Amy Yip | full year | full year | 118.5 | 138.0 |
| **Total** | | | **2,183.7** | **1,842.0** |

1) The recipient of the remuneration is determined individually by the members of the Supervisory Board.
2) Remuneration including individual attendance fee
3) Elected to the Supervisory Board on 16 May 2018
4) Elected to the Supervisory Board on 15 August 2018
5) Left the Supervisory Board on 15 August 2018
6) Left the Supervisory Board on 16 May 2018
7) Elected to the Supervisory Board on 16 May 2018, subject to the registration of the amendment to the Articles of Association (24 May 2018)
8) Appointed to the Supervisory Board by court order on 28 August 2018
9) Appointed to the Supervisory Board by court order on 16 May 2018

## Combined corporate governance statement and corporate governance report

Deutsche Börse Group assigns great importance to the principles of good corporate governance and control. In this statement, we report on corporate governance at Deutsche Börse AG in accordance with section 3.10 of the Deutscher Corporate Governance Kodex (the “Code”, German Corporate Governance Code). Moreover, this statement contains the corporate governance statement pursuant to sections 289f and 315d of the Handelsgesetzbuch (HGB, German Commercial Code).

### Declaration of Compliance pursuant to section 161 of the Aktiengesetz (AktG, German Stock Corporation Act)

On 6 December 2018, the Executive Board and Supervisory Board of Deutsche Börse AG issued the following Declaration of Compliance:

**“Declaration of Compliance by the Executive Board and the Supervisory Board of Deutsche Börse AG regarding the German Corporate Governance Code in accordance with section 161 of the German Stock Corporation Act**

The following Declaration of Compliance refers to the most recent version of the German Corporate Governance Code (the Code) as amended on 7 February 2017 and published in the German Federal Gazette on 24 April 2017.

The Executive Board and Supervisory Board of Deutsche Börse AG declare that the company has complied with the recommendations of the Code almost without exception and will continue to comply with them with only a few deviations, as set out in detail below:

**1. Agreement of severance payment caps when concluding Executive Board contracts (section 4.2.3 (4) of the Code)**

Severance payment caps have been agreed upon in all current contracts with the members of the Executive Board to ensure that the recommendation of section 4.2.3 (4) of the Code is complied with and will continue to be complied with. As in the past, however, the Supervisory Board reserves the right to deviate from section 4.2.3 (4) of the Code in the future under certain circumstances. The Supervisory Board is of the opinion that a deviation may become necessary in extraordinary cases.

**2. Caps on the total amount of remuneration (section 4.2.3 (2) (sentence 6) of the Code) and disclosure in the remuneration report (section 4.2.5 (3) of the Code)**

Section 4.2.3 (2) (sentence 6) of the Code recommends that the amount of management remuneration be capped, both as regards variable components and in the aggregate. Deutsche Börse AG has deviated and will continue to deviate from this recommendation.

The annual remuneration, comprising fixed and variable remuneration components and pension benefits, has been capped at €9.5 million (total cap) for each member of the Executive Board. Ancillary benefits are not included in this amount. Although these are subject to fluctuation, no extraordinary fluctuations are expected and therefore it is not necessary to include them in the total cap.

The long-term variable remuneration components under the remuneration system are share-based. Even though a cap is provided in relation to the number of shares granted, no dedicated cap is foreseen on the maximum achievable bonus amount, as there is no cap on share price performance. However, extraordinary developments are sufficiently reflected in the total cap.

Section 4.2.5 (3) (sub-section 1) of the Code recommends, inter alia, presenting the maximum achievable remuneration for variable remuneration components in the remuneration report. As there is no dedicated cap in relation to the share-based variable remuneration components, the maximum achievable remuneration cannot be presented as recommended in section 4.2.5 (3) (sub-section 1) of the Code.

**3. Composition of the Nomination Committee (section 5.3.3 of the Code)**
Section 5.3.3 of the Code recommends that the Supervisory Board forms a Nomination Committee composed exclusively of shareholder representatives. Section 4b of the Börsengesetz (BörsG, German Exchange Act) provides that the duties of the Nomination Committee include assisting the Supervisory Board of Deutsche Börse AG in selecting candidates for the Executive Board. Since this task, in particular, is not meant to be performed by the shareholder representatives on the Supervisory Board only, as has been common practice, there are employee representatives on the Nomination Committee as well. However, it will be ensured that the Supervisory Board nominees proposed to the Annual General Meeting are determined solely by the shareholder representatives on the Committee."

The annual Declaration of Compliance pursuant to section 161 of the AktG, as well as the Declarations of Compliance for the past five years, are available on our website www.deutsche-boerse.com/declcompliance.

### Disclosures on suggestions of the Code
Deutsche Börse AG also largely complies with the suggestions of the Code and deviates only regarding the following aspects:

In accordance with section 4.1.3 sentence 3 of the Code, employees shall be given the opportunity to report suspected breaches of the law within the company in a protected manner; third parties should also be given this opportunity. Deutsche Börse AG has implemented a whistleblowing system for its employees in accordance with the recommendation in section 4.1.3 sentence 3 of the Code. This whistle-blowing system is also open to external service providers. However, Deutsche Börse deviates otherwise from the suggestion of also giving third parties the opportunity of reporting such suspicions mainly given the fact that, as far as Deutsche Börse is concerned, other such third parties are regular market participants who have other options at their disposal for reporting suspicions without being bound by fiduciary duties under employment law.

In accordance with section 4.2.3 (2) sentence 9 of the Code, early disbursements of multiple-year, variable remuneration components should not be permitted. While Deutsche Börse AG adheres to this suggestion in principle; it reserves the right to deviate in extraordinary circumstances, e.g. in the event of an Executive Board member's inability to work, disease or death. The company also reserves the right to diverge from this procedure in other extraordinary cases such as change-of-control events.

## Information on corporate governance practices

### Conduct policies
Deutsche Börse Group's global orientation means that binding policies and standards of conduct must apply at each of the Group's locations around the world. Specifically, the main objectives of these principles for collaboration are to ensure responsibility, respect and mutual esteem. The Group also adheres to these principles when implementing its business model. Communications with clients, investors, employees and the general public are based on timely information and transparency. In addition to focusing on generating profits, Deutsche Börse Group's business is managed in accordance with recognised standards of social responsibility.

### Code of business conduct for employees

Acting responsibly means having values that are shared by all employees throughout the Group. In 2017, Deutsche Börse AG's Executive Board adopted an extended code of business conduct. This document, which is applicable throughout the Group, defines the foundations of key ethical and legal standards, including – but not limited to – the following topics:

- Confidentiality and the handling of sensitive information
- Conflicts of interest
- Personal account dealing, as well as the prevention of insider dealing and market manipulation
- Company resources and assets
- Combat of bribery and corruption
- Risk management
- Whistleblowers
- Environmental awareness
- Equal opportunities and protection against undesirable behaviour

The code of business conduct applies to members of the Executive Board, all other executives and all employees of Deutsche Börse Group. In addition to specifying concrete rules, the code of business conduct provides general guidance as to how employees can contribute to implementing the defined values in their everyday working life. The goal of the code of business conduct is to provide guidance on working together in the company on a day-to-day basis, to help resolve any conflicts and to resolve ethical and legal challenges. All newly hired employees receive the code of business conduct as part of their employment contract documentation. Staff who were already in the company prior to the introduction of the code of business conduct were familiarised with the guidelines in 2018 through an online training course, following which they had to confirm having received the document and having understood its content. The code of business conduct is an integral part of the relationship between employer and employees at Deutsche Börse Group. Breaches may lead to disciplinary action. The document is available on www.deutsche-boerse.com > Sustainability > Set an example > Employees > Guiding principles.

