DEUTSCHE BÖRSE
GROUP

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Financial report 2017

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Consolidated income statement

for the period 1 January to 31 December 2017

	Note	2017 €m	2016 €m
Sales revenue	4	2,638.5	2,557.3
Net interest income from banking business	4	132.6	84.0
Other operating income	4	31.4	32.6
Total revenue		**2,802.5**	**2,673.9**
Volume-related costs	4	-340.2	-285.2
Net revenue (total revenue less volume-related costs)		**2,462.3**	**2,388.7**
Staff costs	5	-638.3	-585.7
Other operating expenses	6	-493.3	-600.7
Operating costs[1]		**-1,131.6**	**-1,186.4**
Result from equity investments	8	197.8	36.9
Earnings before interest, tax, depreciation and amortisation (EBITDA)		**1,528.5**	**1,239.2**
Depreciation, amortisation and impairment losses	11, 12	-159.9	-131.0
Earnings before interest and tax (EBIT)		**1,368.6**	**1,108.2**
Financial income	9	6.6	4.6
Financial expense	9	-86.3	-79.2
Earnings before tax (EBT)		**1,288.9**	**1,033.6**
Other tax		-1.5	-1.5
Income tax expense	10	-391.4	-284.5
Net profit for the period from continuing operations		**896.0**	**747.6**
Net profit for the period from discontinued operations	2	**0**	**550.6**
Net profit for the period		**896.0**	**1,298.2**
thereof attributable to Deutsche Börse AG shareholders		874.3	1,272.7
thereof attributable to non-controlling interests		21.7	25.5
Earnings per share (basic) (€)	34	**4.68**	**6.81**
thereof from continuing operations		4.68	3.87
thereof from discontinued operations		0	2.94
Earnings per share (diluted) (€)	34	**4.68**	**6.81**
thereof from continuing operations		4.68	3.87
thereof from discontinued operations		0	2.94

1) Since the second quarter of 2017, operating costs have included staff costs as well as other operating expenses, but have excluded depreciation, amortisation and impairment losses. Prior-year figures have been adjusted accordingly. For details, see note 3.

Consolidated statement of comprehensive income

for the period 1 January to 31 December 2017

	Note	2017 €m	2016 €m
Net profit for the period reported in consolidated income statement		**896.0**	**1,298.2**
Items that will not be reclassified to profit or loss:			
Changes from defined benefit obligations		30.6	-27.3
Deferred taxes	10, 20	-8.4	7.8
		22.2	**-19.5**
Items that may be reclassified subsequently to profit or loss:			
Exchange rate differences from continuing operations	20	-27.8	-3.8
Other comprehensive income from investments using the equity method		0.9	-0.6
Exchange rate differences from discontinued operations	20	0	-200.7
Remeasurement of cash flow hedges		3.5	2.7
Remeasurement of other financial instruments		-89.5	105.7
Deferred taxes from continuing operations	10, 20	46.9	-40.9
Deferred taxes from discontinued operations	10, 20	0	147.2
		-66.0	**9.6**
Other comprehensive income after tax		**-43.8**	**-9.9**
Total comprehensive income		**852.2**	**1,288.3**
thereof attributable to Deutsche Börse AG shareholders		835.9	1,263.4
thereof attributable to non-controlling interests		16.3	24.9
Total comprehensive income attributable to the shareholders of Deutsche Börse AG			
thereof from continuing operations		835.9	766.3
thereof from discontinued operations		0	497.1

Consolidated balance sheet

as at 31 December 2017

Assets

	Note	31 Dec 2017 €m	31 Dec 2016 €m
NON-CURRENT ASSETS			
Intangible assets	11		
Software		322.1	209.4
Goodwill		2,770.9	2,721.1
Payments on account and assets under development		86.8	181.6
Other intangible assets		911.2	859.9
		4,091.0	3,972.0
Property, plant and equipment	12		
Fixtures and fittings		34.8	35.9
Computer hardware, operating and office equipment		76.4	75.4
Payments on account and construction in progress		2.2	2.2
		113.4	113.5
Financial assets	13		
Investments in associates and joint ventures		38.7	34.3
Other equity investments		99.4	255.4
Receivables and securities from banking business		1,563.0	1,604.8
Other financial instruments		30.8	26.0
Other loans[1]		0.4	0.4
		1,732.3	1,920.9
Financial instruments held by central counterparties	15	4,837.2	5,856.6
Other non-current assets		8.7	13.2
Deferred tax assets	10	101.1	62.5
Total non-current assets		**10,883.7**	**11,938.7**
CURRENT ASSETS			
Receivables and other current assets			
Financial instruments held by central counterparties	15	79,510.7	107,909.6
Receivables and securities from banking business	16	13,036.5	13,465.5
Trade receivables	17	329.4	669.8
Receivables from related parties		2.5	2.0
Income tax assets[2]		91.3	107.6
Other current assets	18	597.7	514.2
		93,568.1	122,668.7
Restricted bank balances	19	29,392.0	27,777.6
Other cash and bank balances		1,297.6	1,458.1
Total current assets		**124,257.7**	**151,904.4**
Total assets		**135,141.4**	**163,843.1**

Equity and liabilities

	Note	31 Dec 2017 €m	31 Dec 2016 €m
EQUITY	20		
Subscribed capital		193.0	193.0
Share premium		1,332.3	1,327.8
Treasury shares		-334.6	-311.4
Revaluation surplus		19.6	41.5
Accumulated profit		3,631.0	3,230.1
Shareholders' equity		**4,841.3**	**4,481.0**
Non-controlling interests		118.1	142.2
Total equity		**4,959.4**	**4,623.2**
NON-CURRENT LIABILITIES			
Provisions for pensions and other employee benefits	22	144.2	167.9
Other non-current provisions	23, 24	120.3	117.0
Deferred tax liabilities	10	226.8	235.7
Interest-bearing liabilities	25	1,688.4	2,284.7
Financial instruments held by central counterparties	15	4,837.2	5,856.6
Other non-current liabilities		6.9	7.9
Total non-current liabilities		**7,023.8**	**8,669.8**
CURRENT LIABILITIES			
Tax provisions[3)4)]	26	339.4	273.9
Other current provisions	23, 27	191.6	178.3
Financial instruments held by central counterparties	15	78,798.6	107,479.4
Liabilities from banking business	28	13,264.4	13,840.3
Other bank loans and overdrafts		7.3	0.1
Trade payables		148.9	471.2
Liabilities to related parties		1.5	3.6
Cash deposits by market participants	29	29,215.3	27,777.6
Other current liabilities	30	1,191.2	525.7
Total current liabilities		**123,158.2**	**150,550.1**
Total liabilities		**130,182.0**	**159,219.9**
Total equity and liabilities		**135,141.4**	**163,843.1**

1) Thereof €0.4 million (31 December 2016: €0.4 million) receivable from related parties
2) Thereof none with a remaining maturity of more than one year from corporation tax credits in accordance with section 37 (5) of the Körperschaftsteuergesetz (KStG, the German Corporation Tax Act) (31 December 2016: €2.3 million)
3) Thereof income tax expense: €299.6 million (2016: €231.5 million)
4) This item also includes non-current tax provisions; for details see note 26.

Consolidated cash flow statement

for the period 1 January to 31 December 2017

	Note	2017 €m	2016 €m
Net profit for the period		896.0	1,298.2
Depreciation, amortisation and impairment losses	11, 12	159.9	135.3
Increase/(decrease) in non-current provisions		10.2	-14.7
Deferred tax income	10	-20.6	-2.9
Other non-cash income		-96.4	-52.3
Changes in working capital, net of non-cash items:		156.6	56.0
Decrease/(increase) in receivables and other assets		7.9	-223.4
Increase in current liabilities		148.2	276.9
Increase in non-current liabilities		0.5	2.5
Net loss/(gain) loss on disposal of non-current assets		1.5	-563.0
Cash flows from operating activities excluding CCP positions		**1,107.2**	**856.6**
Changes in liabilities from CCP positions		-323.2	299.5
Changes in receivables from CCP positions		272.2	465.3
Cash flows from operating activities	33	**1,056.2**	**1,621.4**
Payments to acquire intangible assets		-106.1	-115.1
Payments to acquire property, plant and equipment		-43.1	-49.8
Payments to acquire non-current financial instruments		-312.4	-178.9
Payments to acquire investments in associates and joint ventures		-10.4	-5.0
Payments to acquire subsidiaries, net of cash acquired		-157.5	-3.9
Effects of the disposal of (shares in) subsidiaries, net of cash disposed		0	917.4
Proceeds from the disposal of shares in associates and joint ventures		0	0.3
Net increase in current receivables and securities from banking business with an original term greater than three months		-47.7	-136.5
Proceeds from disposals of available-for-sale non-current financial instruments		859.1	149.9
Proceeds from disposals of other non-current assets		0	0.1
Cash flows from investing activities	33	**181.9**	**578.5**
Purchase of treasury shares		-28.2	0
Proceeds from sale of treasury shares		5.5	3.8
Payments to non-controlling interests		-39.3	-15.9
Repayment of long-term financing		0	-321.6
Repayment of short-term financing		0	-495.0
Proceeds from short-term financing		0	400.0
Dividends paid		-439.0	-420.1
Cash flows from financing activities	33	**-501.0**	**-848.8**
Net change in cash and cash equivalents		**737.1**	**1,351.1**

	Note	2017 €m	2016 €m
Net change in cash and cash equivalents (brought forward)		**737.1**	**1,351.1**
Effect of exchange rate differences		-10.0	81.4
Cash and cash equivalents at beginning of period		-146.9	-1,579.4
Cash and cash equivalents at end of period	33	**580.2**	**-146.9**
Additional information on cash inflows and outflows contained in cash flows from operating activities:			
Interest-similar income received		362.7	252.0
Dividends received		8.6	7.5
Interest paid		-295.8	-257.5
Income tax paid		-308.8	-277.8

Consolidated statement of changes in equity

for the period 1 January to 31 December 2017

	Note	2017 €m	2016 €m	thereof included in total comprehensive income 2017 €m	thereof included in total comprehensive income 2016 €m
Subscribed capital					
Balance as at 1 January		193.0	193.0		
Balance as at 31 December		**193.0**	**193.0**		
Share premium					
Balance as at 1 January		1,327.8	1,326.0		
Sale of treasury shares		4.5	1.8		
Balance as at 31 December		**1,332.3**	**1,327.8**		
Treasury shares					
Balance as at 1 January		-311.4	-315.5		
Purchase of treasury shares		-28.2	0		
Sales under the Group Share Plan		5.0	4.1		
Balance as at 31 December		**-334.6**	**-311.4**		
Revaluation surplus	20				
Balance as at 1 January		41.5	-5.3		
Changes from defined benefit obligations	22	30.6	-27.3	30.6	-27.3
Remeasurement of other financial instruments		-89.5	105.7	-89.5	105.7
Remeasurement of cash flow hedges		3.5	2.7	3.5	2.7
Deferred taxes	10	33.5	-34.3	33.5	-34.3
Balance as at 31 December		**19.6**	**41.5**		
Accumulated profit	20				
Balance as at 1 January		3,230.1	2,357.5		
Dividends paid	21	-439.0	-420.1	0	0
Acquisition of the interest of non-controlling shareholders in European Energy Exchange AG		-6.5	0	0	0
Net profit for the period attributable to Deutsche Börse AG shareholders		874.3	1,272.7	874.3	1,272.7
Exchange rate differences and other adjustments		-32.9	-128.4	-21.5	-204.5
Deferred taxes	10	5.0	148.4	5.0	148.4
Balance as at 31 December		**3,631.0**	**3,230.1**		
Shareholders' equity as at 31 December		**4,841.3**	**4,481.0**	**835.9**	**1,263.4**

	Note	2017 €m	2016 €m	thereof included in total comprehensive income 2017 €m	2016 €m
Shareholders' equity (brought forward)		**4,841.3**	**4,481.0**	**835.9**	**1,263.4**
Non-controlling interests					
Balance as at 1 January		142.2	139.0		
Acquisition of the interest of non-controlling shareholders in European Energy Exchange AG		7.3	0	0	0
Changes due to capital increases/decreases		-48.3	-21.6	0	0
Non-controlling interests in net income of subsidiaries for the period		21.7	25.5	21.7	25.5
Exchange rate differences and other adjustments		-4.8	-0.7	-5.4	-0.6
Total non-controlling interests as at 31 December		**118.1**	**142.2**	**16.3**	**24.9**
Total equity as at 31 December		**4,959.4**	**4,623.2**	**852.2**	**1,288.3**

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 35.

Basis of reporting

The 2017 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) in conjunction with section 297 (1a) of the HGB 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 2017 reporting period, the following standards and interpretations issued by the IASB and adopted by the European Commission were applied to Deutsche Börse Group for the first time.

Amendments to IAS 7 “Statement of Cash Flows” Disclosure Initiative (January 2016)
The amendments follow the objective that entities shall provide disclosures allowing users of financial statements to evaluate changes in liabilities arising from financing activities. The amendments must be applied for financial years beginning on or after 1 January 2017. The amendments were adopted by the EU on 6 November 2017.

Amendments to IAS 12 "Recognition of Deferred Tax Assets for Unrealised Losses" (January 2016)
The amendments to IAS 12 specifically aim to clarify the recognition of deferred tax assets for unrealised losses on assets measured at fair value. The amendments are necessary given the current diversity in accounting practice. The amendments must be applied for financial years beginning on or after 1 January 2017, and were adopted by the EU on 6 November 2017.

Amendments resulting from the "Annual Improvements Project 2014–2016" (December 2016)
Amendments affect the standards IFRS 1, IFRS 12 and IAS 28. The amendments to IFRS 12 must be applied for financial years beginning on or after 1 January 2017. The amendments were adopted by the EU on 7 February 2018.

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 Deutsche Börse Group for 2017, have been published by the IASB prior to the publication of this financial report and partially adopted by the European Commission.

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. The amendments must be applied for financial years beginning on or after 1 January 2018. The amendments have not yet been adopted by the EU.

IFRS 9 "Financial Instruments" (July 2014) and Amendments to IFRS 9 Regarding Prepayment Features with Negative Compensation (October 2017)
IFRS 9 introduces new requirements for the recognition and measurement of financial instruments. The new standard was adopted by the EU on 22 November 2016, and must be applied for financial years beginning on or after 1 January 2018. Deutsche Börse Group will apply the standard retrospectively as from 1 January 2018, adopting the simplified approach. However, the comparative figures presented for the financial year 2017 will not be adjusted retrospectively. As from financial year 2018, Deutsche Börse Group aims to improve the transparency of its balance sheet structure with the first-time application of IFRS 9. Financial instruments will be recognised in the consolidated balance sheet according to different measurement categories; the comparative figures presented for the financial year 2017 will also be reported according to the new structure.

The amendments regarding prepayment features with negative compensation must be applied for financial years beginning on or after 1 January 2019, and have not yet been adopted by the EU.

Classification and measurement of financial instruments
Deutsche Börse Group has reviewed its financial assets and liabilities to assess the implications of IFRS 9, and mainly expects the following effects from the first-time application of the standard as from 1 January 2018:

Debt instruments held by Deutsche Börse Group have a carrying amount of €1,832.0 million, and were so far classified as "available for sale" in line with IAS 39. Debt instruments are held in order to collect contractual cash flows ("hold" business model), and fulfil the so-called cash flow criteria. Therefore, debt instruments will be measured at amortised cost as from 1 January 2018. This leads to a decrease in the carrying amount of current and non-current "receivables and securities from banking business" by

€8.2 million to €1,554.8 million, and by €0.3 million to €254.2 million, respectively. The carrying amount of the item “other financial instruments” remains largely unchanged; the adjustment effects are less than €0.1 million. The revaluation surplus – disclosed as an equity item – declines accordingly before the consideration of deferred tax assets and liabilities.

Going forward, Deutsche Börse Group will measure debt instruments that do not fulfil the criteria of the “hold” business model, or whose expected cash flows are not solely payments of principal and interest, at fair value through profit or loss. The fair values of non-listed fund units are based on the net asset values available at the time the annual financial statements were prepared. As from 1 January 2018, this results in adjustment effects in the amount of €0.9 million for the “other financial instruments” item, and of €0.9 million for the “equity” item (without deferred taxes).

Equity instruments recognised under “other equity investments” item were classified as “available for sale” until 31 December 2017, and were measured at fair value through other comprehensive income; no adjustments will be made to this measurement method. Deutsche Börse Group applied the corresponding option provided in the standard to the financial instruments disclosed as at 31 December 2017. Going forward, Deutsche Börse Group will decide for every newly acquired equity instrument whether it will be classified at fair value through profit or loss, or through other comprehensive income. As at 31 December 2017, the item “other equity investments” comprised financial instruments with a carrying amount of €59.0 million measured at historical cost less (any) impairment charges, which were not traded on an active market, and for which no alternative measurement method is applicable; using internal measurement models, these financial instruments will be measured at fair value through other comprehensive income as from 1 January 2018. Therefore, the first-time application of IFRS 9 results in an increase in the carrying amount of €2.2 million, and in equity of €2.2 million (without deferred taxes). Effective 1 January 2018, any disposal gains or losses generated or incurred in connection with equity instruments measured at fair value through other comprehensive income will be recognised in retained earnings at the date of disposal. So far, disposal gains or losses were recognised through profit or loss. In the financial year 2017, Deutsche Börse Group generated a profit of €190.6 million from the disposal of available-for-sale equity instruments, which was recognised through profit or loss in “net income from equity investments”.

Deutsche Börse Group expects no effects from the introduction of IFRS 9 upon the disclosure of financial liabilities, given that these items will be measured at amortised cost, as before.

Furthermore, no material effects are expected for the disclosure of hedging transactions. The hedging relationships disclosed as at 31 December 2017 (for further details, see note 14) will qualify as hedging items in 2018 as well.

Impairment

Effective 1 January 2018, impairment losses recognised for certain categories of financial assets were calculated according to the “expected loss model”. This model applies in particular to financial assets measured at amortised cost. The same applies to debt instruments measured at fair value through other comprehensive income, for so-called contract assets in line with IFRS 15, to leasing receivables, credit commitments and certain financial guarantees. The model requires changes to the risk analysis and the calculations of expected credit losses. The application of IFRS 9 leads mainly to the following amendments:

- Impairment losses of €0.3 million were recognised for securities measured at amortised cost. Under IAS 39, no impairment had to be recognised for these items.