### Code of conduct for suppliers and service providers

Deutsche Börse Group not only requires its management and staff to adhere to high standards – it demands the same from its suppliers and service providers. The code of conduct for suppliers and service providers requires them to respect human rights and employee rights and comply with minimum standards. Implementing a resolution of the Executive Board, the code of conduct for suppliers was amended in 2016 to include the requirements set out in the UK Modern Slavery Act, applicable to all corporations conducting business in the United Kingdom. Most suppliers have signed up to these conditions; all other key suppliers have made voluntary commitments, which correspond to, or in fact, exceed Deutsche Börse Group's standards. Service providers and suppliers must sign this code or enter into an equivalent voluntary commitment before they can do business with Deutsche Börse Group. The code of conduct for suppliers is reviewed regularly in the light of current developments and amended if necessary. It is available on Deutsche Börse Group's website www.deutsche-boerse.com > Sustainability > Set an example > Procurement management.

## Values

Deutsche Börse Group's business activities are based on the legal frameworks and ethical standards of the different countries in which it operates. A key way in which the Group underscores the values it considers important is by joining initiatives and organisations that advocate generally accepted ethical standards. Relevant memberships are as follows:

**United Nations Global Compact** www.unglobalcompact.org: this voluntary business initiative established by the United Nations aims to achieve a more sustainable and more equitable global economy. At the heart of the compact are ten principles covering the areas of human rights, labour, environment protection and anti-corruption. Deutsche Börse Group has submitted annual communications on progress (COPs) on its implementation of the UN Global Compact since 2009.

**Diversity Charter** www.diversity-charter.com: as a signatory to the Diversity Charter, the company has committed to acknowledging, respecting and promoting the diversity of its workforce, customers and business associates – irrespective of their age, gender, disability, race, religion, nationality, ethnic background, sexual orientation or identity.

**International Labour Organisation** www.ilo.org: this UN agency is the international organisation responsible for drawing up and overseeing international labour standards; it brings together representatives of governments, employees and employers to jointly shape policies and programmes. Deutsche Börse Group has signed up to the ILO's labour standards and hence has agreed to abide by them.

**Frankfurt Declaration** www.deutsche-boerse.com/frankfurt-declaration: the Frankfurt Declaration demonstrates the signatories' intention to define the framework conditions for sustainable finance and to put concrete initiatives in place in the Frankfurt financial centre. These are directed towards the identification of innovative business areas and the responsible handling of risks, among other things. The potential of sustainable finance infrastructures must therefore be fully encouraged in order to support positive economic and social development founded on the unconditional protection of the natural basis of life.

### Sector-specific policies

Deutsche Börse Group's pivotal role in the financial sector requires that it handles information – and especially sensitive data and facts – responsibly. A number of rules are in force throughout the Group to ensure that employees comply with this. These cover both legal requirements and special policies applicable to the relevant industry segments, such as the whistleblowing system and risk and control management policies.

#### Whistleblowing system

Deutsche Börse Group's whistleblowing system gives employees and external service providers an opportunity to report non-compliant behaviour. The Group has engaged the auditing and consulting company Deloitte to act as an external ombudsman and receive any such information submitted by phone or e-mail. Whistleblowers' identities are not revealed to Deutsche Börse Group.

#### Risk and control management policies

Functioning control systems are an important part of stable business processes. Deutsche Börse Group's enterprise-wide control systems are embedded in an overarching framework. This comprises, among other things, the legal requirements, the recommendations of the German Corporate Governance Code, international regulations and recommendations and other company-specific policies. The executives responsible for the different elements of the control system are in close contact with each other and with the Executive Board and report regularly to the Supervisory Board or its committees. Equally, the Group has an enterprise-wide risk management system that covers and provides mandatory rules for functions, processes and responsibilities. Details of the internal control system and risk management at Deutsche Börse Group can be found in the "Internal management" and "Risk report" sections.

## Working practices of the Executive Board and the Supervisory Board

An important fundamental principle of the German Stock Corporation Act is the dual board system – which assigns separate, independent responsibilities to the Executive Board and the Supervisory Board. These responsibilities and their implementation at Deutsche Börse AG are set out in detail in the following paragraphs.

Both boards perform their duties in the interests of the company and with the aim of achieving a sustainable increase in value. Their actions are based on the principle of responsible corporate governance. Therefore, Deutsche Börse AG's Executive Board and Supervisory Board work closely together in a spirit of mutual trust, with the Executive Board providing the Supervisory Board with comprehensive information on the course of business in a regular and timely manner. In addition, the Executive Board regularly informs the Supervisory Board concerning all issues relating to corporate planning, the company's business performance, the risk situation, risk management, compliance and the company's control systems. The Chief Executive Officer reports to the Supervisory Board without undue delay, orally or in writing, on matters that are of special importance to the company. The strategic orientation of the company is examined in detail and agreed upon with the Supervisory Board. Implementation of the relevant measures is discussed at regular intervals. In particular, the chairmen of the two boards maintain regular contact and discuss the company's strategy, business performance and risk management. The Supervisory Board may also request reports from the Executive Board at any time, especially on matters and business transactions at Deutsche Börse AG and subsidiaries that could have a significant impact on Deutsche Börse AG's position.

### Deutsche Börse AG's Executive Board

The Executive Board manages Deutsche Börse AG and Deutsche Börse Group; it had five members at the beginning of the reporting period and six since 1 July 2018. The main duties of the Executive Board include defining the Group's corporate goals and strategic orientation, managing and monitoring the operating units, as well as establishing and monitoring an efficient risk management system. The Executive Board is responsible for preparing the consolidated and annual financial statements of Deutsche Börse AG, as well as for producing financial information during the course of the year. In addition, it must ensure the company's compliance with legal requirements and official regulations.

The members of the Executive Board are jointly responsible for all aspects of management. Irrespective of this collective responsibility, the individual members manage the company's business areas assigned to them in the Executive Board's schedule of responsibilities independently and are personally responsible for them. In addition to the business areas, the functional areas of responsibility are that of the Chief Executive Officer (CEO), the Chief Financial Officer (CFO) and the Chief Information Officer/ Chief Operating Officer (CIO/COO). The business areas cover the operating business units, such as the company's cash market activities, the derivatives business, securities settlement and custody and the market data business. Details can be found in the "Overview of Deutsche Börse Group – Organisational structure" section.

Further details of the Executive Board's work are set out in the bylaws that the Supervisory Board has resolved for the Executive Board. Among other things, these list issues that are reserved for the entire Executive Board, special measures requiring the approval of the Supervisory Board, other procedural details and the arrangements for passing resolutions. The Executive Board holds regular meetings; these are convened by the CEO, who coordinates the Executive Board's work. Any Executive Board member can require a meeting to be convened. In accordance with its bylaws, the entire Executive Board normally takes decisions on the basis of resolutions passed by a simple majority of the members voting on them in each case. If a vote is tied, the CEO has the casting vote.

More information on the Executive Board, its composition, members' individual appointments and biographies can be found at www.deutsche-boerse.com/execboard.

### Deutsche Börse AG's Supervisory Board

The Supervisory Board supervises and advises the Executive Board in its management of the company. It supports the Executive Board in significant business decisions and provides assistance on strategically important issues. The Supervisory Board has specified measures requiring its approval in the bylaws for the Executive Board. In addition, the Supervisory Board is responsible for appointing the members of the Executive Board, deciding on their total remuneration, examining Deutsche Börse AG's consolidated and annual financial statements and the combined management report including the combined non-financial statement. Details of the Supervisory Board's work during the 2018 financial year can be found in the report of the Supervisory Board.

At the beginning of the year under review, the Supervisory Board consisted of twelve members: two-thirds of its members were shareholder representatives and one-third were employee representatives. Since the 2018 Annual General Meeting, the Supervisory Board has parity co-determination, which means it consists of an equal number of shareholder representatives and employee representatives. This composition reflects the fact that the number of Deutsche Börse's employees in Germany has meanwhile exceeded the threshold of 2,000 employees, as referred to in section 1 (1) no. 2 of the Mitbestimmungsgesetz (MitbestG, German Co-determination Act). The Annual General Meeting passed a resolution to enlarge the Supervisory Board, resulting in amendments to the Articles of Association and the number of members on the Supervisory Board bringing it to a total of 16 members as at 24 May 2018.

The Supervisory Board holds at least six regular meetings every year. In addition, extraordinary meetings are held as required. The committees also hold regular meetings. Unless mandatory statutory provisions or the Articles of Associations call for a different procedure, the Supervisory Board passes its resolutions by a simple majority. If a vote is tied, the Chairman has the casting vote. In addition, the Supervisory Board regularly reviews the structure, size, composition, performance and the efficiency of the work of the Executive and Supervisory Boards, discusses potential areas for improvement and resolves suitable measures, where necessary.

### Supervisory Board committees

The Supervisory Board's goal in establishing committees is to improve the efficiency of its work by examining complex matters in smaller groups that prepare them for the plenary meeting of the Supervisory Board. Additionally, the Supervisory Board has delegated individual decision-making powers to the committees, to the extent that this is legally permissible. The Supervisory Board had six committees at the beginning of the reporting period. In accordance with section 4b (5) of the BörsG, the Supervisory Board resolved to merge the Nomination and the Personnel Committees into a joint committee, with effect from 3 January 2018. As provided for in the MitbestG, the Supervisory Board established a Mediation Committee on 16 May 2018, while also resolving to establish a Chairman's Committee for time-sensitive affairs. For details on the committees, please refer to the "Supervisory Board committees during 2018: composition and responsibilities" tables. Their individual responsibilities are outlined in the Supervisory Board's bylaws. The committees' rules of procedure correspond to those for the plenary meeting of the Supervisory Board. Details of the current duties and members of the individual committees can be found online at www.deutsche-boerse.com/supervboard > Committees.

The chairmen of the individual committees report to the plenary meeting about the subjects addressed and resolutions passed in the committee meetings. Information on the Supervisory Board's concrete work and meetings during the reporting period can be found in the report of the Supervisory Board.

More information on the Supervisory Board and its committees, the individual members and their appointments and biographies, can be found at: www.deutsche-boerse.com/supervboard.

## Supervisory Board committees during 2018: composition and responsibilities

### Audit Committee

| Members | Composition |
|---|---|
| ▪ Erhard Schipporeit (Chairman) (until 16 May 2018)<br>▪ Barbara Lambert (Chairperson) (since 16 May 2018)<br>▪ Nadine Absenger[1] (since 16 May 2018)<br>▪ Markus Beck[1] (since 4 Sep 2018)<br>▪ Karl-Heinz Flöther<br>▪ Hans-Peter Gabe[1] (16 May – 15 Aug 2018)<br>▪ Monica Mächler (until 16 May 2018)<br>▪ Joachim Nagel (since 24 May 2018)<br>▪ Jutta Stuhlfauth[1] (since 4 Sep 2018)<br>▪ Johannes Witt[1] (until 16 May 2018) | ▪ At least four members who are elected by the Supervisory Board<br>▪ Prerequisites for the chair of the committee: the person concerned must be independent and must have specialist knowledge and experience in applying accounting principles and internal control processes (financial expert)<br>▪ Persons who cannot chair the committee: the Chairman of the Supervisory Board; former members of the company's Executive Board whose appointment ended less than two years ago<br><br>**Responsibilities**<br>▪ Deals with issues relating to the preparation of the annual budget and financial topics, particularly capital management<br>▪ Deals with issues relating to the adequacy and effectiveness of the company's control systems – in particular, to risk management, compliance and internal audit<br>▪ Audit reports<br>▪ Deals with accounting issues, including oversight of the accounting and reporting process<br>▪ Half-yearly financial reports, plus any quarterly financial reports, if applicable<br>▪ Examines the annual financial statements, the consolidated financial statements and the combined management report (including the combined non-financial statement), discusses the audit report with the external auditors and prepares the Supervisory Board's resolutions adopting the annual financial statements and approving the consolidated financial statements, as well as the resolution on the Executive Board's proposal on the appropriation of the unappropriated surplus<br>▪ Prepares the Supervisory Board's recommendation to the Annual General Meeting on the election of the external auditors of the annual financial statements, the consolidated financial statements and the half-yearly financial report (to the extent that the latter is audited or reviewed by external auditors) and makes corresponding recommendations to the Supervisory Board<br>▪ Deals with the required independence of the external auditor<br>▪ Deals with non-audit services rendered by the external auditor<br>▪ Issues the engagement letter to the external auditor of the annual financial statements and the consolidated financial statements – including, in particular, the review or audit of half-yearly financial reports, and determines focal areas of the audit and the audit fee<br>▪ Prepares the Supervisory Board's resolution approving the German Corporate Governance Code pursuant to section 161 of the AktG and the corporate governance statement in accordance with section 289f of the HGB |