- Impairment losses for trade receivables decreased by around €1.5 million, thus falling by 30 per cent compared to 31 December 2017.
- There was no material effect on other financial assets measured at amortised cost as at 1 January 2018.

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 gain or loss is 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 15 "Revenue from Contracts with Customers" (May 2014 plus clarification dated April 2016)
IFRS 15 specifies the recognition of revenue from contracts with customers. In accordance with IFRS 15, revenue has to be recognised when the customer obtains control over the contractual goods and services, and can obtain benefits from these goods and services. Revenue shall be recognised in an amount that reflects the consideration to which the company expects to be entitled. The new IFRS 15 regulations supersede the currently applicable regulations set forth in IAS 11 and IAS 18, as well as the corresponding interpretations. The standard must be applied for financial years beginning on or after 1 January 2018; it was adopted by the EU on 22 September 2016. The clarification was adopted by the EU on 31 October 2017.

Deutsche Börse Group initiated its IFRS 15 implementation project in 2015. This project comprises three phases: phase I focused on a detailed analysis of revenue from relevant contracts with customers. Phase II assessed the implications of IFRS 15 regarding potential adjustment requirements to existing accounting methods, as well as to IT processes and systems. As part of phase III, the Group is currently implementing the adjustment requirements identified during phase II. After phases I and II were completed during the financial year 2017, Deutsche Börse Group launched the implementation of the required adjustments, including those applicable to the Group's IT landscape, taking effect from 1 January 2018.

Based on the analysis of IFRS 15, Deutsche Börse Group does not expect any material effects on the Group's financial position or financial performance. However, Deutsche Börse Group expects adjustments as to the time at which revenue will be recognised. Furthermore, the Group expects additional line items for the recognition of contractual rights (contract assets) and contractual obligations (contract liabilities) to be added to the consolidated statement of financial position. Moreover, the extent of required disclosures will be expanded. The most significant adjustments concern the following items:

- Deferral of annual caps applicable to security inclusion fees: in accordance with IFRS 15, revenue recognition for such items is spread over the expected term of a contract, based on customer-specific expectations regarding the number of inclusions per year and on the economic benefit generated.
- Deferral of revenue generated with multi-year customer contracts comprising pricing scales and contractually agreed rebates in subsequent periods: in accordance with IFRS 15, such revenue items are recognised in line with the economic benefit generated for the customer.

Deutsche Börse Group applies IFRS 15 as from 1 January 2018; it has opted for the modified retrospective approach and will disclose the cumulative effect from the first-time application of IFRS 15 for the financial year beginning on 1 January 2018. First-time application of IFRS 15 will result in an adjustment of Deutsche Börse Group's equity of €1.4 million as at 1 January 2018.

IFRS 16 “Leases” (January 2016)
IFRS 16 introduced new accounting policies for the recognition of leases. The new standard introduces uniform accounting principles for lessees, which generally require the recognition of all leases on the lessee’s statement of financial position, whereby the right of use is recognised as an asset, and the payment obligation as a liability. For leases with a term of up to twelve months and for those that relate to low-value assets, it includes an accounting option. For lessors, however, the standard continues to distinguish between finance leases and operating leases for accounting purposes. The standard must be applied for financial years beginning on or after 1 January 2019; earlier application is permitted only if that entity is also applying IFRS 15 at the same time. The standard was adopted by the EU on 31 October 2017.

Deutsche Börse Group will apply the standard as from 1 January 2019, and will adopt the modified retrospective approach. Deutsche Börse Group’s internal project for the assessment of the implications of IFRS 16 was initiated in the fourth quarter of 2016, and was continued throughout the reporting year. However, the quantitative effects arising from the application of the new standard cannot be assessed reliably at this time.

The minimum lease payments from operating leases provided in note 38 mainly comprise property leases, which will account for the majority of adjustment effects. The application of the new standard will translate into a balance sheet extension given the presentation of the rights of use on the asset side of the balance sheet, and of the discounted future lease payments on the liabilities side. Furthermore, IFRS 16 amends the recognition rules for operating leases – resulting in lease payments being recognised following the reducing-balance approach instead of as an expense on a straight-line basis, which ultimately translates into a shift of these expenses within the consolidated income statement.

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 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.

Amendments to IAS 40 "Transfers of Investment Property" (December 2016)
The amendments clarify the conditions for transfers to, or from, investment property classification. More specifically, the question was whether a property under construction or development that was previously classified as inventory could be transferred to investment property when there was an evident change in use. The amendments must be applied for financial years beginning on or after 1 January 2018; earlier application is permitted. The amendments have not yet been adopted by the EU.

Amendments resulting from the "Annual Improvements Project 2014–2016" (December 2016)
Amendments affect the standards IFRS 1, IFRS 12 and IAS 28. The amendments to IFRS 1 and IAS 28 must be applied for financial years beginning on or after 1 January 2018. The amendments were adopted by the EU on 7 February 2018.

Amendments resulting from the "Annual Improvements Project 2015–2017" (December 2017)
These amendments affect the standards IFRS 3, IFRS 11, IAS 12 and IAS 23. The amendments must be applied for financial years beginning on or after 1 January 2019, but have not yet been adopted by the EU.

IFRIC 22 "Foreign Currency Transactions and Advance Consideration" (December 2016)
This interpretation aims to clarify the accounting for transactions that include the receipt or payment of advance consideration in a foreign currency. IFRIC 22 must be applied for financial years beginning on or after 1 January 2018; earlier application is permitted. This interpretation has not yet been adopted by the EU.

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 has not yet been adopted by the EU.

2. Basis of consolidation

Deutsche Börse AG's equity interests in subsidiaries, associates and joint ventures as at 31 December 2017 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 2017 direct/(indirect) %
Assam SellerCo, Inc.	New York, USA	100.00
Assam SellerCo Service, Inc.[3]	New York, USA	(100.00)
Need to Know News, LLC	Chicago, USA	(100.00)
Börse Frankfurt Zertifikate AG	Frankfurt/Main, Germany	100.00
Clearstream Holding 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)
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 Bonds 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. is part of the Assam SellerCo, Inc. subgroup.
4) Before profit transfer or loss absorption

	Currency	Ordinary share capital[1] thousand	Equity[1,2] thousand	Total assets[1] thousand	Sales revenue 2017[1] thousand	Net profit/loss 2017[1] thousand	Initially consolidated
	US$	9,911	22,657	22,710	0	-473	2009
	US$	n.a.	n.a.	n.a.	n.a.	n.a.	2009
	US$	0	2,098	2,098	0	0	2009
	€	140	15,671	21,338	19,644	3,903	2013
	€	101,000	2,285,314	2,374,923	0	84,707[4]	2007
	€	25,000	1,216,871	1,247,634	92,306[5]	202,941[6]	2002
	€	92,000	1,226,842	14,200,315	569,387[5]	190,616	2002
	JPY	49,000	169,849	216,172	79,935	7,923	2009
	€	3,600	8,339	10,731	11,172	2,256	2010
	€	25,000	420,994	1,768,717	298,786[5]	111,611	2002
	€	6,211	11,825	16,870	27,074	1,960	2014
	CZK	160,200	182,695	625,297	727,421	34,676	2008
	€	30,000	118,826	194,748	258,318[5]	8,269	2002
	€	25	61	67	0	-7	16 Mar 2016
	€	20,000	14,315	14,400	293	-1,400	2013
	€	10,000	10,378	10,705	1,036	87	2013
	€	6,000	839	1,263	0	-1,187	2013
	S$	606	995	1,665	1,851	301	2015
	US$	400	25,041	30,910	19,477	78,669	2000
	€	25	131	202	0	-46	2015
	CZK	200	254,099	603,324	1,319	66,462	2006
	€	6,000	1,203,772	1,360,996	39,598	3,111[7]	1998
	€	25,000	464,813	27,272,381	19,922[5]	1,589[4]	1998
	€	25	79	90	24	1	2013
	€	3,600	11,044	12,949	2,902	285	2001
	€	100	7,000	16,668	10,791	3,140[4]	2001

5) Consists of interest and commission results due to business operations
6) Thereof income from profit-pooling agreements with their subsidiaries amounting to €195,910 thousand (including €159,160 thousand for Clearstream Banking S.A. and €36,750 thousand for Clearstream Banking AG)
7) Thereof income from profit-pooling agreements with their subsidiaries amounting to €4,729 thousand (including €3,140 thousand for Eurex Repo GmbH and €1,589 thousand for Eurex Clearing AG)

Fully consolidated subsidiaries (part 2)

Company	Domicile	Equity interest as at 31 Dec 2017 direct/(indirect) %
Eurex Global Derivatives AG	Zurich, Switzerland	100.00
Eurex Zürich AG	Zurich, Switzerland	(100.00)
European Energy Exchange AG	Leipzig, Germany	75.05[3)]
Agricultural Commodity Exchange GmbH	Leipzig, Germany	(75.05)
Cleartrade Exchange Pte. Limited	Singapore, Singapore	(75.05)
EEX Link GmbH	Leipzig, Germany	(75.05)
EEX Power Derivatives 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)
Global Environmental Exchange GmbH	Leipzig, Germany	(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)[5)]
EPEX Netherlands B.V.	Amsterdam, Netherlands	(38.27)
EPEX SPOT Belgium S.A.	Brussels, Belgium	(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)
Eurex Services GmbH	Frankfurt/Main, Germany	100.00
Impendium Systems Ltd	London, United Kingdom	100.00
STOXX Ltd.	Zurich, Switzerland	100.00
STOXX Australia Pty Limited	Sydney, Australia	(100.00)
Tradegate Exchange GmbH	Berlin, Germany	80.00[7)]
360 Treasury Systems AG	Frankfurt/Main, Germany	100.00
360T Asia Pacific Pte. Ltd.	Singapore, Singapore	(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) Voting rights
4) Before profit transfer and loss absorption

	Currency	Ordinary share capital[1] thousand	Equity[1,2] thousand	Total assets[1] thousand	Sales revenue 2017[1] thousand	Net profit/loss 2017[1] thousand	Initially consolidated
	€	83	556,003	577,550	124,590	59,193	2012
	€	8,313	310,184	383,315	45,189	7,619	1998
	€	60,075	311,056	368,542	29,761	36,740[6]	2014
	€	100	2,046	2,083	217	-1,084[4]	2014
	US$	19,800	1,867	2,132	1,527	-928	2014
	€	50	59	102	172	8	1 Jan 2016
	€	125	6,018	16,279	40,531	18,893[4]	2014
	€	1,015	88,935	2,751,310	79,318	41,215[4]	2014
	€	13	81	324,804	33,933	67	2014
	€	50	48	1,789	3,258	-1,970[4]	2014
	US$	0	153,955	669,435	13,446	-9,632	3 May 2017
	US$	0	38,485	503,841	13,446	-27	3 May 2017
	US$	0	31,138	495,838	6,506	1,999	3 May 2017
	CZK	30,000	41,205	53,236	48,412	6,990	31 May 2016
	€	12,584	33,456	41,863	32,542	13,580	2015
	€	6,168	62,937	82,967	76,748	20,832	2015
	€	0	0	710	1,599	0	1 Dec 2016
	€	3,000	3,900	567,202	3,460	118	2015
	CHF	100	178	214	320	21	2015
	€	18	177	180	26	-8	2015
	DKK	2,000	2,001	2,876	4,115	328	1 July 2016
	€	35	7,317	7,449	1,702	169	2 Sep 2016
	€	25	98	98	0	-2	2007
	GBP	7,804	-7,309	561	1,332	-318	2014
	CHF	1,000	164,660	201,131	147,242	90,438	2009
	AU$	0	95	228	463	8	2015
	€	500	1,785	2,482	3,125	648	2010
	€	128	42,719	60,981	67,388	12,345	2015
	S$	550	4,473	8,754	12,410	215	2015
	US$	300	7,376	8,556	8,815	595	2015
	€	34	381	491	620	12	2015
	MYR	0	-94	105	0	-94	25 Aug 2017
	€	25	1,424	1,571	0	59	2015
	ILS	1	-2,967	2,800	0	-1,693	2015
	INR	300	68,827	84,397	38,974	6,948	2015

5) Thereof 8.02 per cent indirectly held via European Energy Exchange AG and 30.25 per cent indirectly held via Powernext SAS
6) Thereof income and expense from profit-pooling agreements with their subsidiaries amounting to a total of €57,055 thousand
7) Thereof 5.00 per cent indirectly held via Tradegate AG Wertpapierhandelsbank

Changes to consolidated subsidiaries

	Germany	Foreign	Total
As at 1 January 2017	20	42	62
Additions	1	5	6
Disposals	-1	-6	-7
As at 31 December 2017	**20**	**41**	**61**

European Energy Exchange AG, Leipzig, Germany, (EEX) founded EEX US Holdings, Inc., Wilmington, Delaware, USA, as a wholly owned subsidiary in March 2017. With effect from 3 May 2017, EEX US Holdings, Inc. acquired all shares in Nodal Exchange Holdings, LLC, Tysons Corner, Virginia, USA (Nodal Exchange). As part of the transaction, EEX US Holdings acquired all shares in Lex Holdings II, LLC, Wilmington, Delaware, USA. Nodal Exchange is a regulated derivatives exchange which currently offers over 1,000 electric power and natural gas contracts on hundreds of unique locations, allowing market participants to hedge against price risks in the United States. All of the transactions on Nodal Exchange are cleared through its clearing house, Nodal Clear, LLC, Tysons Corner, Virginia, USA, a derivatives clearing organisation under the Commodity Exchange Act that is regulated by the U.S. Commodity Futures Trading Commission (CFTC). The purchase price was US$206.9 million (€189.6 million) paid in cash. Since the completion of the transaction on 3 May 2017, EEX US Holdings and the other entities it acquired as part of the transaction have been fully consolidated.

The preliminary purchase price allocation yielded the following results:

Goodwill resulting from the business combination with Nodal Exchange group

	Preliminary goodwill calculation 3 May 2017 €m
Consideration transferred	
Purchase price	189.6
Non-controlling interests	-47.3
Acquired bank balances	-13.8
Total consideration	**128.5**
Acquired assets and liabilities	
Customer relationships	55.0
Exchange and clearing licences	24.5
Trade names	4.9
Software and other intangible assets	5.7
Other non-current assets	0.2
Restricted bank balances	421.0
Other current assets	2.3
Cash deposits by market participants	-402.7
Deferred tax liabilities on temporary differences	-8.9
Other current liabilities	-1.5
Non-controlling interests	-28.5
Total assets and liabilities acquired	**72.0**
Goodwill	**56.5**

The acquired goodwill resulting from the transaction amounts to US$61.6 million (€56.5 million), and mainly reflects expected revenue synergies to be generated by higher trading volumes, due to the fact that Nodal Exchange is now part of a larger corporate group, which increases the attractiveness of its service and product offerings. Furthermore, Deutsche Börse expects that the global gas business will profit from the shared customer base of Nodal Exchange and EEX.

The full consolidation of Nodal Exchange group generated an increase of US$7.0 million (€6.0 million) in net revenue as well as an increase of US$0.2 million (€0.2 million) in earnings after tax and offsetting of non-controlling interests. Full consolidation as at 1 January 2017 would have led to a US$13.4 million (€12.0 million) increase in sales revenue and an increase of US$1.4 million (€1.3 million) in earnings after tax and offsetting of non-controlling interests.

After the acquisition of Nodal Exchange group by EEX, it was decided to disentangle its shareholder structure. Therefore, the interim holding entity Lex Holdings II, LLC was dissolved with effect from 24 July 2017, and EEX US Holdings, Inc. was merged into Nodal Exchange Holdings, LLC.

Börse Frankfurt Zertifikate Holding S.A., Luxembourg, was liquidated as at 19 June 2017 and is thus no longer included in the basis of consolidation. The liquidation was resolved by means of a partner resolution dated 24 July 2014. Deutsche Börse AG held an interest of 100 per cent in the company.

Given the initiation of the liquidation proceedings for APX Commodities Limited in liquidation, London, United Kingdom, and APX Shipping B.V. i.L., Amsterdam, the Netherlands, these two entities were excluded from the basis of consolidation, with effect from 30 June 2017, and 31 December 2017, respectively.

Effective 25 August 2017, 360 Treasury Systems AG, Frankfurt/Main, Germany, established 360 Trading Networks Sdn Bhd, Kuala Lumpur, Malaysia, which was registered with the commercial register on the same day.

Effective 23 October 2017, Assam SellerCo, Inc., New York, USA, sold its 100 per cent share held in MNI Financial and Economic Information (Beijing) Co. Ltd., Beijing, China, to Hawking LLC, for a purchase price of US$305 thousand.

With retrospective effect as at 1 October 2017, Finnovation S.A., a wholly owned subsidiary of Deutsche Börse AG established under Luxembourg law, was merged across borders into Finnovation Software GmbH, a wholly owned subsidiary of Deutsche Börse AG (merger 1). Immediately afterwards, Finnovation Software GmbH was merged into Deutsche Börse AG (merger 2). Both mergers took effect upon registration with the commercial register on 22 December 2017. All assets as well as equity and liabilities held by Finnovation S.A. at 30 September 2017 were transferred to Finnovation Software GmbH, and subsequently to Deutsche Börse AG.

During the year under review, EEX, in which Deutsche Börse AG holds an interest of 75.05 per cent, acquired all shares held by non-controlling shareholders in Powernext SAS, Paris, France, therefore increasing its shareholding to 100 per cent. EEX thus increased its stakes in fully consolidated subsidiaries held indirectly through Powernext SAS. Accordingly, EEX now holds 51 per cent of the shares in EPEX SPOT SE, Paris, France.

Associates and joint ventures

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

Associates and joint ventures

Company	Domicile	Segment	Equity interest as at 31 Dec 2017 direct/(indirect) %
Associates			
BrainTrade Gesellschaft für Börsensysteme mbH	Frankfurt/Main, Germany	Xetra	(28.58)[1]
China Europe International Exchange AG	Frankfurt/Main, Germany	Eurex	40.00
Deutsche Börse Commodities GmbH	Frankfurt/Main, Germany	Xetra	16.20
Digital Vega FX Ltd	London, United Kingdom	Eurex	23.85
LuxCSD S.A.	Luxembourg, Luxembourg	Clearstream	(50.00)
PHINEO gAG	Berlin, Germany	Xetra	12.00[5]
RegTek Solutions Inc.	New York, USA	MD+S	12.50
R5FX Ltd	London, United Kingdom	Eurex	16.33
SEEPEX a.d.	Belgrade, Serbia	Eurex	(9.57)
Switex GmbH	Hamburg, Germany	Xetra	40.00
Tradegate AG Wertpapierhandelsbank[7]	Berlin, Germany	Xetra	20.00
ZDB Cloud Exchange GmbH in Liquidation	Eschborn, Germany	Eurex	49.90
Zimory GmbH in Liquidation	Berlin, Germany	Eurex	30.03[9]

1) Thereof 14.29 per cent held directly and 14.29 per cent indirectly via Börse Frankfurt Zertifikate AG
2) Preliminary figures
3) Value of equity
4) The figures refer to the financial year from 1 December 2016 to 30 November 2017.
5) In addition, Deutsche Börse AG holds an interest in Phineo Pool GbR, Berlin, Germany, which holds a 48 per cent stake in PHINEO gAG.

The shares held in Index Marketing Solutions Limited, London, United Kingdom, classified as an associate and accounted for using the equity method, were divested on 9 March 2017.

With effect from 12 April 2017, the company name of Global Markets Exchange Group International LLP, London, United Kingdom, was changed to LDX International Group LLP. Effective 5 October 2017, Deutsche Börse AG divested its interest of 45.13 per cent held in LDX International Group LLP.

After all regulatory approvals were granted on 24 April 2017, Deutsche Börse AG increased its interest in Tradegate AG Wertpapierhandelsbank, Berlin, Germany, (Tradegate AG) by 4.96 percentage points. In addition, Deutsche Börse AG further increased its interest in Tradegate AG by 0.18 percentage points on 13 July 2017, improving its shareholding to 20 per cent. Tradegate AG continues to be classified as an associate, and is accounted for using the equity method. As described in note 2 in the 2016 corporate report, Deutsche Börse AG exercised a call option on shares of Tradegate AG on 21 December 2016.

	Currency	Ordinary share capital thousand	Assets thousand	Liabilities thousand	Sales revenue 2017 thousand	Net profit/loss 2017 thousand	Associate since
	€	1,400[2]	4,246[2]	-2,531[2]	4,808[2]	151[2]	2013
	€	27,000[2]	17,770[2]	1,365[2]	346[2]	-5,403[2]	2015
	€	1,000	6,093,292	6,087,385	13,278	3,156	2007
	GBP	2,607[3,4]	2,016[4]	922[4]	970[4]	493[4]	2011
	€	6,000	7,294	-1,579	2,407	8	2015
	€	50	6,344	2,656	1,001	266	2010
	US$	20,000	1,395	0	3,188	-1,537	2015
	GBP	2[6]	569[6]	745[6]	19[6]	-1,000[6]	2014
	RSD	120,000	149,261	169,124	52,615	-30,563	2015
	€	25	527	97	250	92	4 Nov 2016
	€	24,403[8]	133,575[8]	90,938[8]	53,486[8]	12,644[8]	2010
	€	50	219	74	0	-9	2013
	€	263	259	84	0	-6	2013

6) Figures as at 31 October 2017
7) As at the reporting date, the fair value of the stake in the listed company amounted to €104.9 million.
8) Figures as at 31 December 2016
9) Voting rights

Effective 25 July 2017, Deutsche Börse AG acquired 12.5 per cent of the voting shares in RegTek Solutions Inc., New York, USA. Since Deutsche Börse AG exercises significant influence within the meaning of IAS 28.6 (a) (representation on the board of directors), RegTek Solutions Inc. is classified as an associate, and is accounted for using the equity method.

Effective 7 September 2017, Bondcube Limited in Administration, London, United Kingdom, was liquidated and is thus no longer included in the basis of consolidation. The liquidation was resolved by means of a partner resolution dated 21 July 2015. Deutsche Börse AG held an interest of 30 per cent in the company.

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
- PHINEO gAG, Berlin, 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

The introduction of the key indicator "earnings before interest, tax, depreciation and amortisation (EBITDA)" in the financial year 2017 led to the following adjustments to the presentation of the consolidated income statement:

The item "depreciation, amortisation and impairment losses" was reclassified from operating costs; going forward, it will be disclosed as a separate item under "earnings before interest, tax, depreciation and amortisation (EBITDA)". Therefore, the term "operating costs" was amended to "operating costs (excluding depreciation, amortisation and impairment losses)". Disclosure for the financial year 2016 was amended accordingly, translating into a decline of operating costs for 2016 of €131.0 million. Earnings before interest, tax, depreciation and amortisation (EBITDA) for 2016 stood at€1,239.2 million; earnings before interest and tax (EBIT) was €1,108.2 million, as before. By disclosing the EBITDA key indicator in the consolidated income statement, Deutsche Börse Group is adjusting its external financial reporting to the changes made to the internal financial reporting system while at the same time seeking to improve comparability with its competitors.

Recognition of revenue and expenses

Trading, clearing and settlement fees are recognised at the trade date and billed on a monthly basis. Custody revenue and revenue for systems development and systems operation are generally recognised rateably and billed on a monthly basis. Sales of price information are billed on a monthly basis. Rebates are deducted from sales revenue.

The "volume-related costs" item comprises expenses that depend in particular on the number of certain trade or settlement transactions, on the custody volume, on the Global Securities Financing volume, or on 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 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 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 are recognised in net income from equity 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. The development costs of an asset are only capitalised if they can be reliably estimated, if all the definition criteria for an asset are met and if the future economic benefits resulting from capitalising the development costs can be demonstrated. These development costs 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 as expenses in the consolidated income statement. 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:

Phases not eligible for capitalisation

1. Design

- Definition of product design
- Specification of the expected economic benefit
- Initial cost and revenue forecast

Phases eligible for capitalisation

2. Detailed specifications

- Compilation and review of precise specifications
- Troubleshooting process

3. Building and testing

- Software programming
- Product testing

Phases not eligible for capitalisation

4. Acceptance

- Planning and implementation of acceptance tests
- Analysis to identify weak points in a functioning and 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 6 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 cost of the other intangible assets, which are almost only acquired in the course of business combinations, corresponds to the acquisition date fair value. Assets with a finite useful life are amortised using the straight-line method over their expected useful life. Assets with an indefinite useful life are tested for impairment at least once a year.

Useful life of other intangible assets classified by business combinations

	Exchange licences	Trade names	Member and customer relationships	Miscellaneous intangible assets
STOXX	–	indefinite	12 years	3 to 5 years
EEX	indefinite	indefinite	16 years	–
CGSS	–	–	20 years	8 years
360T	–	indefinite	23 years	–
Other	indefinite	5 years, indefinite	8 to 24 years	2 to 20 years

Since the exchange licences mentioned above have no time limit on their validity and, in addition, there is an intention to maintain the exchange licences disclosed as at 31 December 2017 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 have also 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 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 is lower than the carrying amount, an impairment loss is recognised and the net carrying amount of the asset is reduced to its estimated recoverable amount.

Goodwill is allocated to identifiable groups of assets (cash-generating units) or groups of cash-generating units that create synergies from the relevant acquisition. Irrespective of any indications of impairment, these items must be tested for impairment at least annually at the lowest level 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 assets

For Deutsche Börse Group, financial assets are, in particular, other equity investments, receivables and securities from banking business, other financial instruments and other loans, financial instruments held by central counterparties, receivables and other assets as well as bank balances.

Recognition of financial assets
Financial assets are recognised when a Group company becomes a party to the contractual provisions of the instrument. They are generally recognised at the trade date. Loans and receivables from banking business, available-for-sale financial assets from banking business as well as purchases and sales of equities via the central counterparties of Deutsche Börse Group are recognised at the settlement date.

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

Subsequent measurement of financial assets
Subsequent measurement of financial instruments follows the categories which are described below. As in previous years, Deutsche Börse Group did not take advantage of the option to allocate financial assets to the "held-to-maturity investments" category in the reporting period. For the first time, Deutsche Börse Group applied the option to designate financial assets at fair value through profit or loss (fair value option) for a convertible bond. The financial assets are allocated to the respective categories at initial recognition.

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

If they result from banking business, realised and unrealised gains and losses are 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 comprise in particular current and non-current receivables from banking business, called collateral from central counterparties, trade receivables as well as other current receivables. They are recognised at amortised cost, taking into account any impairment losses, if applicable. Premiums

and discounts are included in the amortised cost of the instrument concerned and are amortised using the effective interest method; they are contained in “net interest income from banking business” if they relate to banking business, or in “financial income” and “financial expense”.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand and demand deposits as well as financial assets that are readily convertible to 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.

Available-for-sale financial assets

Non-derivative financial assets are classified as “available-for-sale financial assets” if they cannot be allocated to the “loans and receivables” or “assets held for trading” categories. These assets comprise debt and equity investments recognised as “other equity investments” and “other financial instruments”, as well as debt instruments recognised as current and non-current receivables and securities from banking business.

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

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

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

If debt instruments in the banking business are hedged items in fair value hedges, the changes in fair value resulting from the hedged risk are recognised in profit or loss.

Derecognition of financial assets

Financial assets are derecognised when the contractual rights to the cash flows expire or when substantially all the risks and rewards of ownership of the financial assets are 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 are not recognised in the consolidated balance sheet.

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

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

The amount of an impairment loss for a financial asset measured at amortised cost is 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 is 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) is 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 is not permitted.

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

Financial liabilities

Financial liabilities relate primarily to interest-bearing liabilities, other liabilities, liabilities from banking business, financial instruments held by central counterparties, cash deposits by market participants as well as trade payables. They are recognised when a Group company becomes a party to the instrument. They are generally recognised at the trade date. Purchases and sales of equities via the central counterparty Eurex Clearing AG are recognised at the settlement date.

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 not measured at fair value through profit or loss
Financial liabilities not held for trading are carried at amortised cost. These liabilities comprise issued bonds. 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 hedges

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

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

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

Derivatives that are not part of a hedging relationship
Gains or losses on derivative instruments that are not part of a highly effective hedging relationship are 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:

- 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.
- Eurex Clearing AG guarantees the settlement of all transactions involving futures and options on the Eurex exchanges (Eurex Deutschland and Eurex Zürich AG). 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 Repo, the Frankfurt Stock Exchange and the Irish Stock Exchange. In the reporting year, it also guaranteed the settlement of all transactions for Eurex Bonds (bond trading platform) including off-order-book trades entered for clearing. In addition, Eurex Clearing AG clears over-the-counter (OTC) interest rate derivatives and securities lending transactions, where these meet the specified novation criteria.

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

In accordance with IAS 39, 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 derivatives), 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. In accordance with IAS 39, futures and OTC interest rate derivatives are therefore not reported in the consolidated balance sheet. For future-style options, the option premium is not required to be paid in full until the end of the term or upon exercise. Option premiums are carried in the consolidated balance sheet as receivables and liabilities at their fair value on the trade date.

“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. Fixed-income bond forwards are recognised as derivatives and carried at fair value until the settlement date. Receivables and liabilities from repo transactions and from cash-collateralised securities lending transactions are classified as held for trading and carried at fair value. Receivables and liabilities from variation margins and cash collateral that is determined on the reporting date and only paid on the following day are carried at their nominal amount.

“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 clearing 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).

Other current assets

Receivables and other assets are carried at their nominal amount. Adequate valuation allowances take account of identifiable risks.

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 adjusted 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 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 will 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, Standard & Poor's, 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, on principal, based on a discount rate of 1.80 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 that plan or by announcing its main features to those affected by it.

Contingent liabilities are not recognised, but are 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 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 2017 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 39). 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.

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. 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 expense 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 net profit for the period attributable to shareholders of the parent company 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 2017	Average rate 2016	Closing price as at 31 Dec 2017	Closing price as at 31 Dec 2016
Swiss francs	CHF	1.1155	1.0904	1.1680	1.0732
US dollars	USD (US$)	1.1360	1.1029	1.1969	1.0522
Czech koruna	CZK	26.2997	27.0426	25.5683	27.0198
Singapore dollar	SGD	1.5605	1.5247	1.5990	1.5222
British pound	GBP (£)	0.8750	0.8223	0.8860	0.8561

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.

Key sources of estimation uncertainty and management 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 certain 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
Deutsche Börse Group tests goodwill as well as intangible assets with indefinite useful lives for impairment and intangible assets not yet available for use 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 time horizon of normally three to five years. These plans in turn contain projections of the future financial performance of the assets and cash-generating units. If their actual financial performance fails to meet these expectations, corresponding adjustments may be necessary. For further information on the effects of changes in the discount rate and further assumptions, please see note 11.

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 22.

Income taxes
Deutsche Börse Group is subject to the tax laws of those countries in which it operates and generates income. Considerable management judgement 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. Management judgement includes the determination whether there is a possible obligation from past events, the evaluation of the probability that an outflow will occur and the estimation of the potential amount. As the outcome of litigation is usually uncertain, the judgement is reviewed continuously. For further information on other risks please see note 37.

Share-based payment
Note 39 contains disclosures on the valuation model used for the stock options. Where the estimates of the valuation parameters originally applied differ from the actual values available when the options are exercised, adjustments are necessary; such adjustments are recognised in the consolidated income statement for the period if they relate to cash-settled share-based payment transactions.

Provisions
The probability of utilisation applied when recognising provisions for expected losses from rental agreements is estimated (see note 24). When recognising personnel-related restructuring provisions, certain assumptions were made, for example with regard to the fluctuation rate, the discount rate and salary trends. If the actual values were to deviate from these assumptions, adjustments may be necessary.

Consolidated income statement disclosures

4. Net revenue

Composition of net revenue[1)]

	Sales revenue		Net interest income from banking business	
	2017 €m	(restated) 2016 €m	2017 €m	2016 €m
Eurex				
Equity index derivatives	432.9	478.1	0	0
Interest rate derivatives	209.7	190.8	0	0
Equity derivatives	41.9	41.4	0	0
Commodities (EEX)	230.0	237.1	1.1	-0.1
Foreign exchange (360T)	61.9	64.1	0	0
Repurchase agreements	18.0	21.8	0	0
Other assets	25.1	19.5	25.2	21.5
	1,019.5	**1,052.8**	**26.3**	**21.4**
Xetra				
Trading	120.9	113.0	0	0
Central counterparty for equities	38.2	38.4	0	0
Listing	15.5	13.0	0	0
Partner Markets	23.2	22.4	0	0
	197.8	**186.8**	**0**	**0**
Clearstream				
International business (ICSD)	585.5	571.8	106.3	62.6
Domestic business (CSD)	165.8	127.9	0	0
Investment Funds Services	145.0	128.6	0	0
Global Securities Financing	133.1	113.0	0	0
	1,029.4	**941.3**	**106.3**	**62.6**
Market Data + Services				
Data Services	178.3	184.0	0	0
Index	141.3	127.2	0	0
Infrastructure Services	115.4	113.5	0	0
	435.0	**424.7**	**0**	**0**
Total	**2,681.7**	**2,605.6**	**132.6**	**84.0**
Consolidation of internal net revenue	**-43.2**	**-48.3**	**0**	**0**
Group	**2,638.5**	**2,557.3**	**132.6**	**84.0**

1) Deutsche Börse Group made adjustments to the allocation of revenue items to its different segments. See also note 35.

	Other operating income		Volume-related costs		Net revenue	
	2017 €m	(restated) 2016 €m	2017 €m	(restated) 2016 €m	2017 €m	(restated) 2016 €m
	0	0.1	-41.9	-37.4	391.0	440.8
	0	0	-1.2	-1.1	208.5	189.7
	0	0	-5.2	-3.5	36.7	37.9
	0.5	2.9	-19.4	-21.1	212.2	218.8
	5.1	0.5	-0.5	-0.4	66.5	64.2
	0	0	0	0	18.0	21.8
	23.9	23.4	-5.0	-2.3	69.2	62.1
	29.5	**26.9**	**-73.2**	**-65.8**	**1,002.1**	**1,035.3**
	5.6	5.8	-15.9	-14.7	110.6	104.1
	0	0	-3.1	-6.6	35.1	31.8
	0.4	0.2	-0.5	0	15.4	13.2
	0.7	0.6	-8.5	-7.5	15.4	15.5
	6.7	**6.6**	**-28.0**	**-28.8**	**176.5**	**164.6**
	7.2	3.2	-152.9	-152.7	546.1	484.9
	0.1	0	-44.3	-12.7	121.6	115.2
	0.1	0	-7.5	-4.3	137.6	124.3
	0	0	-51.5	-40.0	81.6	73.0
	7.4	**3.2**	**-256.2**	**-209.7**	**886.9**	**797.4**
	1.0	6.3	-25.7	-28.1	153.6	162.2
	0.3	1.5	-13.9	-13.7	127.7	115.0
	0.1	1.2	0	-0.5	115.5	114.2
	1.4	**9.0**	**-39.6**	**-42.3**	**396.8**	**391.4**
	45.0	**45.7**	**-397.0**	**-346.6**	**2,462.3**	**2,388.7**
	-13.6	-13.1	56.8	61.4	0	0
	31.4	32.6	-340.2	-285.2	2,462.3	2,388.7

Composition of net interest income from banking business

	2017 €m	2016 €m
Interest income from positive interest rate environment	**129.1**	**75.1**
Loans and receivables	82.1	44.5
Available-for-sale financial assets	8.6	4.5
Financial assets or liabilities measured at fair value through profit or loss	38.4	26.1
Interest expenses from positive interest rate environment	**-36.1**	**-21.4**
Financial liabilities	-31.5	-19.7
Financial assets or liabilities measured at fair value through profit or loss	-4.6	-1.7
Interest income from negative interest rate environment	**224.8**	**191.9**
Loans and receivables	217.2	185.4
Available-for-sale financial assets	0	0
Financial assets or liabilities measured at fair value through profit or loss	7.6	6.5
Interest expenses from negative interest rate environment	**-185.2**	**-161.6**
Financial liabilities	**-182.9**	**-160.2**
Financial assets or liabilities measured at fair value through profit or loss	-2.3	-1.4
Total	**132.6**	**84.0**

Composition of other operating income

	2017 €m	(restated) 2016 €m
Income from exchange rate differences	2.6	6.4
Income from agency agreements	1.7	0.6
Income from impaired receivables	1.2	1.3
Rental income from subleases	0.8	0.8
Miscellaneous	25.1	23.5
Total	**31.4**	**32.6**

For details of rental income from subleases see note 38.