1) Employee representative

## Nomination Committee[1]

| Members | Composition |
|---|---|
| ▪ Joachim Faber (Chairman)<br>▪ Ann-Kristin Achleitner (until 16 May 2018)<br>▪ Markus Beck[2] (since 4 Sep 2018)<br>▪ Richard Berliand (since 16 May 2018)<br>▪ Marion Fornoff[2] (3 Jan – 15 Aug 2018)<br>▪ Martin Jetter (since 24 May 2018)<br>▪ Jutta Stuhlfauth[2] (since 16 May 2018)<br>▪ Gerd Tausendfreund[2] (since 16 May 2018)<br>▪ Amy Yip (until 16 May 2018) | ▪ Chaired by the Chairman of the Supervisory Board<br>▪ At least five other members who are elected by the Supervisory Board<br>**Responsibilities**<br>▪ Proposes suitable candidates to the Supervisory Board for inclusion in the Supervisory Board's election proposal to the Annual General Meeting (the proposal is being submitted by shareholder representatives)<br>▪ Other tasks and duties set forth in section 4b (5) of the BörsG<br>▪ Deals with issues relating to the contracts of service for Executive Board members and, in particular, to the structure and amount of their remuneration<br>▪ Addresses succession planning for the Executive Board<br>▪ Approves appointments of members of Deutsche Börse AG's Executive Board to other executive boards, supervisory boards, advisory boards and similar boards, as well as honorary appointments and sideline activities<br>▪ Approves any exemptions from the requirement to obtain approval<br>▪ Approves the grant or revocation of general powers of attorney<br>▪ Approves cases in which the Executive Board grants employees retirement pensions or other individually negotiated retirement benefits, or proposes to enter into employer/works council agreements establishing pension plans |

1) The Nomination Committee and the Personnel Committee, which up until 3 January 2018 was an independent committee, were combined into one joint committee with effect from that date. The members of the Personnel Committee were Joachim Faber (Chairman), Ann-Kristin Achleitner, Marion Fornoff and Amy Yip. The Chairman of the Supervisory Board also chaired the Nomination Committee. The tasks and duties of the Personnel Committee were identical with those of the joined Nomination Committee, with the exception of the proposal of suitable candidates to the Supervisory Board for recommendation to the Annual General Meeting and various other tasks and duties established in section 4b (5) of the BörsG.
2) Employee representative

## Risk Committee

| Members | Composition |
|---|---|
| ▪ Richard Berliand (Chairman) (until 24 May 2018)<br>▪ Joachim Nagel (Chairman) (since 24 May 2018)<br>▪ Nadine Absenger[1] (16 May – 15 Aug 2018)<br>▪ Hans-Peter Gabe[1] (16 May – 15 Aug 2018)<br>▪ Susann Just-Marx[1] (since 4 Sep 2018)<br>▪ Cornelis Kruijssen[1] (since 4 Sep 2018)<br>▪ Barbara Lambert (since 16 May 2018)<br>▪ Monica Mächler (until 16 May 2018)<br>▪ Erhard Schipporeit (until 16 May 2018)<br>▪ Jutta Stuhlfauth[1] (until 16 May 2018) | ▪ At least four members who are elected by the Supervisory Board<br>**Responsibilities**<br>▪ Reviews the risk management framework, including the overall risk strategy, risk appetite and the risk roadmap<br>▪ Takes note of and reviews the periodic risk management and compliance reports<br>▪ Oversees monitoring of the Group's operational, financial and business risks<br>▪ Discusses the annual reports on significant risks and the risk management systems at regulated Group entities, to the extent legally permissible |

1) Employee representative

## Strategy Committee

**Members**

- Joachim Faber (Chairman)
- Ann-Kristin Achleitner
- Richard Berliand (until 16 May 2018)
- Marion Fornoff[1) ] (16 May – 15 Aug 2018)
- Hans-Peter Gabe[1)] (until 16 May 2018)
- Susann Just-Marx[1)] (since 4 Sep 2018)
- Achim Karle[1)] (since 4 Sep 2018)
- Florian Rodeit[1)] (16 May – 15 Aug 2018)
- Carsten Schäfer[1)] (since 4 Sep 2018)
- Jutta Stuhlfauth[1)] (until 15 Aug 2018)
- Amy Yip

**Composition**

- Chaired by the Chairman of the Supervisory Board
- At least five other members who are elected by the Supervisory Board

**Responsibilities**

- Advises the Executive Board on matters of strategic importance to the company and its affiliates
- Addresses fundamental strategic and business issues, as well as important projects for Deutsche Börse Group

1) Employee representative

## Technology Committee

**Members**

- Richard Berliand (Chairman)
- Marion Fornoff[1)] (16 May – 15 Aug 2018)
- Karl-Heinz Flöther
- Hans-Peter Gabe[1)] (16 May – 15 Aug 2018)
- Craig Heimark (until 16 May 2018)
- Martin Jetter (since 24 May 2018)
- Achim Karle[1)] (since 4 Sep 2018)
- Cornelis Kruijssen[1)] (since 4 Sep 2018)
- Florian Rodeit[1)] (16 May – 15 Aug 2018)
- Carsten Schäfer[1)] (since 4 Sep 2018)
- Johannes Witt[1)] (until 16 May 2018)

**Composition**

- At least four members who are elected by the Supervisory Board

**Responsibilities**

- Supports the Supervisory Board in meeting its supervisory duties with respect to the information technology used to execute the Group’s business strategy and with respect to information security
- Advises on IT strategy and architecture
- Oversees monitoring of technological innovations, the provision of IT services, the technical performance and stability of the IT systems, operational IT risks, and information security services and risks

1) Employee representative

## Chairman’s Committee (since 16 May 2018)

**Members**

- Joachim Faber (Chairman)
- Nadine Absenger[1)]
- Richard Berliand
- Jutta Stuhlfauth[1)]

**Composition**

- Chaired by the Chairman of the Supervisory Board
- Deputy Chairperson of the Supervisory Board as well as one shareholder representative and one employee representative each who are elected by the Supervisory Board

**Responsibilities**

- Time-sensitive affairs

1) Employee representative

## Mediation Committee (since 16 May 2018)

| Members | Composition |
|---|---|
| ▪ Joachim Faber (Chairman)<br>▪ Marion Fornoff[1) ] (16 May – 15 Aug 2018)<br>▪ Martin Jetter (since 24 May 2018)<br>▪ Susann Just-Marx[1)] (since 4 Sep 2018)<br>▪ Jutta Stuhlfauth[1)] | ▪ Chaired by the Chairman of the Supervisory Board<br>▪ Deputy Chairperson of the Supervisory Board as well as one shareholder representative and one employee representative each<br><br>**Responsibilities**<br>▪ Tasks and duties pursuant to section 27 (3) of the MitbestG |

1) Employee representative

### Targets for composition and qualification requirements of the Supervisory Board

In accordance with section 5.4.1 of the Code, the Supervisory Board has adopted a catalogue of specific targets concerning its composition that, above all, should serve as a basis for the future nomination of its members. This catalogue comprises qualification requirements as well as diversity targets. Furthermore, members shall have sufficient time, as well as the personal integrity and suitability of character, to exercise their office. In addition, half of the shareholder representatives on the Supervisory Board shall be independent.

**Qualification requirements**
Given their knowledge, skills and professional experience, members of the Supervisory Board shall have the ability to perform the duties of a supervisory board member in a company with international business activities. The Supervisory Board has determined individual (basic) as well as general qualification requirements. Basic requirements are derived from the business model, the concrete targets, as well as from specific regulations applicable to Deutsche Börse Group.