Miscellaneous other operating income includes income from cooperation agreements and from training as well as valuation adjustments.

Volume-related costs comprise partial or advance services that Deutsche Börse Group purchases from third parties, and which it markets as part of its own value chain. They indirectly depend on the development of volume trends and sales revenue.

5. Staff costs

Composition of staff costs

	2017 €m	2016 €m
Wages and salaries	528.0	486.2
Social security contributions, retirement and other benefits	110.3	99.5
Total	**638.3**	**585.7**

Staff costs include costs of €26.4 million (2016: €12.7 million) recognised in connection with efficiency programmes as well as costs of €3.1 million (2016: nil) for Nodal Exchange Holdings, LLC, Tysons Corner, Virginia, USA (Nodal Exchange) (which has been consolidated since 3 May 2017). The remaining increase is due to a rise in the number of employees (see also note 43), changes made to the remuneration of the Executive Board and higher pay-out of bonuses in financial year 2016.

6. Other operating expenses

Composition of other operating expenses

	2017 €m	2016 €m
Costs for IT service providers and other consulting services	162.5	264.9
IT costs	108.3	102.2
Premises expenses	75.6	70.3
Non-recoverable input tax	47.1	52.2
Travel, entertainment and corporate hospitality expenses	23.4	26.5
Advertising and marketing costs	19.8	15.8
Non-wage labour costs and voluntary social benefits	16.3	14.5
Insurance premiums, contributions and fees	13.0	13.9
Cost of exchange rate differences	4.3	4.1
Supervisory Board remuneration	4.2	2.6
Cost of agency agreements	0.5	3.4
Miscellaneous	18.3	30.3
Total	**493.3**	**600.7**

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.

Composition of fees paid to the auditor

	2017		2016	
	Total €m	Germany €m	Total €m	Germany €m
Statutory audit services	4.0[1)]	2.3	3.0	2.0
Other assurance or valuation services	0.7[2)]	0.6	1.8	1.8
Tax advisory services	0.9	0.2	0.9	0.3
Other services	0.1	0	0.2	0
Total	**5.7**	**3.1**	**5.9**	**4.1**

1) Thereof €0.3 million for 2016
2) 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 M&A activities and 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 trainings 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

	Total expense for software development		of which capitalised	
	2017 €m	(restated) 2016 €m	2017 €m	(restated) 2016 €m
Eurex				
T7 trading platform for derivatives	5.6	6.5	4.2	3.6
Eurex Clearing Prisma	0	7.2	0	2.1
EEX software[1)]	19.2	13.4	6.8	7.1
EurexOTC Clear	10.0	16.3	6.6	8.3
360T	9.7	8.8	4.9	2.5
Other Eurex software	13.0	9.9	4.0	5.4
	57.5	**62.1**	**26.5**	**29.0**
Xetra				
T7 trading platform for the cash market	5.1	7.2	2.6	3.9
CCP releases	1.8	1.9	0	0
Other Xetra software	6.3	9.9	1.3	4.0
	13.2	**19.0**	**3.9**	**7.9**
Clearstream				
Collateral management and settlement	27.7	34.0	20.2	20.5
Custody	20.8	21.7	18.6	15.1
Connectivity	3.9	15.7	2.2	8.1
Investment funds	3.3	2.8	2.7	2.1
GSF	3.1	1.6	2.6	1.0
	58.8	75.8	46.3	46.8
Market Data + Services[1)]	**23.1**	**13.2**	**10.5**	**4.7**
Research expense	**1.8**	**0.9**	**0**	**0**
Total	**154.4**	**171.0**	**87.2**	**88.4**

1) Deutsche Börse Group made adjustments to the allocation of revenue items to its different segments. See also note 35.

8. Net income from equity investments

Composition of net income from equity investments

	2017 €m	2016 €m
Equity method-accounted result of associates and joint ventures		
BrainTrade Gesellschaft für Börsensysteme mbH	0	-0.4
China Europe International Exchange AG	-2.5	-1.3
Deutsche Börse Commodities GmbH	0.7	0.3
LDX International Group LLP[1)]	0	-6.0
LuxCSD S.A.	0	0.2
R5FX Ltd	-1.1	-1.1
RegTek Solutions Inc.	-0.2	n.a.
Switex GmbH	0.1	n.a.
Tradegate AG Wertpapierhandelsbank	4.6	1.8
Other	0	-0.1
Total income from equity method measurement[2)]	**1.6**	**-6.6**
Net income from other equity investments	**196.2**	**43.5**
Net income from equity investments	**197.8**	**36.9**

1) Until 11 April 2017: Global Markets Exchange Group International, LLP
2) Including impairment losses

Net income from associates includes an impairment loss amounting to €1.1 million attributable to the investment in R5FX Ltd (2016: €6.7 million attributable to the investments in LDX International Group LLP and R5FX Ltd). The negative development of the investment was due in particular to unsatisfactory economic development in the 2017 financial year and the correspondingly deteriorating economic outlook expected by the Group company. The recoverable amount was determined on the basis of fair value less costs of disposal. It was calculated using a discounted cash flow model (level 3 inputs). The impairment loss was recognised in the result from associates and is allocated to the Eurex segment.

Net income from other investments includes in particular €117.0 million due to the disposal of the remaining stake in BATS Global Markets, Inc. in the first quarter of 2017 and €73.6 million due to the disposal of another equity investment in the fourth quarter of 2017.

During the year under review, the company received dividends of €2.8 million (2016: €1.7 million) from investments in associates, and €6.0 million (2016: €5.1 million) from other investments.

9. Financial result

Composition of financial income

	2017 €m	2016 €m
Interest income on tax refunds	3.1	0.5
Income from valuation of derivatives classified as “held for trading”	2.0	0.1
Other interest income on receivables classified as “loans and receivables”	0.5	0.4
Interest income on bank balances classified as “loans and receivables”	0.4	0.6
Income from available-for-sale securities	0.4	0.3
Other interest income and similar income	0.2	2.6
Interest income on non-current loans classified as “loans and receivables”	0	0.1
Total	**6.6**	**4.6**

Composition of financial expense

	2017 €m	2016 €m
Interest expense on non-current loans[1)]	47.5	56.3
Interest expense on taxes	21.2	11.9
Other interest expense[1)]	5.3	0.3
Interest expense from negative interest[1)]	3.6	1.6
Transaction costs of non-current liabilities[1)]	3.1	2.8
Interest-equivalent expenses for derivatives held as hedging instruments[1)]	2.8	2.8
Expenses from the unwinding of the discount on pension provisions	2.7	2.9
Interest expense on current liabilities[1)]	0.1	0.6
Total	**86.3**	**79.2**

1) Measured at amortised cost

10. Income tax expense

Composition of income tax expense (main components)

	2017 €m	2016 €m
Current income taxes:		
for the current year	376.2	293.2
for previous years	35.8	0.4
Deferred tax income	-20.6	-9.1
Total	**391.4**	**284.5**

Total “current income taxes” in the amount of €412.0 million include tax expenses of €376.2 million for the current year and of €35.8 million for previous years (2016: €293.2 million for the current year; €0.4 million for previous years). These include domestic tax expenses of €213.8 million and foreign tax expenses of €198.2 million (2016: domestic tax expenses €151.9 million, foreign tax expenses €141.7 million). Total “deferred tax income” in the amount of €–20.6 million includes domestic tax income of €–51.4 million and foreign tax expenses of €30.8 million (2016: domestic tax expenses €10.4 million, foreign tax income €–19.5 million).

During the year under review, current income taxes decreased by €0.1 million (2016: €1.1 million) due to the use of tax loss carryforwards for which no deferred tax assets had been recognised.

Tax rates of 27.4 to 31.9 per cent (2016: 27.4 to 31.9 per cent) were used in the reporting period to calculate taxes for the German companies. These reflect trade income tax at multipliers of 330 to 460 per cent (2016: 330 to 460 per cent) on the trade tax base amount of 3.5 per cent (2016: 3.5 per cent), corporation tax of 15 per cent (2016: 15 per cent) and the 5.5 per cent solidarity surcharge (2016: 5.5 per cent) on corporation tax.

A tax rate of 27.1 per cent (2016: 29.2 per cent) was used for the Luxembourg companies, reflecting trade income tax at a rate of 6.7 per cent (2016: 6.7 per cent) and corporation tax at 20.4 per cent (2016: 22.5 per cent).

Tax rates of 12.5 to 46.0 per cent (2016: 12.5 to 40.0 per cent) were applied to the companies in the remaining countries; see note 2.

The following table shows the carrying amounts of deferred tax assets and liabilities as well as the related tax expense or tax income recognised in profit or loss and changes recognised in other comprehensive income.

Composition of deferred taxes

	Deferred tax assets		Deferred tax liabilities		Exchange rate differences	Deferred tax expense/(income)		Changes in deferred tax assets/liabilities recognised in other comprehensive income	
	2017 €m	2016 €m	2017 €m	2016 €m	2017 €m	2017 €m	2016 €m	2017 €m	2016 €m
Provisions for pensions and other employee benefits	61.4	60.9	-0.3	0	0	-8.6	-1.1	8.4[1]	-3.0
Other provisions	6.8	5.8	-0.7	0	0	-0.3	1.9	0	18.0
Interest-bearing liabilities	0	0	-1.4	-1.8	0	-0.4	10.9	0	0
Intangible assets	40.4	0	-33.7	-34.6	0	-41.3	1.3	0	-5.0
Intangible assets from purchase price allocation	0	0	-189.7[2]	-197.8	0.4	-17.1	-4.7	0	-192.4
Non-current assets	8.6	9.7	-7.4	0	0	8.5	-2.7	0	1.8
Investment securities	0	0	-15.8	-20.8	2.6	35.1	-42.2	-42.7[1]	24.0
Other non-current assets	0.1	3.5	0	0	0	2.6	-2.5	0.8[1]	0.7
Other liabilities	0.9	1.7	0	0	0	0.8	0	0	0
Tax loss carryforwards	1.2	1.3	0	0	0	0.1	30.0	0	56.2
Exchange rate differences	3.9	0	0	-1.1	0	0	0	-5.0	-148.4
Gross amounts	**123.3**	**82.9**	**-249.0**	**-256.1**	**3.0**	**-20.6**	**-9.1**	**-38.5**	**-248.1**
Deferred taxes set off	-22.2	-20.4	22.2	20.4	0	0	0	0	0
Total	**101.1**	**62.5**	**-226.8**	**-235.7**	**3.0**	**-20.6**	**-9.1**	**-38.5**	**-248.1**

1) Disclosed separately in the consolidated statement of changes in equity under "revaluation surplus"
2) Thereof, €–9.0 million due to the initial consolidation of Nodal Exchange Holdings, LLC, Tysons Corner, Virgina, USA, (Nodal Exchange) and €0.4 million from related foreign currency translation effects recognised in other comprehensive income

Deferred tax liabilities have not been recognised in respect of the tax on future dividends that may be paid from retained earnings by subsidiaries and associated companies. In accordance with section 8b (5) of the Körperschaftsteuergesetz (KStG, the German Corporation Tax Act), 5 per cent of dividends and similar income received by German companies is treated as non-deductible expenses for tax purposes. 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 (2016: nil).

Reconciliation from expected to reported tax expense

	2017 €m	2016 €m
Expected income taxes derived from earnings before tax	348.0	279.1
Tax losses utilised and loss carryforwards not recognised for tax purposes	1.6	-0.7
Recognition of deferred taxes in respect of unrecognised tax loss carryforwards	0	-0.7
Change in valuation allowance for deferred tax assets	-0.5	-4.0
Tax increases due to other non-tax-deductible expenses	13.7	13.6
Effects of different tax rates	17.2	12.9
Effects from changes in tax rates	-2.7	0.1
Tax decreases due to dividends and income from the disposal of equity investments	-7.7	-15.9
Effects from intra-Group restructuring	-21.2	0
Other	6.8	-0.3
Income tax expense arising from current year	**355.2**	**284.1**
Income taxes for previous years	36.2	0.4
Income tax expense	**391.4**	**284.5**

To determine the expected tax expense, earnings before tax have been multiplied by the composite tax rate of 27 per cent assumed for 2017 (2016: 27 per cent).

As at 31 December 2017, the reported tax rate was 30.4 per cent (2016: 27.5 per cent). The impact on the tax rate resulted primarily from tax payments made for previous years, given that the tax deductibility of penalty payments will probably be refused. Furthermore, a US-based subsidiary generated income from the disposal of equity investments, subject to a tax rate of 40 per cent. Moreover, an intra-Group restructuring process also had a considerable impact on the reported tax rate.

At the end of the reporting period, accumulated unused tax losses amounted to €33.7 million (2016: €21.3 million), for which no deferred tax assets were recognised. The unused tax losses are attributable to domestic losses totalling €0.9 million and to foreign tax losses totalling €32.8 million (2016: domestic tax losses €2.6 million, foreign tax losses €18.7 million).

The losses can be carried forward indefinitely in Germany subject to the minimum taxation rules. Effective from 1 April 2017, legislative amendments in the UK introduced an additional limitation on the amount of tax loss carryforwards that can be offset against future profits. However, tax losses can still be carried forward indefinitely. 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 1 January 2018 may be carried forward indefinitely, taking into account minimum taxation rules. In all other countries, losses can be carried forward indefinitely.

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 2016	**245.3**	**792.9**	**2,909.5**	**152.0**	**2,715.3**	**6,815.0**
Acquisitions from business combinations[2]	0	0	3.3	0	4.3	7.6
Disposals from change in the basis of consolidation[3]	-0.2	-2.5	-16.7	0	-0.2	-19.6
Reclassification into “assets held for sale”[4]	-5.5	-46.7	-153.8	-5.8	-1,741.2	-1,953.0
Additions	14.9	11.7	0	78.2	0.1	104.9
Disposals	0	-3.6	-0.1	-1.7	0	-5.4
Reclassifications	6.2	31.9	0	-38.2	0.1	0
Exchange rate differences	-0.1	-1.3	-21.1	-0.2	-46.9	-69.6
Historical cost as at 31 Dec 2016	**260.6**	**782.4**	**2,721.1**	**184.3**	**931.5**	**4,879.9**
Acquisitions through business combinations[5]	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**

1) Additions to payments on account and construction in progress in the year under review relate exclusively to internally developed software.
2) This relates primarily to additions within the scope of the initial consolidation of Power Exchange Central Europe a.s., Gaspoint Nordic A/S and PEGAS CEGH Gas Exchange Services GmbH; see also note 2 in the 2016 corporate report.
3) This relates to disposals made within the scope of the sale of shares held in Infobolsa S.A; see also note 2 in the 2016 corporate report.
4) This relates exclusively to disposals made within the scope of the sale of shares held in U.S. Exchange Holdings, Inc., as well as an asset deal regarding the disposal of the business operations of Market News International, Inc. and its two subsidiaries; see also note 2 in the 2016 corporate report.
5) This relates primarily to additions within the scope of initial consolidation of Nodal Exchange group, 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 2017	277.9	965.9	2,770.9	90.0	1,009.6	5,114.3
Amortisation and impairment losses as at 1 Jan 2016	**211.5**	**599.7**	**10.7**	**1.6**	**1,359.0**	**2,182.5**
Amortisation	17.5	49.7	0	0.8	27.8	95.8
Impairment losses	0	3.6	0	0.3	0.3	4.2
Disposals from change in the basis of consolidation[3]	-0.2	-2.5	-10.7	0	-0.1	-13.5
Reclassification into "assets held for sale"[4]	-5.0	-38.3	0	0	-1,281.0	-1,324.3
Disposals	0	-1.2	0	0	0	-1.2
Reclassifications	1.4	-1.4	0	0	0	0
Exchange rate differences	-0.1	-1.1	0	0	-34.4	-35.6
Amortisation and impairment losses as at 31 Dec 2016	**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
Reclassifications	0	0	0	0	0	0
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**
Carrying amount as at 31 Dec 2016	35.5	173.9	2,721.1	181.6	859.9	3,972.0
Carrying amount as at 31 Dec 2017	**36.6**	**285.5**	**2,770.9**	**86.8**	**911.2**	**4,091.0**

Software, payments on account and construction in progress

Additions to and reclassifications of software largely concern the development of a pan-European securities settlement platform (TARGET2-Securities) within the Clearstream and Xetra segments as well as the development of the 1CAS Custody & Portal securities settlement platform within the Clearstream segment.

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

	Carrying amount as at		Remaining amortisation period as at	
	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 years	31 Dec 2016 years
Eurex				
T7 trading platform for derivatives	23.1	26.8	1.9–4.9	2.9–5.9
Eurex Clearing Prisma Release 1.0	18.4	23.2	2.3–3.5	4.0–5.0
C7 Release 3.0	13.0	14.3	5.4	6.4
360T trading platform	12.4	14.5	2.8–5.8	5.0–7.0
Eurex Clearing Prisma Release 2.0	8.2	9.9	3.4–3.9	5.0–6.0
Clearstream				
TARGET2-Securities	79.7	89.0	6.1	n.a.
1CAS Custody & Portal	39.4	24.7	n.a.	n.a.
MALMO	14.6	17.8	3.9	4.9
One CLS Settlement & Reporting (1 CSR)	10.6	11.6	6.1	n.a.
Single Network	8.8	10.1	6.1	n.a.
Market Data + Services				
Regulatory Reporting Hub	13.7	3.2	n.a.	n.a.
Xetra				
TARGET2-Securities	8.5	10.0	4.1	n.a.
T7 trading platform for the cash market	5.8	3.7	6.5	n.a.

In addition to event-driven impairment tests on all intangible assets, intangible assets not yet available for use are tested for impairment at least annually. Impairment losses of €1.3 million (2016: €3.9 million) needed to be recognised in 2017. It is disclosed in the “depreciation, amortisation and impairment losses” item and relates to the Clearstream and Eurex segments. The recoverable amount was determined based on fair value less costs of disposal, using a discounted cash flow model (level 3 inputs).

Goodwill and other intangible assets from business combinations

Changes in goodwill and other intangible assets classified by business combinations

	Clearstream €m	ISE €m	360T €m	Nodal €m	EEX €m	STOXX €m	Miscella-neous €m	Total €m
Goodwill								
Balance as at 1 Jan 2017	1.063,8	987.4	529.0	0	33.3	32.6	75.0	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	0	0	-1.7	-6.7
Balance as at 31 Dec 2017	**1.063,8**	**987.4**	**529.0**	**51.5**	**33.3**	**32.6**	**73.3**	**2,770.9**
Other intangible assets								
Balance as at 1 Jan 2017	**0**	**0**	**240.0**	**0**	**62.5**	**435.4**	**122.0**	**859.9**
Acquisitions through business combinations	0	0	0	84.4	0	0	0	84.4
Additions	0	0	0	0	0	0	1.2	1.2
Amortisation	0	0	-10.1	-1.4	-4.7	-3.1	-7.5	-26.8
Exchange rate differences	0	0	0	-7.5	0	0	0	-7.5
Balance as at 31 Dec 2017	**0**	**0**	**229.9**	**75.5**	**57.8**	**432.3**	**115.7**	**911.2**

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**

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 cash-generating unit (CGU), or group of CGUs, that the respective asset is allocated to. The following table outlines the allocation of assets to the respective CGU:

Allocation of goodwill and other intangible assets with indefinite useful lives to CGUs

Asset	(Group of) cash generating unit(s)			
	Clearstream Core €m	Eurex Core €m	360T €m	Nodal €m
Goodwill				
Clearstream	1,063.8	0	0	0
International Securities Exchange	0	987.4	0	0
360T group	47.3	292.5	189.2	0
Nodal Exchange group	0	0	0	0
European Energy Exchange	0	0	0	0
STOXX	0	0	0	0
Powernext/EPEX SPOT group	0	0	0	0
Clearstream Global Securities Services	0	0	0	0
Impendium	0	0	0	0
Market News International	0	0	0	0
APX Holding group	0	0	0	0
Börse Frankfurt Zertifikate	0	0	0	0
Clearstream Fund Services	0	0	0	0
Need to Know News	0	0	0	0
Power Exchange Central Europe	0	0	0	0
PEGAS CEGH Gas Exchange Services	0	0	0	0
Kingsbury	0	0	0	0
Indexium	0	0	0	0
Gaspoint Nordic	0	0	0	0
Exchange licences				
Nodal Exchange group	0	0	0	22.3
European Energy Exchange	0	0	0	0
Börse Frankfurt Zertifikate	0	0	0	0
Powernext/EPEX SPOT group	0	0	0	0
APX Holding group	0	0	0	0
Trade names				
STOXX	0	0	0	0
360T group	0	0	19.9	0
Powernext/EPEX SPOT group	0	0	0	0
European Energy Exchange	0	0	0	0
Nodal Exchange group	0	0	0	4.5
Power Exchange Central Europe	0	0	0	0
PEGAS CEGH Gas Exchange Services	0	0	0	0

The recoverable amounts of the CGUs with allocated goodwill are based either on their values in use or on their fair value less costs of disposal, depending on the respective unit. The other value is calculated only in cases in which one of these values (value in use or fair value less costs of disposal) does not exceed the carrying amount. Since there is no active market for the CGUs, the discounted cash flow method is used to calculate both value in use and fair value less costs of disposal. The inputs used are level 3 inputs in all cases.

	(Group) of cash generating unit(s)					
	EEX €m	MD+S segment €m	Fund Services €m	Börse Frankfurt Zertifikate €m	STOXX €m	Total €m
	0	0	0	0	0	1,063.8
	0	0	0	0	0	987.4
	0	0	0	0	0	529.0
	51.5	0	0	0	0	51.5
	33.3	0	0	0	0	33.3
	0	32.6	0	0	0	32.6
	18.4	0	0	0	0	18.4
	0	0	15.6	0	0	15.6
	0	9.0	0	0	0	9.0
	0	7.9	0	0	0	7.9
	6.6	0	0	0	0	6.6
	0	0	0	4.6	0	4.6
	0	0	4.0	0	0	4.0
	0	3.2	0	0	0	3.2
	1.7	0	0	0	0	1.7
	1.5	0	0	0	0	1.5
	0	0.5	0	0	0	0.5
	0	0.2	0	0	0	0.2
	0.1	0	0	0	0	0.1
	0	0	0	0	0	22.3
	0.3	0	0	0	0	0.3
	0	0	0	0.2	0	0.2
	0.1	0	0	0	0	0.1
	0.1	0	0	0	0	0.1
	0	0	0	0	420.0	420.0
	0	0	0	0	0	19.9
	7.2	0	0	0	0	7.2
	5.8	0	0	0	0	5.8
	0	0	0	0	0	4.5
	0.3	0	0	0	0	0.3
	0.1	0	0	0	0	0.1

Key assumptions used to determine the recoverable amount depend upon the respective CGU, or group of CGUs. Individual costs of capital are determined for each CGU, or group of CGUs, 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 equity index levels, volatility of equity indices, as well as interest rates, exchange rates, GDP growth, unemployment levels and government debt. When calculating value in use, the projections are adjusted for the effects of future restructurings and cash outflows to enhance the asset's performance investments, if appropriate.

The following tables indicate material assumptions used for impairment tests for the years 2017 and 2016:

Key assumptions used for impairment tests in 2017

(Group of) cash-generating unit(s)	Recoverable amount	Risk-free interest rate %	Market risk premium %	Discount rate %	Perpetuity growth rate %	CAGR[1] Net revenue %	CAGR[1] Operating costs[2] %
Clearstream Core	value in use	0.9	6.5	11.6[3]	1.0	8.6	2.7
Eurex Core	fair value less costs of disposal	0.9	6.5	8.6[4]	1.0	7.1	2.9
360T	fair value less costs of disposal	0.9	6.5	8.2[4]	2.5	16.4	11.9
Nodal	fair value less costs of disposal	2.6	6.5	8.8	2.0	15.5	8.7
EEX	fair value less costs of disposal	0.9	6.5	9.1[4]	1.5	1.7	4.7
MD+S segment	fair value less costs of disposal	1.0	6.5	8.5[4]	2.0	6.1	4.1
Fund Services	fair value less costs of disposal	0.9	6.5	13.1[4]	2.0	1.4	1.4
Börse Frankfurt Zertifikate	fair value less costs of disposal	1.0	6.5	12.2[4]	2.0	1.4	1.6
STOXX	fair value less costs of disposal	0.9	6.5	9.8[4]	2.0	7.5	6.4

1) CAGR = compound annual growth rate
2) Without depreciation, amortisation and impairment losses
3) Before tax
4) After tax

Key assumptions used for impairment tests in 2016

(Group of) cash-generating unit(s)	Recoverable amount	Risk-free interest rate %	Market risk premium %	Discount rate %	Perpetuity growth rate %	CAGR[1] Net revenue %	CAGR[1] Operating costs[2] %
Clearstream Core	value in use	0.7	6.5	10.4[3]	1.0	3.5	3.2
Eurex Core	fair value less costs of disposal	0.7	6.5	8.5[4]	1.0	7.2	6.6
360T	fair value less costs of disposal	0.7	6.5	8.3[4]	2.5	10.3	1.6
EEX	fair value less costs of disposal	0.7	6.5	9.0[4]	1.0	1.3	4.3
MD+S segment	fair value less costs of disposal	0.2	6.5	7.7[4]	2.0	2.9	0.4
Fund Services	fair value less costs of disposal	0.7	6.5	12.3[4]	2.0	6.3	5.7
Börse Frankfurt Zertifikate	fair value less costs of disposal	0.2	6.5	11.5[4]	2.0	3.0	2.2
STOXX	fair value less costs of disposal	0.2	6.5	8.9[4]	2.0	6.8	5.5

1) CAGR = compound annual growth rate
2) Without depreciation, amortisation and impairment losses
3) Before tax
4) After tax

Even in case of a reasonably possible change of the parameters, none of the above-mentioned CGUs, or 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 2016	**90.6**	**350.0**	**0.7**	**441.3**
Disposals from change in the basis of consolidation	0	-2.0	0	-2.0
Reclassification into "assets held for sale"[1)]	-11.5	-25.2	0	-36.7
Additions	4.6	40.9	4.2	49.7
Disposals	-5.0	-5.6	-0.7	-11.3
Reclassifications	1.7	0.4	-2.0	0.1
Exchange rate differences	-0.8	-0.7	0	-1.5
Historical costs as at 31 Dec 2016	**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**
Depreciation and impairment losses as at 1 Jan 2016	**50.3**	**281.3**	**0**	**331.6**
Depreciation	6.6	29.4	0	36.0
Impairment losses	0.4	0	0	0.4
Disposals from change in the basis of consolidation	0	-1.8	0	-1.8
Reclassification into "assets held for sale"[1)]	-8.4	-20.6	0	-29.0
Disposals	-4.6	-5.4	0	-10.0
Reclassifications	-0.1	0	0	-0.1
Exchange rate differences	-0.5	-0.5	0	-1.0
Depreciation and impairment losses as at 31 Dec 2016	**43.7**	**282.4**	**0**	**326.1**
Depreciation	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**
Carrying amount as at 31 Dec 2016	35.9	75.4	2.2	113.5
Carrying amount as at 31 Dec 2017	**34.8**	**76.4**	**2.2**	**113.4**

1) This relates exclusively to the disposals in connection with the disposal of the interest in the International Securities Exchange (ISE) subgroup and with the asset deal regarding the sale of the business operations of Assam SellerCo, Inc. and its two subsidiaries.

13. Financial investments

Financial assets

	Investments in associates and joint ventures €m	Other equity investments €m	Receivables and securities from banking business €m	Other financial instruments and loans €m
Historical cost as at 1 Jan 2016	**55.1**	**229.4**	**2,016.3**	**34.0**
Acquisition through business combinations	-0.6	0	0	0
Reclassification into “assets held for sale”	0	-32.3	0	-8.1
Additions	5.1	5.4	155.6	12.8
Disposals	-0.4	-40.2	0	-6.1
Addition/(reversal) premium/discount	0	0	-2.2	-0.1
Reclassifications	-1.0	0	-586.8[1]	1.0
Exchange rate differences	-0.2	3.4	14.7	-0.9
Historical cost as at 31 Dec 2016	**58.0**	**165.7**	**1,597.6**	**32.6**
Additions	10.4	127.9	292.9	5.0
Disposals	-8.4	-197.0	0	-3.0
Addition/(reversal) premium/discount	0	0	-1.7	-0.1
Reclassifications	-5.0	5.0	-257.3[1]	0
Exchange rate differences	0	-2.4	-76.7	-0.3
Historical cost as at 31 Dec 2017	**55.0**	**99.2**	**1,554.8**	**34.2**
Revaluation as at 1 Jan 2016	**-16.6**	**-10.0**	**2.3**	**-1.5**
Reclassification into “assets held for sale”	0	-0.8	0	0.2
Disposals of impairment losses	0	0	0	-5.0
Dividends	-1.8	0	0	0
Net income from equity method measurement	0.4	0	0	0
Currency translation differences recognised in equity	-0.4	5.3	0	0
Currency translation differences recognised in profit or loss	0.3	0	-0.1	0.5
Other fair value changes recognised in equity	1.1	1.0	0	0
Other fair value changes recognised in profit or loss	0	-40.9	0	0
Market price changes recognised in other comprehensive income	0	135.1	6.2	0
Market price changes recognised in profit or loss	-6.7	0	0	-0.4
Reclassifications	0	0	-1.2[1]	0
Revaluation as at 31 Dec 2016	**-23.7**	**89.7**	**7.2**	**-6.2**
Disposals of impairment losses	8.4	0	0	2.5
Dividends	-2.9	0	0	0
Net income from equity method measurement	2.8	0	0	0
Currency translation differences recognised in profit or loss	0.1	0.5	0.2	0.2
Other fair value changes recognised in equity	0	73.2	0	0
Other fair value changes recognised in profit or loss	-1.0	-191.9	0	0
Market price changes recognised in other comprehensive income	0	28.7	1.7	0.5
Reclassifications	0	0	-0.9	0
Revaluation as at 31 Dec 2017	**-16.3**	**0.2**	**8.2**	**-3.0**
Carrying amount as at 31 Dec 2016	34.3	255.4	1,604.8	26.4
Carrying amount as at 31 Dec 2017	**38.7**	**99.4**	**1,563.0**	**31.2**

1) Reclassified as current “receivables and securities from banking business”

The “investments in associates and joint ventures” item includes interests in associates with a carrying amount of €38.7 million (2016: €34.3 million). As in the previous year, Deutsche Börse Group did not hold any interests in joint ventures. In financial year 2017, there were once again no proportionate losses for associates accounted for using the equity method that were not recognised.

The item “other financial instruments and loans” includes securities with a fair value of €5.0 million (2016: €5.0 million) pledged to the Industrie- und Handelskammer (IHK, Chamber of Commerce) Frankfurt/Main. Furthermore, additional securities may be pledged to hedge an interim financing in the amount of CHF 1.0 million used for the timely settlement of transactions. This credit line was not used as at 31 December 2017.

For details on revaluations and market price changes recognised in other comprehensive income, see also note 20. The “other equity investments” item includes equity instruments available for sale.

In the reporting period, impairment losses amounting to €1.0 million (2016: €6.7 million) were recognised for associates in the consolidated income statement. These impairment losses related to unlisted equity instruments. See note 8 for further details.

Composition of securities classified as debt instruments

	31 Dec 2017 €m	31 Dec 2016 €m
Securities		
issued by regional or local public bodies	571.8	523.9
issued by other public bodies	452.3	665.1
issued by multilateral banks	534.5	352.9
issued by supranational issuers	18.9	77.5
issued by others	16.3	11.4
Total	**1,593.8**	**1,630.8**

“Securities from banking business” and “other financial instruments and loans” include financial instruments listed on a stock exchange amounting to €1,563.0 million (2016: €1,604.8 million), and to €24.5 million (2016: €24.1 million), respectively.

14. Derivatives and hedges

Deutsche Börse Group generally uses derivative financial instruments to hedge existing or highly probable forecast transactions. The derivatives are included in the items “receivables from banking business”, “other non-current assets”, “liabilities from banking business” and “other current liabilities”.

Derivatives (fair value)

	Note	Assets		Note	Liabilities	
		31 Dec 2017 €m	31 Dec 2016 €m		31 Dec 2017 €m	31 Dec 2016 €m
Cash flow hedges						
long-term		0	0		0	0
short-term	16	0.7	0	30	0	-6.0
Derivatives held for trading						
long-term		0.1	0.1		0	-1.5
short-term	16	4.5	65.7	28, 30	-32.0	-9.1
Total		**5.3**	**65.8**		**-32.0**	**-16.6**

Fair value hedges

No financial instruments designated as fair value hedges were outstanding as at 31 December 2017 or as at 31 December 2016.

Cash flow hedges

In 2017, European Energy Exchange AG entered into a cash flow hedge amounting to US$205.0 million to eliminate the foreign-exchange risk associated with the purchase price to be paid in order to acquire shares in Nodal Exchange Holdings, LLC (Nodal Exchange). The forward transaction was designated to hedge fluctuating exchange rates after having successfully negotiated the main terms of the share purchase agreement. The forward transaction was settled on 2 May 2017 with an amount of €–5.5 million; the acquisition of Nodal Exchange was closed the following day upon receipt of payment by the sellers.

In 2016, Deutsche Börse AG entered into a cash flow hedge to (partially) eliminate the foreign-exchange risk associated with a US dollar-based loan amounting to a nominal value of US$170.0 million granted to a subsidiary with the functional currency US dollar. On 31 December 2016, the fair value of the forward contract amounted to €–6.0 million. The forward transaction was settled on 28 March 2017. The changes in fair value have been recognised in revaluation surplus and released through profit or loss upon recognition of the foreign-exchange gain of the hedged instrument.

In 2017, Clearstream Banking S.A. entered into a cash flow hedge to eliminate the foreign-exchange risk arising from the acquisition of an interim dividend amounting to US$58.0 million by concluding a foreign-exchange hedging contract covering the full interim dividend with a settlement date corresponding to the interim dividend payment date, i.e. 18 December 2017. The hedge entered into on 17 November 2017 is considered 100 per cent effective as the hedging foreign-exchange transaction can be set directly against the US dollar-based interim dividend acquired by Clearstream Banking S.A. In a scenario in which the US dollar's value declines against the euro, the euro amount equivalent to the interim dividend will decrease. The hedge transaction was settled on 18 December 2017 with an amount of €49.1 million.

In 2017, Clearstream Banking S.A. also entered into a cash flow hedge to reduce the impact of fluctuations of the euro/US dollar exchange rate on its US dollar-based net interest income (NII) for the 2018 financial year. The US dollar-related NII is derived from US dollar placements from customer cash balances less the corresponding compensation for customers. Twelve forward foreign-exchange contracts for the ends of the twelve months of 2018 were concluded on 16 November 2017. The hedge is considered 100 per cent effective as the hedging foreign-exchange transactions can be set directly against the US dollar-based NII. At the end of each month, the change in the fair value of the forward foreign-exchange contracts will be recognised in equity and the realised profit or loss impact of the maturing foreign-exchange contract will be classified as interest income. As of 31 December 2017, the fair value of the hedging instruments amounted to €0.7 million and was recognised in "current receivables and securities from banking business".

Changes in cash flow hedges

	2017 €m	2016 €m
Cash flow hedges as at 1 January	0	0
Amount recognised in other comprehensive income during the year	-3.4	-6.0
Amount recognised in profit or loss during the year	0	6.0
Closed-out	4.1	0
Cash flow hedges as at 31 December	**0.7**	**0**

Hedges of a net investment

In connection with the acquisition of Nodal Exchange, a shareholder loan with the principal amount of US$50 million was designated as a hedge against foreign-exchange risk arising from the translation of this item from the functional currency US dollar into euros to hedge the net investment in Nodal Exchange. Effective exchange rate differences from the loan were reported in the balance sheet item "accumulated profit", as are exchange rate differences from the translation of the functional currency of foreign subsidiaries. There was no ineffectiveness in the net investment hedge in 2017. A cumulative amount of €–4.0 million was recognised in other retained earnings (€–3.0 million) and within non-controlling interests (€–1.0 million).