**Individual (basic) qualification requirements**
Ideally, each Supervisory Board member holds the following basic qualifications:

- Understanding of commercial issues
- Analytical and strategic skills
- Understanding of the corporate governance system
- Knowledge of the financial services sector
- Understanding of Deutsche Börse AG's activities
- Understanding of Deutsche Börse Group's structure
- Understanding of the member's own position and responsibilities

**General qualification requirements**
The general qualifications refer to the Supervisory Board in its entirety. At least two of its members should have profound knowledge, especially concerning the following topics:

- Business models of exchanges and the capital markets
- Accounting, finance, audit
- Risk management and compliance
- Information technology and security, digitalisation
- Clearing, settlement and custody business
- Regulatory requirements

The current composition of the Supervisory Board fulfils these criteria concerning the qualification of its members.

## Supervisory Board members' general qualification requirements

| | Business models of exchanges and the capital markets | Accounting, finance, audit | Risk management and compliance | Information technology and security, digitalisation | Clearing, settlement and custody business | Regulatory requirements |
|---|---|---|---|---|---|---|
| Joachim Faber (Chairman) | + | + | + | | | + |
| Ann-Kristin Achleitner | + | + | | | | + |
| Richard Berliand | + | + | + | + | + | |
| Karl-Heinz Flöther | | + | | + | | |
| Martin Jetter | | | + | + | | + |
| Barbara Lambert | | + | + | + | | + |
| Joachim Nagel | + | | + | | + | + |
| Amy Yip | + | + | | | + | |

**Independence**

In accordance with section 5.4.2 of the Code, the Supervisory Board shall be comprised of what it considers to be an appropriate number of independent members. Supervisory Board members are no longer to be considered independent in the meaning of section 5.4.2 of the Code, particularly if they have a personal or business relationship with the company, its governing bodies, a controlling shareholder or an entity affiliated with the controlling shareholder that may cause a substantial (and not merely temporary) conflict of interest. The Supervisory Board has resolved that at least half of its members who are shareholder representatives are to be independent in this sense. The Supervisory Board generally regards all of its shareholder representatives as being independent. The Supervisory Board notes, however, that the independence of a Supervisory Board member is sometimes called into question if the term of office exceeds twelve years. Mr Berliand, who will leave the Supervisory Board at the end of the Annual General Meeting on 8 May 2019, has been a member of the Supervisory Board since 2005. However, the Supervisory Board has no doubts as to Mr Berliand's impartiality and professional performance of his Supervisory Board mandate, so that the Supervisory Board also regards him as independent for the purposes of section 5.4.2 of the Code. Furthermore, Mr Berliand does not currently hold any position within the Supervisory Board of Deutsche Börse AG that requires the independence of the Supervisory Board member.

## Diversity concept for the Executive Board and the Supervisory Board

The diversity concept for the Executive Board and the Supervisory Board, as adopted by the Supervisory Board in accordance with section 289f (2) no. 6 of the HGB, has the objective of ensuring a wide range of perspectives and experience through the composition of both bodies. The concept is implemented within the scope of appointing new Executive Board members or regarding nominations for election of new Supervisory Board members.

**Flexible age limit and term of office**
The Supervisory Board considers the flexible age limit stipulated in the bylaws (generally 70 years) when nominating candidates for election by the Annual General Meeting. Furthermore, the Supervisory Board's bylaws provide for a general limitation to members' maximum term of office to twelve years, which the Supervisory Board shall also consider in its nominations of candidates to the Annual General Meeting.

As a result, Craig Heimark and Erhard Schipporeit, who have been members of the Supervisory Board since 2005, resigned from the Supervisory Board as of the 2018 Annual General Meeting. At the same time, however, to ensure the balance between personnel changes and continuity in the work of the Supervisory Board and preserve its knowledge and experience, the Supervisory Board proposed the re-election of Richard Berliand, – a member of the Supervisory Board since October 2005 – to the 2018 Annual General Meeting. The proposal to extend Mr Berliand's term of office beyond the general limitation to members' maximum term of office was based, in particular, on his profound experience with exchange enterprises and their processes gained over many years and his extensive knowledge of financial markets infrastructure providers. The Annual General Meeting welcomed the proposal, re-electing Mr Berliand to the Supervisory Board. He is now set to resign at the end of the 2019 Annual General Meeting.

The flexible age limit for members of the Executive Board provides for the term of office to expire at the end of the month during which a member reaches the age of 60 years. From the month during which an Executive Board member has reached the age of 60, reappointment is permitted for a period of one year in each case, provided that the last term of office shall expire at the end of the month during which the Executive Board member reaches the age of 65. When appointing members of the Executive Board, the Supervisory Board pursues the objective of achieving an optimal composition of the Executive Board from the company's perspective. In this context, experience and industry knowledge, as well as professional and personal qualifications, play a major role. Depending on the Executive Board position to be filled, it is not just the scope and depth of skills that is decisive, but also whether the specific skills are up to date. The flexible age limit has been deliberately worded to preserve the Supervisory Board's flexibility in taking decisions on appointments.

At present, no Executive Board member has passed the age limit of 65 years. CEO Theodor Weimer, who was appointed with effect from 1 January 2018, will be 61 years old at the end of his current term of office.

**Share of women holding management positions**
In line with the Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst (FührposGleichberG, German Act on the Equal Participation of Women and Men in Leadership Positions in the Private and Public Sectors), Deutsche Börse AG's Supervisory Board has defined target quotas for women on the Supervisory Board and the Executive Board in accordance with section 111 (5) of the AktG. The first minimum targets that were set – 33.33 per cent of the Supervisory Board members and 20 per cent of the Executive Board members were to be women – were complied with by the end of the implementation period on 30 June 2017. The quota of women on the Executive Board was 20 per cent at such point in time. The quota of women on the Supervisory Board was 41.67 per cent and thus above the self-set target.

With regard to the Supervisory Board, the legally prescribed gender quota of 30 per cent in accordance with section 96 (2) of the AktG applies instead of the self-set minimum quota in accordance with section 111 (5) of the AktG; this has been in effect since the application of the MitbestG to Deutsche Börse AG as of the Annual General Meeting in 2018. In order to prevent the possible discrimination of either shareholder representatives or employee representatives, and in order to increase the planning security in the relevant election procedures, the shareholder representatives on the Supervisory Board have opposed the overall compliance of the quota in accordance with section 96 (2) of the German Stock Corporation Act. Thus, the minimum proportion of 30 per cent is to be complied with for each gender with regard to the shareholder representatives and the employee representatives. This means that at least to women and two men from each the shareholder representatives and from the employee representatives must be on the Supervisory Board. Currently, there are three women each from the shareholder representatives and from the employee representatives. The legally prescribed gender quota is thus complied with.

Effective 1 July 2017, the Supervisory Board decided to extend the 20 per cent target quota of women on the Executive Board until 31 December 2021. The target quota was initially at 20 per cent in the reporting year for the Executive Board. This quota, however, declined due to the increase on the Executive Board to six members as of 1 July 2018, despite the fact that the actual number of women on the Executive Board did not change. The quota of women on the Executive Board is currently 16.7 per cent.

The Supervisory Board intends to comply with the 20 per cent target quota for women on the Executive Board and also intends to further increase the quota for women on the Supervisory Board. This will be taken into account in future personnel decisions.

**International profile**
The composition of the Executive Board and the Supervisory Board shall reflect the company's international activities. Since the 2018 Annual General Meeting, there have been three members on the Supervisory Board holding non-German citizenship: Richard Berliand, Barbara Lambert and Amy Yip. Martin Jetter is a German citizen, but is resident in the USA. Cornelis Kruijssen, employee representative on the Supervisory Board, has the Dutch nationality. The same applies to Carla Streit and Charles Stonehill, who were proposed by the Supervisory Board to the Annual General Meeting for election as new Supervisory Board members. Ms Streit is a German and a US citizen, Mr Stonehill is a US and a British citizen. In addition, many of the current and designated members of the Supervisory Board have long-term professional experience in the international field or are even working abroad on a permanent basis. The Supervisory Board will therefore continue to meet the objectives concerning its international composition.

The same applies to the Executive Board, where Stephan Leithner holds non-German citizenship, and whose members have gained long-standing international working experience as well.

**Educational and professional background**
The Supervisory Board has set itself the objective of considering an appropriate range of educational and professional backgrounds regarding its own composition, as well as regarding the composition of the Executive Board. The composition of both the Supervisory Board and the Executive Board reflect these objectives. In addition to possessing professional experience in the financial services industry, members of the Executive Board and the Supervisory Board also have a professional background in consultancy, the IT sector, administration and regulation, academia and auditing. In terms of academic education, economic and legal degrees prevail, in addition to backgrounds in IT and engineering. Education and professional experience thus also contribute to fulfilling the previously mentioned qualification requirements for Supervisory Board members.

The composition of both Deutsche Börse AG's Supervisory Board and Executive Board is in line with the objectives stated above. Please refer to www.deutsche-boerse.com/supervboard for further information concerning the members of the Supervisory Board and its committees. For further information concerning the members of the Executive Board, please see www.deutsche-boerse.com/execboard.

## Preparations for the election of shareholder representatives to the Supervisory Board

The Supervisory Board's Nomination Committee – whose task it is to propose suitable candidates to the Supervisory Board for recommendation to the Annual General Meeting – has concerned itself, in great detail, with the successors to Ann-Kristin Achleitner and Richard Berliand, who will both leave the Supervisory Board as of May 2019.

When selecting appropriate candidates, the committee has taken into account the above criteria. Following a preliminary selection and several personal interviews with the candidates, the Nomination Committee has decided to propose to the Supervisory Board Clara Streit and Charles Stonehill as candidates for election by the Annual General Meeting.

Clara Streit was active for many years as a management consultant and senior partner at McKinsey & Company. She also has many years of experience as an independent member of supervisory boards and boards of directors of national and international listed companies, in particular in the financial sector Currently she is exercising a mandate on the board of directors of Vontobel Holding AG, on the supervisory board of Vonovia SE and on the supervisory board of NN Group NV.

Charles Stonehill has many years of experience in the financial services industry. He acquired his encompassing expertise regarding capital market topics – among others – in leading positions at JP Morgan, Morgan Stanley, CS First Boston and Lazard Frères Inc. He is a member of a several boards of directors. Among others, Mr. Stonehill is the deputy chairman of the board of directors of Julius Baer Group Ltd. and of Bank Julius Baer & Co. Ltd. and a member of the board of directors of AXA Equitable Life Insurance Company and AXA Equitable Holdings Inc.

### Training and professional development measures for members of the Supervisory Board

As a matter of principle, Supervisory Board members are responsible for their continuing professional development. Deutsche Börse AG complies with the recommendation of section 5.4.5 (2) of the Code as well as the guidelines of the European Securities and Markets Authority (ESMA) on the management bodies of market operators and data provision services, and supports Supervisory Board members in this endeavour – for example, by organising targeted introductory events for new Supervisory Board members or workshops on selected strategy issues as well as on professional topics (if required). Thus, in addition to a strategy workshop, two technology workshops, workshops on Deutsche Börse Group's regulatory strategy and the post-trading business, as well as workshops on the tasks and duties of the Supervisory Board, were held during the year under review.

### Examination of the efficiency of Supervisory Board work

Deutsche Börse AG regards regular reviews of the efficiency of Supervisory Board work – in accordance with section 5.6 of the Code – as a key component of good corporate governance. The 2018 efficiency audit was dedicated to the following areas: tasks of the Supervisory Board and performance of its duties, cooperation within the Supervisory Board and between the Executive Board and the Supervisory Board, as well as Supervisory Board organisations and meetings. The review yielded overall positive results. Where it identified room for improvement, optimising proposals were discussed by the Supervisory Board and measures for their execution implemented.

### Target figures for the proportion of female executives beneath the Executive Board

In accordance with the FührposGleichberG, Deutsche Börse AG's Executive Board has defined target quotas for women on the two management levels beneath the Executive Board, in accordance with section 76 (4) of the AktG, in each case referring to Deutsche Börse AG. By 31 December 2021, the proportion of women holding positions in the first and second management levels beneath the Executive Board is planned to amount to 15 per cent and 20 per cent, respectively. As per 31 December 2018, the share of women holding positions on the first and second management levels beneath the Executive Board at Deutsche Börse AG in Germany was 14 per cent and 16 per cent, respectively.

Moreover, as early as in 2010, the Executive Board had adopted a voluntary commitment to increase the share of women holding middle and upper management positions to 20 per cent by 2020 and of women holding lower management positions to 30 per cent during the same period. The Group maintains this ambition and has extended the scope of its voluntary commitment over and above the legal requirements. Firstly, the target figures determined in this context relate to Deutsche Börse Group (including subsidiaries) worldwide. Secondly, the definition of management levels/positions was extended to also include heads of teams, for example. On a global level, as at 31 December 2018, these quotas stood at 14 per cent for upper and middle management levels and 29 per cent for lower management positions. For Germany, the quotas were 14 per cent and 26 per cent, respectively.

### Shareholder representation, transparent reporting and communication

Shareholders exercise their rights at the Annual General Meeting (AGM). In the spirit of good corporate governance, Deutsche Börse AG aims to make it as easy as possible for shareholders to exercise their shareholder rights. For instance, Deutsche Börse AG shareholders may follow the AGM over the internet and can be represented at the AGM by proxies nominated by Deutsche Börse AG. These proxies exercise voting rights solely in accordance with shareholders' instructions. Additionally, shareholders may exercise their voting rights by post or online. Among other things, the AGM elects the shareholder representatives to the Supervisory Board and resolves on the formal approval of the actions of the Executive Board and the Supervisory Board. It also passes resolutions on the appropriation of the unappropriated surplus, resolves on capitalisation measures and approves intercompany agreements and amendments to Deutsche Börse AG's Articles of Association. Ordinary AGMs – at which the Executive Board and the Supervisory Board give an account of the past financial year – take place once a year.