Until 30 June 2016, US dollar private placements were designated as hedges against foreign-exchange risk arising from the translation of the functional currency US dollar into euros in order to hedge the net investment in the ISE subgroup until the disposal of the subgroup on 30 June 2016.

A cumulative amount of €116.3 million originally recognised in other comprehensive income was reclassified through profit or loss upon the disposal of the net investment in the ISE subgroup.

Derivatives held for trading

Currency swaps as at 31 December 2017 expiring in less than six months had a notional value of €2,494.6 million (2016: €3,073.8 million) as well as a negative fair value of €29.0 million and a positive fair value amounting to €4.5 million (2016: negative fair value of €2.4 million and positive fair value amounting to €65.4 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. These are reported under “current receivables and securities from banking business” and “liabilities from banking business” in the balance sheet (see also notes 16 and 28).

European Energy Exchange AG has entered into forward transactions in order to hedge the foreign-exchange risk associated with forecast net cash outflows in British pounds for 2018. These derivatives have a notional value of £4.0 million, expire in less than twelve months and are classified as “held for trading”. As at 31 December 2017, the forward contracts had a negative fair value of €0.1 million. A US dollar swap with a notional value of €0.8 million classified as “held for trading” had a fair value of €0.0 million as of 31 December 2017.

Eurex Clearing AG and Eurex Frankfurt AG have made prepayments to some customers. The repayment of these amounts depends on the fulfilment of certain criteria. Eurex Clearing AG and Eurex Frankfurt AG recognise embedded derivatives separately from the host contract as they are not closely related to that contract: they amount to €2.9 million (2016: €4.9 million), are classified as “held for trading” and are shown under “other non-current liabilities” (2017: nil; 2016: €1.5 million) and “other current liabilities” (2017: €2.9 million; 2016: €3.4 million).

With regards to earn-out components, please refer to note 32.

15. Financial instruments held by central counterparties

Composition of financial instruments held by central counterparties

	31 Dec 2017 €m	31 Dec 2016 €m
Repo transactions	62,914.9	87,508.7
Options	20,140.0	24,385.1
Others	1,293.0	1,872.4
Total	**84,347.9**	**113,766.2**
thereof non-current	4,837.2	5,856.6
thereof current	79,510.7	107,909.6

The aggregate financial instruments held by central counterparties are classified into current and non-current in the balance sheet. Receivables and liabilities that may be offset against a clearing member are reported on a net basis. Financial liabilities of €712.1 million (2016: €430.2 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 central counterparties:

Gross presentation of offset financial instruments held by central counterparties[1)]

	Gross amount of financial instruments		Gross amount of offset financial instruments		Net amount of financial instruments	
	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m
Financial assets from repo transactions	83,297.8	103,440.6	-20,382.9	-15,931.9	62,914.9	87,508.7
Financial liabilities from repo transactions	-82,585.7	-103,010.4	-20,382.9	15,931.9	-62,202.8	-87,078.5
Financial assets from options	65,735.2	74,873.1	-45,595.2	-50,488.0	20,140.0	24,385.1
Financial liabilities from options	-65,735.2	-74,873.1	45,595.2	50,488.0	-20,140.0	-24,385.1

1) The collateral deposited by clearing members cannot be attributed directly to the individual transactions. For information on the composition of collateral, see note 36.

16. Current receivables and securities from banking business

In addition to non-current receivables and securities from banking business that are classified as non-current financial assets (see note 13), the following receivables and securities from banking business, attributable solely to the Clearstream subgroup, were classified as current assets as at 31 December 2017.

Composition of current receivables and securities from banking business

	31 Dec 2017 €m	31 Dec 2016 €m
Loans to banks and customers		
Reverse repurchase agreements	4,843.5	4,050.4
Balances on nostro accounts	1,287.2	1,128.0
Money market lendings	5,859.9	7,320.0
Margin calls	14.8	0.4
Overdrafts from settlement business	754.7	293.8
	12,760.1	**12,792.6**
Available-for-sale debt instruments	254.5	592.2
Interest receivables	16.7	15.3
Forward foreign exchange transactions[1)]	4.5	65.4
Cash flow hedges[1)]	0.7	0
Total	**13,036.5**	**13,465.5**

1) See note 14.

Overdrafts from settlement business represent short-term loans of up to two days' duration that are usually secured by collateral. Potential concentrations of credit risk are monitored using counterparty credit limits (see note 36).

All of the securities held as at 31 December 2017 and 31 December 2016 were listed and issued by sovereign or sovereign-guaranteed issuers.

17. Changes in valuation allowance on trade receivables

As in the previous year, there were no trade receivables due after more than one year as at 31 December 2017.

Allowance account

	€m
Balance as at 1 Jan 2016	**6.3**
Additions	1.6
Utilisation	-0.1
Reversal	-1.8
Balance as at 31 Dec 2016	**6.0**
Additions	1.8
Utilisation	-1.4
Reversal	-1.2
Balance as at 31 Dec 2017	**5.2**

Uncollectible receivables of €0.6 million (2016: €0.5 million) for which no valuation allowances had been recognised in prior periods were written off in the reporting period.

18. Other current assets

Composition of other current assets

	31 Dec 2017 €m	31 Dec 2016 €m
Other receivables from CCP transactions	476.8	404.7
Tax receivables (excluding income taxes)	49.8	43.2
Prepaid expenses	32.0	32.9
Interest receivable	24.6	21.7
Incentive programme	4.1	3.5
Guarantees and deposits	2.9	3.4
Creditors with debit balances	1.4	0.7
Derivatives	0	0.3
Miscellaneous	6.1	3.8
Total	**597.7**	**514.2**

19. 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 €29,392.0 million (2016: €27,777.6 million).

20. Equity

Changes in equity are presented in the consolidated statement of changes in equity. As at 31 December 2017, the number of no-par value registered shares of Deutsche Börse AG in issue was 193,000,000 (31 December 2016: 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, and 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 disapply shareholders' pre-emptive rights to bonds with conversion or option rights to shares of Deutsche Börse AG in the following cases: (i) to eliminate fractions, (ii) if the issue price of a bond does not fall materially short of 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 options as compensation for 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 rights to subscribe for shares as at 31 December 2017 or 31 December 2016.

Revaluation surplus

The revaluation surplus results from the revaluation of securities and other current and non-current financial instruments at their fair value net of deferred taxes. This item also includes reserves from an existing investment in an associated company; these reserves were recognised in connection with the acquisition of further shares, as the company was consolidated at that date. Actuarial gains and losses for defined benefit obligations are also directly recognised in revaluation surplus.

Revaluation surplus

	Recognition of hidden reserves from fair value measurement €m	Other equity investments (financial assets) €m	Securities from banking business (financial assets) €m
Balance as at 1 Jan 2016 (gross)	**103.7**	**10.8**	**2.4**
Changes from defined benefit obligations	0	0	0
Fair value measurement	0	141.4	6.2
Reclassifications	0	0	-1.2
Reversal to profit or loss	0	-40.8	-0.1
Balance as at 31 Dec 2016 (gross)	**103.7**	**111.4**	**7.3**
Changes from defined benefit obligations	0	0	0
Fair value measurement	0	101.6	0.6
Reclassifications	0	0	0
Reversal to profit or loss	0	-192.5	0.3
Balance as at 31 Dec 2017 (gross)	**103.7**	**20.5**	**8.2**
Deferred taxes			
Balance as at 1 Jan 2016	**0**	**-4.2**	**-0.7**
Additions	0	16.2	0
Reversals	0	-56.2	-1.3
Balance as at 31 Dec 2016	**0**	**-44.2**	**-2.0**
Additions	0	77.4	0
Reversals	0	-34.3	-0.1
Balance as at 31 Dec 2017	**0**	**-1.1**	**-2.1**
Balance as at 1 Jan 2016 (net)	**103.7**	**6.6**	**1.7**
Balance as at 31 Dec 2016 (net)	**103.7**	**67.2**	**5.3**
Balance as at 31 Dec 2017 (net)	**103.7**	**19.4**	**6.1**

Accumulated profit

The “accumulated profit” item includes exchange rate differences amounting to €–16.4 million (2016: €5.1 million). €14.4 million (2016: €412.3 million) was withdrawn due to currency translation for foreign subsidiaries in the reporting period and €7.1 million (2016: €–207.8 million) was withdrawn relating to transactions used to hedge against currency risk.

	Other financial instruments (financial assets) €m	Current securities from banking business €m	Cash flow hedges €m	Defined benefit obligations €m	Total €m
	1.5	**0.1**	**-6.2**	**-156.5**	**-44.2**
	0	0	0	-27.3	-27.3
	0	-1.1	-6.0	0	140.5
	0	1.2	0	0	0
	0	0.1	8.7	0	-32.1
	1.5	**0.3**	**-3.5**	**-183.8**	**36.9**
	0	0	0	30.6	30.6
	0.5	0.1	0.7	0	103.5
	0	-0.1	0	0	-0.1
	0	0	2.8	0	-189.4
	2.0	**0.3**	**0**	**-153.2**	**-18.5**
	-0.4	**0**	**1.7**	**42.5**	**38.9**
	0	0	0	7.8	24.0
	0	-0.1	-0.7	0	-58.3
	-0.4	**-0.1**	**1.0**	**50.3**	**4.6**
	0	0	0	0	77.4
	-0.1	0	-1.0	-8.4	-43.9
	-0.5	**-0.1**	**0**	**41.9**	**38.1**
	1.1	**0.1**	**-4.5**	**-114.0**	**-5.3**
	1.1	**0.2**	**-2.5**	**-133.5**	**41.5**
	1.5	**0.2**	**0**	**-111.3**	**19.6**

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 group at regulatory group level.

Eurex Bonds GmbH, Eurex Repo GmbH – and, from 2017 onwards, 360 Treasury Systems AG – are subject to specific provisions applicable to certain investment firms under BaFin solvency supervision.

With the admission as an "Approved Clearing House" (ACH) by the Monetary Authority of Singapore (MAS) on 8 July 2015, Eurex Clearing Asia Pte. Ltd. has become subject to own funds requirements according to the Securities and Futures Act (Singapore) and other specific MAS requirements. However, 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, and the higher requirement has to be met in each case. Irrespective of its status as a specialist credit institution according to German law, European Commodity Clearing AG is only subject to EMIR capital requirements.

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 detail differs both in relation to the capital components as well as 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 three investment firms, Eurex Repo GmbH, Eurex Bonds 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 the 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 regulatory capital.

A minimum total capital ratio of 8 per cent generally applies to credit institutions subject to the CRR. None of the credit institutions or groups currently subject to CRR regulations (Clearstream Banking S.A., Clearstream Banking AG, Clearstream Holding group and Eurex Clearing AG) is currently designated as systemically important. 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 are introduced in stages, 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 1.25 per cent was applied in 2017 to all other regulated Group companies subject to CRR regulations. Taking these effects into account, the minimum total capital ratio was 9.25 per cent.

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 single entity and Group level. 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 already responded to the (expected) increased own funds requirements in the past 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 a moderate increase in own funds requirements to arise at regulatory group level for the following reasons:

- CRD IV capital buffers, which are being increased in stages
- The future applicability of own funds requirements based on the Central Securities Depositories Regulation (CSDR)
- 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
- Implementation of the so-called CRR II package and other amendments under Basel III (presumably applicable not before 2019)

Eurex Clearing AG's own funds requirements declined compared with the previous year. Given the increase in revenue, own funds requirements for operational risk rose according to our model, while own funds requirements for credit and market risk declined 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 increased 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 on the basis of three-year average 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. In 2017, Eurex Clearing AG received a €100.0 million contribution to its capital reserve 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 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m
Clearstream Holding group	420.1	387.1	67.7	76.4	487.8	463.5
Clearstream Banking S.A.	306.2	283.3	49.9	88.1	356.1	371.4
Clearstream Banking AG	113.8	103.8	3.6	7.2	117.4	111.0
Eurex Clearing AG	70.9	66.7	3.9	14.5	74.8	81.2
European Commodity Clearing AG	8.1	6.0	1.6	1.3	9.7	7.3

Regulatory capital ratios

	Own funds requirements		Regulatory equity		Total capital ratio	
	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 %	31 Dec 2016 %
Clearstream Holding group	487.8	463.5	1,289.7	1,260.3	21.2	21.8
Clearstream Banking S.A.	356.1	371.4	1,061.3	1,042.4	23.8	22.5
Clearstream Banking AG	117.4	111.0	308.9	297.9	21.0	21.5
Eurex Clearing AG	74.8	81.2	464.8	364.8	49.7	36.0

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.

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 consolidated 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. The capital base of other entities is consistently monitored. Given the increase in the regulatory minimum requirements for contributions to the clearing fund, European Commodity Clearing AG's default fund contribution was increased. As at 31 December 2017, European Commodity Clearing AG's total default fund contribution amounted to €10.0 million, and thus exceeded regulatory minimum requirements. A further increase to the contribution is planned for 2018. Similar to the other companies, its capital resources are reviewed on an ongoing basis. Depending on future business performance, and in particular on changes in the regulatory framework, the capital resources will be adjusted as needed; however, this is not expected at present.

Capital adequacy requirements under EMIR

	Eurex Clearing AG		European Commodity Clearing AG	
	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m
Own funds requirement for operational, credit and market risk	74.8	81.2	9.7	7.3
Other EMIR capital requirements	78.7	74.6	27.2	19.6
Total EMIR capital requirements under Article 16 of EMIR	**153.5**	**155.8**	**36.9**	**26.9**
Equity	464.8	364.8	88.9	73.9
EMIR deductions	0	0	-8.3	-13.0
Own contribution to default fund	-150.0	-100.0	-10.0	-7.5
EMIR capital adequacy ratio	**314.8**	**264.8**	**70.6**	**53.4**

The capitalisation of Eurex Bonds GmbH significantly exceeded the CRR requirements. The company ceased its business operations, effective 31 December 2017.

Eurex Repo GmbH transfers its earnings to Eurex Frankfurt AG based on a profit or loss transfer agreement. Due to the company's decelerating business activities – resulting from current market conditions (low interest rates, ECB policies) – Eurex Repo GmbH's earnings declined, with negative effects on the profits to be transferred. Hence, the own funds requirements declined compared with the previous year. Depending on the future business performance as well as changes to the regulatory requirements, further contributions to capital may be necessary to a limited extent; however, they are currently not expected for 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 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m
Eurex Bonds GmbH	0.2	0.2	0.7	0.8	0.9	0.8
Eurex Repo GmbH	0.3	0.4	3.5	4.6	3.8	4.6
360 Treasury Systems AG	4.6	–	3.8	–	8.4	–

Compliance with own funds requirements

	Own funds requirements		Regulatory equity		Equity ratio	
	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 %	31 Dec 2016 %
Eurex Bonds GmbH	0.9	0.8	10.4	10.4	1,200.0	1,300.0
Eurex Repo GmbH	3.8	4.6	7.0	7.0	184.2	152.2
360 Treasury Systems AG	8.4	–	28.5	–	339.3	–

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, Eurex Clearing Asia Pte. Ltd. is required to provide own funds to fulfil “operational risk requirements”, “investment risk requirements” as well as “general counterparty risk requirements”. Given the current business activities, own funds requirements are based exclusively on “operational risk requirements”. Furthermore, Eurex Clearing Asia Pte. Ltd. is required to notify MAS without undue delay if the capital cover falls below 120 per cent of own funds requirements. Eurex Clearing Asia Pte. Ltd. is presently being liquidated.

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 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m
REGIS-TR S.A.	3.9	3.9	6.4	6.4
Eurex Clearing Asia Pte. Ltd.	0	0.6	0	10.2
Cleartrade Exchange Pte. Limited	0.7	1.4	1.2	2.1
Powernext SAS	9.7	10.8	33.5	39.9
Nodal Clear, LLC	3.6	3.4	26.0	27.5

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.

21. 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 2017 in accordance with the provisions of the Handelsgesetzbuch (HGB, the German Commercial Code), report net profit for the period of €615.7 million (2016: €553.2 million) and shareholders’ equity of €2,800.9 million (2016: €2,643.0 million). In 2017, Deutsche Börse AG distributed €439.0 million (€2.35 per eligible share) from the unappropriated surplus of the previous year.

Net profit for the period 2017 is higher than last year.

Proposal on the appropriation of the unappropriated surplus

	31 Dec 2017 €m
Net profit for the period	615.7
Appropriation to other retained earnings in the annual financial statements	-145.7
Unappropriated surplus	**470.0**
Proposal by the Executive Board:	
Distribution of a regular dividend to the shareholders of €2.45 per share for 186,278,047 no-par value shares carrying dividend rights	456.4
Appropriation to retained earnings	13.6

No-par value shares carrying dividend rights

	Number
Number of shares issued as at 31 December 2017	**193,000,000**
Number of treasury shares as at the reporting date	-6,389,842
Number of shares outstanding as at 31 December 2017	**186,610,158**
Number of shares acquired under the share buy-back programme up to the preparation of the annual financial statements	-332,111
Total	**186,278,047**

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 €2.45 per eligible share, an amended resolution for the appropriation of the unappropriated surplus will be proposed to the Annual General Meeting.