To maximise transparency and ensure equal access to information, Deutsche Börse AG's corporate communications generally follow the rule that all target groups should receive all relevant information simultaneously. Deutsche Börse AG's financial calendar informs shareholders, analysts, shareholders' associations, the media and interested members of the public of key events such as the date of the AGM, or publication dates for financial performance indicators.

Ad hoc disclosures, information on directors' dealings and voting rights notifications, corporate reports and interim reports, and company news can all be found on Deutsche Börse's website: www.deutsche-boerse.com. Deutsche Börse AG provides information about its consolidated and annual financial statements at an annual press briefing. It also offers conference calls for analysts and investors following the publication of the interim reports. Furthermore, when outlining its strategy and providing information to everyone who is interested, it abides by the principle that all target groups worldwide must be informed at the same time.

Additionally, Deutsche Börse AG submitted a COP for 2018 to the UN Global Compact. Responsible corporate governance is one of Deutsche Börse Group's core concerns, which is why it has complied with the Global Compact's principles for many years. Public records of this have been available since the company officially joined the initiative in 2009: www.deutsche-boerse.com > Sustainability > Our responsibility > UN Global Compact.

## Accounting and auditing

Deutsche Börse AG's annual report provides shareholders and interested members of the public with detailed information on Deutsche Börse Group's business performance during the reporting period. Additional information is published in its half-yearly financial report and two quarterly statements. The annual financial statement documents and the annual report are published within 90 days of the end of the financial year (31 December); intra-year financial information (half-yearly financial report and quarterly statements) is made available within 45 days of the end of the relevant quarter or six-month period. Following preparations by the Audit Committee, the consolidated and annual financial statements are discussed by the entire Supervisory Board and with the external auditors, examined, and then approved. The Executive Board discusses the half-yearly report and the quarterly statements for the first and third quarters with the Supervisory Board's Audit Committee prior to their publication. The half-yearly financial report is reviewed by the external auditors. In line with the proposal by the Supervisory Board, the 2018 AGM elected KPMG AG Wirtschaftsprüfungsgesellschaft, Berlin, (KPMG) to audit its 2018 annual and consolidated financial statements and to review its half-yearly financial report in the year under review. KPMG was also instructed to perform a review of the contents of the combined non-financial statement during the 2018 financial year. The lead auditor, Sven-Olaf Leitz, and the deputy lead auditor, Klaus-Ulrich Pfeiffer, have been responsible for the audit since 2018. The Supervisory Board's proposal was based on the recommendation by the Audit Committee. The Audit Committee obtained the necessary statement of independence from KPMG before the election. This states that there are no personal, business, financial or other relationships between the auditor, its governing bodies and audit managers on the one hand, and the company and the members of its Executive and Supervisory Boards on the other, that could give cause to doubt the auditor's independence. The Audit Committee checked that this continued to be the case during the reporting period. It also oversaw the financial reporting process in 2018. The Supervisory Board was informed in a timely manner of the Committee's work and the insights gained; there were no material findings. Information on audit services and fees is provided in note 6 to the consolidated financial statements.

Frankfurt/Main, 5 March 2019
Deutsche Börse AG

Theodor Weimer | Christoph Böhm | Thomas Book

Stephan Leithner | Gregor Pottmeyer | Hauke Stars

# Independent Auditor's Report

To Deutsche Börse Aktiengesellschaft, Frankfurt am Main

## Report on the Audit of the Financial Statements and Combined Management Report

### Opinions

We have audited the consolidated financial statements of Deutsche Börse Aktiengesellschaft, Frankfurt am Main, and its subsidiaries (the Group), which comprise the consolidated balance sheet as of 31 December 2018, the consolidated income statement, the consolidated statement of comprehensive income, the consolidated cash flow statement and the consolidated statement of changes in equity for the financial year from 1 January to 31 December 2018, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the combined management report of Deutsche Börse Aktiengesellschaft, Frankfurt am Main, for the financial year from 1 January 2018 to 31 December 2018. In accordance with the German legal requirements we have not audited the content of the combined corporate governance statement, which is included in section "Combined corporate governance statement and corporate governance report" in the combined management report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply in all material respects with the IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e(1) HGB [Handelsgesetzbuch: German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as of 31 December 2018 and of its financial performance for the financial year from 1 January to 31 December 2018, and
- the accompanying combined management report as a whole provides an appropriate view of the Group's position. In all material respects, the combined management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the combined management report does not cover the content of the combined corporate governance statement mentioned above.

Pursuant to Section 322(3) sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the combined management report.

**Basis for the Opinions**

We conducted our audit of the consolidated financial statements and combined management report in accordance with Section 317 HGB and the EU Audit Regulation No 537/2014 (referred to subsequently as 'EU Audit Regulation') and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the 'Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and Combined Management Report' section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10(2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5(1) of the EU Audit Regulation. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the combined management report.

**Key Audit Matters in the Audit of the Consolidated Financial Statements**

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements for the financial year from 1 January to 31 December 2018. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, we do not provide a separate opinion on these matters.

### Impairment of the goodwill

For the accounting policies applied as well as the assumptions used, please refer to note 3 (Summary of key accounting policies) and note 11 (Intangible assets) in the notes to the consolidated financial statements.

THE FINANCIAL STATEMENT RISK

At 31 December 2018, goodwill amounted to EUR 2,865.6 million (previous year: EUR 2,770.9 million). The goodwill thus represents 1,8 per cent of the assets of the Group at 31 December 2018.

Goodwill is subjected to an impairment test by the company at least once a year and also on an ad hoc basis, if appropriate. For this purpose, the carrying amount is compared with the recoverable amount of the cash-generating unit (CGU). Deutsche Börse AG determines the recoverable amounts of the cash-generating units either on the basis of the value in use or on the basis of the fair value less costs of disposal. If the carrying amount is higher than the recoverable amount, there is a need for impairment.

The result of these valuations is highly dependent on assumptions concerning the future cash inflows based on the corporate planning as well as the defined parameters. As a result, the valuations are subject to discretion. Any need for impairment that may result can have material impacts on the statement of the assets, liabilities and financial performance of Deutsche Börse AG. Therefore, the correct determination of any need for impairment is of particular significance for the financial statements.

OUR AUDIT APPROACH

With the support of our valuation experts, we have assessed the valuation models used by the company as well as the appropriateness of the significant assumptions relating to valuation parameters. We assessed the appropriateness of the assumptions used in the determination of the discount rates by comparing them with market- and industry-specific reference values; we additionally verified the calculation method used to determine the discount rates. We compared the expected cash inflows and outflows used for the calculations with the current budget plan approved by management. In order to assess the appropriateness of the assumptions used when the budget plan was drawn up, we first discussed these in meetings with management. Then we compared the assumptions used with relevant peer group companies, and evaluated analyst reports on the market segments. We furthermore appraised the reliability of the forecasts in previous years based on whether they occurred or not. Within the scope of our own sensitivity analyses, we determined whether there would be a need for impairment in the event of possible changes in the assumptions in realistic ranges.

OUR OBSERVATIONS

The calculation method used by the company is appropriate and consistent with the relevant valuation principles. The underlying assumptions about the valuation-relevant parameters have been calculated in a balanced way and are within acceptable ranges.

## Impairment of the other intangible assets

For the accounting policies applied as well as the assumptions used, please refer to note 3 (Summary of key accounting policies) and note 11 (Intangible assets) in the notes to the consolidated financial statements.

THE FINANCIAL STATEMENT RISK

The other intangible assets amounted to EUR 952.7 million (previous year: EUR 911.2 million) at 31 December 2018. The other intangible assets thus represent 0.6 per cent of the assets of the Group at 31 December 2018.

The other intangible assets with indefinite useful lives are subject to an impairment test by the company at least once a year and also on an ad hoc basis, if appropriate. For this purpose, Deutsche Börse AG determines the recoverable amounts of the intangible asset or cash-generating units, in case no independent cash flows can be allocated to that specific intangible asset, either on the basis of the value in use or on the basis of the fair value less costs of disposal. The result of these valuations is highly dependent on assumptions concerning the future cash inflows based on the corporate planning as well as the defined parameters. As a result, the valuations are subject to discretion. Any need for impairment that may result can have material impacts on the statement of the assets, liabilities and financial performance of Deutsche Börse AG. Therefore, the correct determination of any need for impairment is of particular significance for the financial statements.

OUR AUDIT APPROACH

With the support of our valuation experts, we have assessed the valuation models used by the company as well as the appropriateness of the significant assumptions relating to valuation parameters. We assessed the appropriateness of the assumptions used in the determination of the discount rates by comparing them with market- and industry-specific reference values; we additionally verified the calculation method used to determine the discount rates. We compared the expected cash inflows and outflows used for the calculations with the current budget plan approved by management. In order to assess the appropriateness of the assumptions used when the budget plan was drawn up, we first discussed these in meetings with management. Then we compared the assumptions used with relevant peer group companies, and evaluated analyst reports on the market segments. We furthermore appraised the reliability of the forecasts in previous years based on whether they occurred or not. Within the scope of our own sensitivity analyses, we determined whether there would be a need for impairment in the event of possible changes in the assumptions in realistic ranges.

OUR OBSERVATIONS

The calculation method used by the company is appropriate and consistent with the relevant valuation principles. The underlying assumptions about the valuation-relevant parameters have been calculated in a balanced way and are within acceptable ranges.

## The valuation of provisions for tax risks

For the accounting policies applied as well as the assumptions used, please refer to note 3 (Summary of key accounting policies) and note 10 (Income tax expense) in the notes to the consolidated financial statements. Information on the tax provisions and risks can be found in note 26 (Financial liabilities and other risks).

THE FINANCIAL STATEMENT RISK

Deutsche Börse AG operates in a variety of jurisdictions with different legal systems. The provisions for tax risks amounted to EUR 334.8 million at 31 December 2018.

The application of the local and international tax regulations and of tax relief is complex and associated with risks. The calculation of tax provisions requires the company to exercise judgement in the assessment of tax issues and to make estimates concerning tax risks. The result of these assessments is dependent to a large extent on assumptions concerning the future interpretation of tax situations in the course of tax audits and also on decisions of the tax authorities and courts on similar tax situations and is therefore subject to discretion. Any additional tax expenses can have material impacts on the statement of assets, liabilities and financial performance of Deutsche Börse AG. Therefore, the identification and correct allocation of provisions for tax risks is of particular significance for the consolidated financial statements.

Deutsche Börse AG occasionally commissions external experts to assess tax matters.

OUR AUDIT APPROACH

With the support of our employees specialising in local and international tax law, we appraised the tax calculation, including the risk assessment, of Deutsche Börse AG. Where available, we have also acknowledged the assessment of external experts engaged by the company. We held meetings with the management as well as staff from the tax department in order to gain an understanding of the existing tax risks. We have assessed the competence and the objectivity of external experts and evaluated the documents they have produced.

Furthermore, we evaluated the correspondence with the competent tax authorities and assessed the assumptions used to determine the tax provisions on the basis of our knowledge and experience of the current application of the relevant legal regulations by the authorities and the courts.

OUR OBSERVATIONS

The assumptions for determining the tax provisions are appropriate.

**Other Information**

Management is responsible for the other information. The other information comprises:

- the combined corporate governance statement and
- the remaining parts of the corporate report, with the exception of the audited consolidated financial statements and combined management report and our auditor's report.

Our opinions on the consolidated financial statements and on the combined management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information is

- materially inconsistent with the consolidated financial statements, with the combined management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

**Responsibilities of Management and the Supervisory Board for the Consolidated Financial Statements and Combined Management Report**

Management is responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Section 315e (1) HGB, and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position and financial performance of the Group. In addition, management is responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, management is responsible for the preparation of the combined management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. In addition, management is responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of the combined management report that is in accordance with the applicable German legal requirements and to be able to provide sufficient appropriate evidence for the assertions in the combined management report.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the combined management report.

**Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and the Combined Management Report**

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the combined management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements, and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the combined management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this combined management report.

We exercise professional judgement and maintain professional scepticism throughout the audit. We also:

– Identify and assess the risks of material misstatement of the consolidated financial statements and the combined management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

– Obtain an understanding of the internal control system relevant to the audit of the consolidated financial statements, and of arrangements and measures (systems) relevant to the audit of the combined management report, in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.

– Evaluate the appropriateness of accounting policies used by management and the reasonableness of estimates made by management and related disclosures.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the combined management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the combined management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions.

- Evaluate the consistency of the combined management report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides.

- Perform audit procedures on the prospective information presented by management in the combined management report. On the basis of sufficient appropriate audit evidence, we evaluate, in particular the significant assumptions used by management as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and, where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

## Other Legal and Regulatory Requirements

**Further information pursuant to Article 10 of the EU Audit Regulation**

We were elected as group auditors by the annual general meeting held on 16 May 2018. We were engaged by the audit committee of the Supervisory Board on 4 September 2018. In compliance with the transitional provisions of Article 41 Section 2 of the EU Audit Regulations, we have been engaged as auditors of the consolidated financial statements of Deutsche Börse AG without interruption since the 2001 financial year.

We declare that the opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long form audit report).

In addition to the consolidated financial statements, we audited the annual financial statements of Deutsche Börse AG and carried out various annual audits of subsidiaries. The audits included reviews of interim financial statements and project-related audits for the implementation of new accounting standards. Other certification services relate to ISAE 3402 and ISAE 3000 reports, Comfort Letters and statutory or contractual audits such as audits under the WpHG, KWG and other contractually agreed assurance services.

Tax services include assistance in the preparation of tax returns, tax appraisals and advice on individual matters, and tax advice related to the external audit. In addition, we have supported the implementation of regulatory requirements with quality assurance.

## German Public Auditor Responsible for the Engagement

The German Public Auditor responsible for the engagement is Klaus-Ulrich Pfeiffer.

Frankfurt am Main, 8 March 2019

KPMG AG
Wirtschaftsprüfungsgesellschaft
[Original German version signed by:]

| | |
|---|---|
| Leitz | Pfeiffer |
| Wirtschaftsprüfer | Wirtschaftsprüfer |
| [German Public Auditor] | [German Public Auditor] |