22. 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 2017 €m	Total 31 Dec 2016 €m
Present value of defined benefit obligations that are at least partially funded	418.2	66.6	18.5	503.3	488.7
Fair value of plan assets	-300.0	-48.5	-14.9	-363.4	-324.7
Funded status	**118.2**	**18.1**	**3.6**	**139.9**	**164.0**
Present value of unfunded obligations	3.5	0.7	0.1	4.3	3.9
Net liability of defined benefit obligations	**121.7**	**18.8**	**3.7**	**144.2**	**167.9**
Impact of minimum funding requirement/asset ceiling	0	0	0	0	0
Amount recognised in the balance sheet	**121.7**	**18.8**	**3.7**	**144.2**	**167.9**

The defined benefit plans comprise a total of 2,798 beneficiaries (2016: 2,713). The present value of defined benefit obligations can be allocated to the beneficiaries as follows:

Breakdown of beneficiaries

	Germany €m	Luxembourg €m	Other €m	Total 31 Dec 2017 €m	Total 31 Dec 2016 €m
Eligible current employees	187.5	65.9	18.3	271.7	262.5
Former employees with vested entitlements	140.2	0.7	0.3	141.2	131.6
Pensioners or surviving dependants	94.0	0.7	0	94.7	98.5
	421.7	**67.3**	**18.6**	**507.6**	**492.6**

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 next but one paragraph, 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 on 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 five 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 on 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 2017 as well as 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 fixed which will be reviewed annually, and adjusted if necessary, by the Supervisory Board, taking changed circumstances in terms of income and purchasing power in account.

Luxembourg

The Clearstream subgroup, based in Luxembourg, operates separate defined benefit plans. The only defined benefit pension plan still in operation in favour 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 on 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 further employees, a group plan has been entered into with Swiss Life (Luxembourg) S.A.; it 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 opinions.

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, the contributions are determined as a percentage of the bonus; it is also funded by contributions from employees and the employer. The retirement age is 65. The beneficiaries can choose between pension payments and 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 2016	**442.7**	**-302.0**	**140.7**
Acquisitions from business combinations	-0.3	0.3	0
Current service cost	24.0	–	24.0
Interest expense/(income)	9.3	-6.4	2.9
Past service cost and gains and losses on settlements	0	–	0
	33.3	**-6.4**	**26.9**
Remeasurements			
Return on plan assets, excluding amounts already recognised in interest income	–	-2.9	-2.9
Losses from changes in demographic assumptions	-0.8	–	-0.8
Losses from changes in financial assumptions	31.5	–	31.5
Experience gains	-0.4	–	-0.4
	30.3	**-2.9**	**27.4**[1]
Effect of exchange rate differences	0.2	-0.2	0
Contributions:			
Employers	–	-29.2	-29.2
Plan participants	0.9	-0.9	0
Benefit payments	-13.7	13.7	0
Tax and administration costs	-0.8	2.9	2.1
Balance as at 31 Dec 2016	**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**

1) Thereof nil (2016: €0.1 million) in the offsetting item for non-controlling interests

In financial year 2017, employees converted a total of €6.4 million (2016: €5.3 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 shown in the following table:

Actuarial assumptions

	31 Dec 2017			31 Dec 2016		
	Germany %	Luxembourg %	Switzerland %	Germany %	Luxembourg %	Switzerland %
Discount rate	1.80	1.80	0.70	1.75	1.75	0.60
Salary growth	3.50	3.30	1.00	3.50	3.00	1.00
Pension growth	2.00	1.80	0	2.00	1.50	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 “2005 G” mortality tables (generation tables) developed by Prof Klaus Heubeck are used in a modified version. 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 of defined benefit obligation to change in the weighted principal assumptions

	Change in actuarial assumption	Effect on defined benefit obligation		Effect on defined benefit obligation	
		2017 defined benefit obligation €m	Change %	2016 defined benefit obligation €m	Change %
Present value of the obligation[1]		507.6	–	492.6	–
Discount rate	Increase by 1.0 percentage point	433.3	-14.6	418.8	-15.0
	Increase by 0.5 percentage points	468.6	-7.7	453.8	-7.9
	Reduction by 0.5 percentage points	552.4	8.8	537.4	9.1
	Reduction by 1.0 percentage point	602.3	18.7	587.5	19.3
Salary growth	Increase by 0.5 percentage points	520.2	2.5	505.0	2.5
	Reduction by 0.5 percentage points	497.3	-2.0	482.6	-2.0
Pension growth	Increase by 0.5 percentage points	520.0	2.4	504.9	2.5
	Increase by 0.25 percentage points	513.6	1.2	498.6	1.2
	Reduction by 0.25 percentage points	502.1	-1.1	486.8	-1.2
	Reduction by 0.5 percentage points	496.2	-2.2	481.4	-2.3
Life expectancy	Increase by one year	521.1	2.7	505.4	2.6
	Reduction by one year	494.0	-2.7	479.7	-2.6

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

Composition of plan assets

Germany

In Germany, the plan assets are held by a trustee in safekeeping for individual companies of Deutsche Börse Group and for the beneficiaries: at the company’s instruction, the trustee uses the funds transferred to acquire securities, without any consulting on the part of 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. 75 per cent of this benchmark is 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, and 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 2017		31 Dec 2016	
	€m	%	€m	%
Bonds	**258.2**	**71.1**	**270.7**	**83.4**
Government bonds	197.3		229.8	
Multilateral development banks	0		2.6	
Corporate bonds	60.9		38.3	
Derivatives	**1.7**	**0.5**	**0.8**	**0.2**
Equity index futures	-0.3		0.6	
Interest rate futures	2.0		0.2	
Investment funds	**19.5**	**5.4**	**13.9**	**4.3**
Total listed	**279.4**	**76.9**	**285.4**	**87.9**
Qualifying insurance policies	14.9	4.1	16.7	5.1
Cash	69.1	19.0	22.6	7.0
Total not listed	**84.0**	**23.1**	**39.3**	**12.1**
Total plan assets	**363.4**	**100.0**	**324.7**	**100.0**

As at 31 December 2017, plan assets did not include any financial instruments held by the Group (2016: nil), nor did they include any property occupied or other assets used by the Group.

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.

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.

Moreover, 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 the plan assets.

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 16.6 years (2016: 17.3 years) as at 31 December 2017.

Expected maturities of undiscounted pension payments

	Expected pension payments[1)] 31 Dec 2017 €m	Expected pension payments[1)] 31 Dec 2016 €m
Less than 1 year	17.7	12.4
Between 1 and 2 years	15.1	12.6
Between 2 and 5 years	40.7	39.4
More than 5 years up to 10 years	99.8	83.7
Total	**173.3**	**148.1**

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 2018 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 €36.7 million (2016: €35.3 million).

In 2018, Deutsche Börse Group expects to make contributions to multi-employer plans amounting to around €9.9 million.

23. Changes in other provisions

Changes in other provisions

	Bonuses €m	Interest on taxes €m	Restructuring and efficiency measures €m	Share-based payments €m
Balance as at 1 Jan 2017	**101.7**	**47.5**	**78.3**	**25.5**
Changes in the basis of consolidation	0.2	0	0	0
Reclassification[2)]	-3.5	0	0	-0.5
Utilisation	-79.6	0	-24.5	-7.4
Reversal	-10.7	0	-3.3	-0.5
Additions	92.9	18.9	5.7	25.0
Currency translation	-0.2	0	-0.2	0
Interest	0	0	1.3	0
Balance as at 31 Dec 2017	**100.8**	**66.4**	**57.3**	**42.1**

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 22) as well as to reclassifications from liabilities.

Provisions for restructuring and efficiency measures include provisions for contractually agreed early retirement benefits and severance payments (€52.6 million), expenses directly related to restructuring measures (€0.2 million), and provisions associated with another restructuring plan, adopted at year-end 2017, designed to improve the business model's efficiency and to streamline processes (€4.5 million, implementation already started).

The "other personnel provisions" item as at 31 December 2017 includes personnel-related provisions of €5.8 million (2016: €5.7 million) for jubilees, €8.5 million (2016: €2.5 million) for other personnel costs and €0.5 million (2016: €0.5 million) for early retirement benefits.

The "miscellaneous" item includes provisions for anticipated losses of €7.3 million (2016: €7.0 million) and provisions for rent and service costs of €1.3 million (2016: €1.3 million).

For details on share-based payments, see note 39.

	Pension obligations to IHK[1] €m	Operational claims €m	Recourse and litigation risks €m	Other personnel provisions €m	Miscellaneous €m	Total €m
	9.4	**3.1**	**3.5**	**8.7**	**17.6**	**295.3**
	0	0	0	0	0	0.2
	0	0	0.2	4.4	-6.9	-6.3
	0	-0.1	-0.1	-4.0	-0.6	-116.3
	-0.4	0	-2.8	-1.2	-0.7	-19.6
	0	2.1	2.9	6.6	3.1	157.2
	0	0	0	0	0	-0.4
	0.2	0	0	0.3	0	1.8
	9.2	**5.1**	**3.7**	**14.8**	**12.5**	**311.9**

24. Other non-current provisions

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

Composition of other non-current provisions

	31 Dec 2017 €m	31 Dec 2016 €m
Restructuring and efficiency measures	52.4	68.1
Share-based payments	36.1	18.2
Bonuses	10.0	5.4
Pension obligations to IHK[1]	9.2	9.4
Jubilees	5.8	5.7
Anticipated losses	5.0	6.5
Early retirement	0.4	0.5
Other	1.4	3.2
Total	**120.3**	**117.0**
thereof with remaining maturity of between 1 and 5 years	96.8	95.0
thereof with remaining maturity of more than 5 years	23.5	22.0

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

25. Liabilities

The bonds issued by Deutsche Börse AG have a carrying amount of €2,288.1 million (2016: €2,284.7 million) and a fair value of €2,451.5 million (2016: €2,457.7 million). €1,688.4 million (2016: €2,284.7 million) of this amount is disclosed under "interest-bearing liabilities"; the bonds due in financial year 2018 in the amount of €599.7 million (2016: nil) are disclosed under the item "other current liabilities". The financial liabilities recognised in the balance sheet were not secured by liens or similar rights, neither as at 31 December 2017 nor as at 31 December 2016.

26. Tax provisions

Composition of tax provisions

	Income taxes: current year €m	Income taxes: previous years €m	Other taxes €m	Total €m
Balance as at 1 Jan 2017	0	231.5	42.4	273.9
Changes in the basis of consolidation	0	0	0	0
Reclassification	0	23.6	-5.8	17.8
Utilisation	0	-79.2	-0.7	-79.9
Reversal	0	-6.9	0	-6.9
Additions	66.8	63.5	3.9	134.2
Currency translation	0	0.3	0	0.3
Interest	0	0	0	0
Balance as at 31 Dec 2017	**66.8**	**232.8**	**39.8**	**339.4**

Tax provisions of €104.6 million (2016: €173.4 million) have an estimated remaining maturity of more than one year.

27. Other current provisions

Composition of other current provisions

	31 Dec 2017 €m	31 Dec 2016 €m
Bonuses	90.8	96.3
Interest on taxes	66.4	47.5
Personnel costs	8.5	2.5
Share-based payments	6.0	7.3
Operational claims	5.1	3.1
Restructuring and efficiency measures	4.9	10.2
Recourse and litigation risks	3.7	3.5
Anticipated losses	2.2	0.5
Rent and incidental rental costs	1.3	1.3
Miscellaneous	2.7	6.1
Total	**191.6**	**178.3**

28. Liabilities from banking business

The liabilities from banking business are attributable solely to the Clearstream subgroup.

Composition of liabilities from banking business

	31 Dec 2017 €m	31 Dec 2016 €m
Customer deposits from securities settlement business	12,411.8	13,024.8
Issued commercial paper	274.7	349.5
Overdrafts on nostro accounts	24.7	321.9
Forward foreign exchange transactions – held for trading	29.0	2.4
Margin deposits	15.4	125.7
Interest liabilities	0.5	0.5
Money market lendings	508.3	15.5
Total	**13,264.4**	**13,840.3**

29. Cash deposits by market participants

Composition of cash deposits by market participants

	31 Dec 2017 €m	31 Dec 2016 €m
Liabilities from margin payments to Eurex Clearing AG by clearing members	26,555.0	24,798.2
Liabilities from margin payments to European Commodity Clearing AG by clearing members	2,268.8	2,973.8
Liabilities from margin payments to Nodal Clear, LLC by clearing members	387.2	n.a.
Liabilities from cash deposits by participants in equity trading	4.3	5.6
Total	**29,215.3**	**27,777.6**

30. Other current liabilities

Composition of other current liabilities

	31 Dec 2017 €m	31 Dec 2016 €m
Bonds issued	599.7	0
Liabilities from CCP positions	466.1	386.4
Tax liabilities (excluding income taxes)	37.7	30.5
Interest payable	28.8	28.7
Vacation entitlements, flexitime and overtime credits	21.7	20.5
Social security liabilities	7.6	7.8
Deferred income	6.5	18.1
Derivatives	3.0	12.7
Special payments and bonuses	2.8	4.9
Liabilities to supervisory bodies	2.6	2.9
Debtors with credit balances	2.2	2.7
Miscellaneous	12.5	10.5
Total	**1,191.2**	**525.7**

31. Maturity analysis of financial instruments

Underlying contractual maturities of the financial instruments at the reporting date

	Contractual maturity					
		Sight		Not more than 3 months		More than 3 months but not more than 1 year
	2017	2016	2017	2016	2017	2016
	€m	€m	€m	€m	€m	€m
Non-derivative financial liabilities						
Interest-bearing liabilities	0	0	0	23.3	0	22.4
Other non-current financial liabilities	0	0	0	0	0	0
Non-derivative liabilities from banking business	12,960.1	13,487.9	241.5	98.7	33.2	251.9
Trade payables, payables to related parties and other current liabilities	96.7	380.1	1,152.5	513.9	22.4	0
Cash deposits by market participants	29,215.3	27,777.6[1]	0	0[1]	0	0
Other bank loans and overdrafts	7.3	0.1	0	0	0	0
Total non-derivative financial liabilities (gross)	**42,279.4**	**41,645.7**	**1,394.0**	**635.9**	**55.6**	**274.3**
Derivatives and financial instruments held by central counterparties						
Financial liabilities and derivatives held by central counterparties	22,159.3	20,717.7	43,973.6	68,646.2	12,665.7	18,146.9
less financial assets and derivatives held by central counterparties	-22,159.2	-20,717.7	-44,685.7	-69,076.4	-12,665.8	-18,146.9
Cash inflow – derivatives and hedges						
Cash flow hedges	0	0	19.0	154.3	56.2	0
Fair value hedges	0	0	0	0	0	0
Derivatives held for trading	833.4	1,331.8	1,652.2	409.3	2.3	1,407.3
Cash outflow – derivatives and hedges						
Cash flow hedges	0	0	-18.8	-160.2	-56.4	0
Fair value hedges	0	0	0	0	0	0
Derivatives held for trading	-832.2	-1,332.3	-1,667.4	-400.4	-2.2	-1,341.7
Total derivatives and hedges	**1.3**	**-0.5**	**-727.1**	**-427.2**	**-0.2**	**65.6**
Financial guarantee contracts	0	0	0	0	0	0

1) Prior-year figures adjusted with regard to maturity

	Contractual maturity				Reconciliation to carrying amount		Carrying amount	
	More than 1 year but not more than 5 years		Over 5 years					
	2017	2016	2017	2016	2017	2016	2017	2016
	€m	€m	€m	€m	€m	€m	€m	€m
	1,339.0	1,362.3	524.4	1,146.8	-175.0	-270.1	1,688.4	2,284.7
	0.8	0.2	0	0	6.1	7.7	6.9	7.9
	0	0	0	0	29.6	-0.6	13,264.4	13,837.9
	0	0	0	0	70.0	100.4	1,341.6	994.4
	0	0	0	0	0	0	29,215.3	27,777.6
	0	0	0	0	0	0	7.3	0.1
	1,339.8	**1,362.5**	**524.4**	**1,146.8**	**-69.3**	**-162.6**	**45,523.9**	**44,902.6**
	3,771.5	4,384.6	1,065.7	1,440.6	0	0	83,635.8	113,336.0
	-3,771.5	-4,384.6	-1,065.7	-1,440.6	0	0	-84,347.9	-113,766.2
	0	0	0	0				
	0	0	0	0				
	0	0	0	0				
	0	0	0	0				
	0	0	0	0				
	0	0	0	0				
	0	**0**	**0**	**0**				
	0	0	0	0				

32. Classification of financial instruments under IAS 39

The following table shows an analysis of the financial instruments in the balance sheet in accordance with their classification under IAS 39 as well as the corresponding carrying amounts:

Classification of financial instruments (part 1)

Consolidated balance sheet item (classification)	Note	Category	Measured at	Carrying amount 31 Dec 2017 €m	Carrying amount 31 Dec 2016 €m
Other equity investments	13	AFS[1]	Historical cost	59.0	58.0
		AFS[1]	Fair value	40.4	197.4
Non-current receivables and securities from banking business	13	AFS[1]	Fair value	1,563.0	1,604.8
Other financial instruments	13	AFS[1]	Historical cost	5.1	1.9[2]
		AFS[1]	Fair value	24.5	24.1[2]
		Fair value through profit or loss (designated)	Fair value	1.2	0
Other loans	13	Loans and receivables	Amortised cost	0.4	0.4
Non-current financial instruments held by central counterparties	15	Held for trading	Fair value	4,837.2	5,856.6
Other non-current assets		Held for trading	Fair value	0.1	0.1
		Loans and receivables	Amortised cost	4.6	8.3
Current financial instruments held by central counterparties	15	Held for trading	Fair value	79,238.7	107,679.7
		Loans and receivables	Amortised cost	272.0	229.9
Current receivables and securities from banking business	14, 16	AFS[1]	Fair value	254.5	592.2
		Cash flow hedges	Fair value	0.7	0
		Loans and receivables	Amortised cost	12,776.8	12,807.8
		Held for trading	Fair value	4.5	65.4
Trade receivables	17	Loans and receivables	Amortised cost	329.4	669.8
Receivables from related parties		Loans and receivables	Amortised cost	2.5	2.0
Other current assets	18	Loans and receivables	Amortised cost	510.3	441.8
		Held for trading	Fair value	0	0.3
Restricted bank balances	19	Loans and receivables	Amortised cost	29,392.0	27,777.6
Other cash and bank balances	33	Loans and receivables	Amortised cost	1,297.6	1,458.1

1) Available-for-sale (AFS) financial assets
2) Classification adjusted

Classification of financial instruments (part 2)

Consolidated balance sheet item (classification)	Note	Category	Measured at	Carrying amount 31 Dec 2017 €m	Carrying amount 31 Dec 2016 €m
Interest-bearing liabilities (excluding finance leases)	14, 25	Liabilities at amortised cost	Amortised cost	1,688.4	2,284.7
Non-current financial instruments held by central counterparties	15	Held for trading	Fair value	4,837.2	5,856.6
Other non-current liabilities	14	Held for trading	Fair value	0.8	1.7
Current financial instruments held by central counterparties	15	Held for trading	Fair value	78,526.6	107,249.5
		Liabilities at amortised cost	Amortised cost	272.0	229.9
Liabilities from banking business	14, 28	Liabilities at amortised cost	Amortised cost	13,235.4	13,837.9
		Held for trading	Fair value	29.0	2.4
Other bank loans and overdrafts	33	Liabilities at amortised cost	Amortised cost	7.3	0.1
Trade payables		Liabilities at amortised cost	Amortised cost	148.9	471.2
Liabilities to related parties		Liabilities at amortised cost	Amortised cost	1.5	3.6
Cash deposits by market participants	29	Liabilities at amortised cost	Amortised cost	29,215.3	27,777.6
Other current liabilities	14, 30	Liabilities at amortised cost	Amortised cost	1,097.6	419.1
		Cash flow hedges	Fair value	0	6.0
		Derivatives held for trading	Fair value	3.0	6.7

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.

As at 31 December 2017, 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 2017	thereof attributable to:		
		Level 1	Level 2	Level 3
	€m	€m	€m	€m
Recurring fair value measurements				
ASSETS				
Financial assets held for trading				
Derivatives				
Non-current financial instruments held by central counterparties	4,837.2	0	4,837.2	0
Current financial instruments held by central counterparties	79,238.7	0	79,238.7	0
Current receivables and securities from banking business	5.2	0	5.2	0
Other non-current assets	0.1	0	0	0.1
Other securities	1.2	0	0	1.2
Total	**84,082.4**	**0**	**84,081.1**	**1.3**
Available-for-sale financial assets				
Equity instruments				
Other equity investments	40.4	33.8	0	6.6
Total	**40.4**	**33.8**	**0**	**6.6**
Debt instruments				
Other financial instruments	24.5	24.5	0	0
Non-current receivables and securities from banking business	1,563.0	1,563.0	0	0
Current receivables and securities from banking business	254.5	254.5	0	0
Total	**1,842.0**	**1,842.0**	**0**	**0**
Total assets	**85,964.8**	**1,875.8**	**84,081.1**	**7.9**
LIABILITIES				
Financial liabilities held for trading				
Derivatives				
Non-current financial instruments held by central counterparties	-4,837.2	0	-4,837.2	0
Current financial instruments held by central counterparties	-78,526.6	0	-78,526.6	0
Liabilities from banking business	-29.0	0	-29.0	0
Other current liabilities	-3.0	0	-0.1	-2.9
Contingent purchase price components				
Other non-current liabilities	-0.8	0	0	-0.8
Total liabilities	**-83,396.6**	**0**	**-83,392.9**	**-3.7**

By comparison, the financial assets and liabilities measured at fair value as at 31 December 2016 were allocated as follows to the hierarchy levels:

Fair value hierarchy

	Fair value as at 31 Dec 2016	thereof attributable to:		
		Level 1	Level 2	Level 3
	€m	€m	€m	€m
Recurring fair value measurements				
ASSETS				
Financial assets held for trading				
Derivatives				
Non-current financial instruments held by central counterparties	5,856.6	0	5,856.6	0
Current financial instruments held by central counterparties	107,679.7	0	107,679.7	0
Current receivables and securities from banking business	65.4	0	65.4	0
Other non-current assets	0.1	0	0	0.1
Other current assets	0.3	0	0	0.3
Total	**113,602.1**	**0**	**113,601.7**	**0.4**
Available-for-sale financial assets				
Equity instruments				
Other equity investments	197.4	190.9	0	6.5
Total	**197.4**	**190.9**	**0**	**6.5**
Debt instruments				
Other financial instruments	24.1	24.1[1]	0	0
Non-current receivables and securities from banking business	1,604.8	1,604.8	0	0
Current receivables and securities from banking business	592.3	592.3	0	0
Total	**2,221.2**	**2,221.2**	**0**	**0**
Total assets	**116,020.7**	**2,412.1**	**113,601.7**	**6.9**
LIABILITIES				
Financial liabilities held for trading				
Derivatives				
Non-current financial instruments held by central counterparties	-5,856.6	0	-5,856.6	0
Current financial instruments held by central counterparties	-107,249.5	0	-107,249.5	0
Liabilities from banking business	-2.4	0	-2.4	0
Other non-current liabilities	-1.5	0	0	-1.5
Other current liabilities	-12.7	0	-6.0	-6.7
Contingent purchase price components				
Other non-current liabilities	-0.2	0	0	-0.2
Total liabilities	**-113,122.9**	**0**	**-113,114.5**	**-8.4**

1) Prior-year figure adjusted.

During the year under review, one investment was measured at fair value for the first time. Given the entity's IPO in March 2017, quoted prices in an active market have been available since that date. Therefore, the item was allocated to level 1. The investment in BATS Global Markets, Inc., which was allocated to level 1 in the previous year, was disposed of in the first quarter of 2017.

Financial assets and liabilities listed in levels 2 and 3 as at 31 December 2017 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.

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
	Other equity investments €m	Other securities €m	Other non-current €m	Other current €m	Other non-current €m	Other current €m	€m
Balance as at 1 Jan 2016	**6.1**	**0**	**0**	**0**	**-4.3**	**-6.2**	**-4.4**
Additions	0	0	0.1	0.3	-2.5	-3.3	-5.4
Disposals	-0.7	0	0	0	0	0	-0.7
Reclassifications	0	0	0	0	4.3	-4.3	0
Realised capital gains/(losses)	0	0	0	0	0	4.3	4.3
Other operating income	0	0	0	0	0	4.3	4.3
Unrealised capital gains/(losses) recognised in profit or loss	0	0	0	0	0.8	2.8	3.6
Other operating expenses	0	0	0	0	0	-0.3	-0.3
Other operating income	0	0	0	0	0.8	3.1	3.9
Changes recognised in the revaluation surplus	1.1	0	0	0	0	0	1.1
Balance as at 1 Jan 2017	**6.5**	**0**	**0.1**	**0.3**	**-1.7**	**-6.7**	**-1.5**
Additions	0	1.2	0	0	-0.4	0	0.8
Disposals	-0.4	0	0	-0.3	0	1.4	0.7
Reclassification	0	0	0	0	1.5	-1.5	0
Realised capital gains/(losses)	0	0	0	0	0	3.4	3.4
Other operating income	0	0	0	0	0	3.4	3.4
Unrealised capital gains/(losses) recognised in profit or loss	0	0	0	0	-0.2	0.5	0.3
Other operating expenses	0	0	0	0	-0.2	0	-0.2
Other operating income	0	0	0	0	0	0.5	0.5
Changes recognised in the revaluation surplus	0.5	0	0	0	0	0	0.5
Balance as at 31 Dec 2017	**6.6**	**1.2**	**0.1**	**0**	**-0.8**	**-2.9**	**4.2**

The value of an equity investment listed in level 3 is reviewed annually by the issuer, who may initiate transactions. During the period under review, fair value measurement resulted in positive effects of €0.5 million (revaluation surplus).

Furthermore, this item includes an equity fund, the fair value of which is calculated on the basis of the net asset value determined by the issuer. Deutsche Börse Group sold its investment in the equity fund in 2017, resulting in a disposal of €0.4 million.

The “other securities” item includes a convertible bond. The fair value of the bond was €1.2 million at the acquisition date. The measurement of the convertible bond is based on an internal model, using unobservable market data.

The “other non-current assets” item includes a call option, the fair value of which was derived using the Black-Scholes model based on unobservable market data. As in the previous year, the fair value stood at €0.1 million. The item “other current assets” declined by €0.3 million in connection with the disposal of a forward purchase contract given that the underlying transaction was fulfilled.

At the beginning of the 2017 financial year, “other non-current liabilities” comprised a contingent purchase price component in the amount of €0.2 million. During the period under review, reassessment of the probability that such components would be utilised resulted in other operating expenses of €0.2 million. Another contingent purchase price component (€0.4 million) was recognised for the same item towards the end of the reporting year. 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 that are appropriate to the risk.

At the beginning of the reporting year, the item “other non-current liabilities” included financial instruments from an incentive programme of Eurex Frankfurt AG, with a carrying amount of €1.5 million. These instruments were reclassified to “other current liabilities” as at 31 December 2017; the carrying amount remained unchanged at €1.5 million.

Furthermore, the item “other current liabilities” included derivative financial instruments from an incentive programme of Eurex Clearing AG, with a carrying amount of €3.4 million, at the beginning of 2017. The carrying amount of these instruments was €1.4 million as at 31 December 2017. As at 31 January 2017, the first tranche of Eurex Clearing AG’s incentive programme expired. Accordingly, the derivative was disposed of (€1.4 million recognised directly in equity), and derecognised through profit or loss (€0.1 million). In the course of the reporting year, subsequent measurement of the financial instruments from the second tranche of the programme led to gains of €0.5 million, disclosed under “other operating income”.

The financial instruments are regularly measured at fair value through profit or loss using internal models at the quarterly reporting dates. The models take into account the criteria underlying the conditional repayment of the grants made by Eurex Clearing AG and Eurex Frankfurt AG. The criteria include, in particular, non-financial indicators such as the expected number of customers in a specific market segment as well as expected trading volumes. They are monitored continuously to determine whether any adjustments may be necessary. In order to do this, customer information is also used. Since these are internal models, the parameters can differ from those of the settlement date. However, the derivative financial instruments will not exceed an amount of €1.5 million, and €3.5 million, respectively. These amounts arise if all beneficiaries of the incentive programmes fulfil the conditions and a repayment of the contribution is not taken into consideration.

Furthermore, derivative financial instruments related to contingent repayment claims in connection with advance payments disclosed under the "other current liabilities" item were derecognised through profit or loss (€3.3 million). The resulting income was disclosed as "other operating income".

The fair value of other financial assets and liabilities not measured at fair value is determined as follows:

Debt instruments issued by Deutsche Börse Group have a fair value of €2,451.5 million (31 December 2016: €2,457.7 million) and are reported under interest-bearing as well as current liabilities. The fair value of such instruments is based on the debt instruments' quoted prices. Hence, debt instruments were allocated to level 2.

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

- Unlisted equity instruments whose fair value generally cannot be reliably determined on a continuous basis and that are reported under the "financial assets" item; these are carried at cost less any impairment losses
- Other loans, which are reported under "financial assets"
- Other receivables and other assets as well as current receivables from banking business, to the extent that these are measured at amortised cost
- Restricted bank balances
- Other cash and bank balances
- Cash deposits by market participants
- Other current liabilities

Other disclosures

33. 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 €1,107.2 million (2016: €856.6 million). After adjustment for the change in CCP positions, cash flow from operating activities amounted to €1,056.2 million (2016: €1,621.4 million). For details on the adjustments see the “Financial position” section of the combined management report.

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

Composition of other non-cash effects

	2017 €m	2016 €m
Subsequent measurement of non-derivative financial instruments	89.4	-17.6
Reversal of discount and transaction costs from long-term financing	3.4	3.7
Reversal of the revaluation surplus for cash flow hedges	2.8	2.7
Equity method measurement	1.0	8.9
Impairment of financial instruments	0	5.0
Subsequent measurement of derivatives	-8.0	4.7
Gains on the disposal of subsidiaries and equity investments	-191.0	-59.6
Miscellaneous	6.0	-0.1
Total	**-96.4**	**-52.3**

Cash flows from investing activities

Cash flows from investing activities amount to €181.9 million (2016: €578.5 million).

Investments in intangible assets and property, plant and equipment amounted to €149.2 million (2016: €164.9 million); none of these investments were attributable to discontinued operations (2016: €12.3 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

	31 Dec 2017 €m	31 Dec 2016[1] €m
Expansion investments		
Eurex	21.2	16.3
Xetra	4.0	3.4
Clearstream	44.1	45.3
Market Data + Services	10.4	3.2
	79.7	**68.2**
Replacement investments		
Eurex	25.0	39.0
Xetra	2.8	10.2
Clearstream	27.2	18.3
Market Data + Services	14.5	16.9
	69.5	**84.4**
Total investments according to segment reporting	**149.2**	**152.6**

1) Not taking into account discontinued operations

Investments in long-term financial instruments totalling €312.4 million (2016: €178.9 million) included €292.9 million (2016: €155.6 million) for the purchase of floating-rate notes in the banking business. In addition, equity investments were acquired in a total amount of €14.5 million (2016: €5.4 million).

Non-current debt instruments and equity instruments totalling €859.1 million (2016: €149.9 million) matured or were sold in the financial year 2017. The disposal of shares in BATS Global Markets, Inc. and in another equity investment resulted in a cash inflow of €274.7 million (2016: €80.3 million).

In the 2016 financial year, cash flow from investing activities reflected the disposal of shares in the ISE subgroup in particular. This transaction involved a cash inflow of €916.3 million (adjusted for €13.0 million in cash disposed). Furthermore, the disposal of the shares in Infobolsa S.A. resulted in a cash inflow of €1.1 million (adjusted for €7.1 million in cash disposed).

Cash flows from financing activities

Cash outflows from financing activities totalled €501.0 million (2016: €848.8 million). This item included the acquisition of treasury shares as part of the share repurchase programme (€28.2 million; 2016: nil) as well as payments to non-controlling shareholders (€–39.3 million; 2016: €–15.9 million).

In the 2016 financial year, Series B and C of the private placements (US$290.0 million) were repaid early.

In the 2017 financial year, the company did not place any commercial paper (2016: €400.0 million); neither did it pay out any commercial paper (2016: €495.0 million). As in the previous year, no commercial paper was issued as at 31 December 2017. Deutsche Börse AG paid dividends totalling €439.0 million for the 2016 financial year (dividend for the 2015 financial year: €420.1 million).

Reconciliation to cash and cash equivalents

Reconciliation to cash and cash equivalents

	31 Dec 2017 €m	31 Dec 2016 €m
Restricted bank balances	29,392.0	27,777.6
Other cash and bank balances	1,297.6	1,458.1
Net position of financial instruments held by central counterparties	712.1	430.2
Less bank loans and overdrafts	-7.3	-0.1
	31,394.4	**29,665.8**
Reconciliation to cash and cash equivalents		
Current receivables and securities from banking business	13,036.5	13,465.5
Less loans to banks and customers with an original maturity of more than 3 months	-1,115.8	-1,068.1
Less available-for-sale debt instruments	-254.5	-592.2
Less derivatives	-0.7	0
Current liabilities from banking business	-13,264.4	-13,840.3
Current liabilities from cash deposits by market participants	-29,215.3	-27,777.6
	-30,814.2	**-29,812.7**
Cash and cash equivalents	**580.2**	**-146.9**

34. 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 39) were added to the average number of shares. In order to calculate the number of potentially dilutive ordinary shares, the exercise prices were adjusted by the fair value of the services still to be provided.

In order to determine diluted earnings per share, all Stock Bonus Plan (SBP) and Long-term Sustainable Instrument (LSI) tranches for which cash settlement has not been resolved are 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 2017:

Calculation of the number of potentially dilutive ordinary shares

Tranche	Exercise price €	Adjustment of the exercise price according to IAS 33[1] €	Average number of outstanding options 31 Dec 2017	Average price for the period[2] €	Number of potentially dilutive ordinary shares 31 Dec 2017
2014[3]	0	0	17,366	89.09	17,366
Total					**17,366**

1) According to IAS 33.47 (a), the issue price and the exercise price for stock options and other share-based payment arrangements must include the fair value of any goods or services to be supplied to the entity in the future under the stock option or other share-based payment arrangement.
2) Average price of Deutsche Börse AG shares on Xetra calculated on a daily basis for the period 1 January to 31 December 2017, calculated on a daily basis
3) 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 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 2017.

Calculation of earnings per share (basic and diluted)

	2017	2016
Number of shares outstanding as at beginning of period	186,805,015	186,723,986
Number of shares outstanding as at end of period	186,610,158	186,805,015
Weighted average number of shares outstanding	186,835,673	186,764,058
Number of potentially dilutive ordinary shares	17,366	46,157
Weighted average number of shares used to compute diluted earnings per share	186,853,039	186,810,215
Net income for the period (€m)	874.3	1,272.7
thereof from continuing operations (€m)	874.3	722.1
thereof from discontinued operations (€m)	0	550.6
Earnings per share (basic) (€)	4.68	6.81
thereof from continuing operations (€)	4.68	3.87
thereof from discontinued operations (€)	0	2.94
Earnings per share (diluted) (€)	4.68	6.81
thereof from continuing operations (€)	4.68	3.87
thereof from discontinued operations (€)	0	2.94

As at 31 December 2017, there were no subscription rights (2016: 66,909 subscription rights) which were excluded from the calculation of the weighted average of potentially dilutive shares for having a dilutive effect during the financial year ending on the reporting date.

35. Segment reporting

Segment reporting is governed by the internal organisational and reporting structure, which is broken down by markets into the following four segments:

Internal organisational and reporting structure

Segment	Business areas
Eurex	▪ Electronic trading of European derivatives (Eurex Exchange), commodities (EEX group) and foreign exchange (360T) ▪ Eurex Repo over-the-counter (OTC) trading platform ▪ Electronic clearing architecture C7 ▪ Central counterparty for on- and off-exchange derivatives and repo transactions
Xetra	▪ Cash market with the Xetra, Börse Frankfurt and Tradegate trading venues ▪ Central counterparty for equities and bonds ▪ Admission of securities (listing)
Clearstream	▪ Custody and settlement services for securities ▪ Global securities financing and collateral management ▪ Investment funds services
Market Data + Services	▪ Distribution of licences for trading and market signals ▪ Development and sales of indices (STOXX) ▪ Technology and reporting solutions for external customers ▪ Trading participant connectivity

In accordance with IFRS 8, information on the segments is presented on the basis of internal reporting (management approach).

During the year under review, Deutsche Börse Group made adjustments to the allocation of cost and revenue items to the Group's different segments. These adjustments had the following effects to the Group's segment reporting:

- Since the first quarter of 2017, revenue and costs associated with "Managed Services" (in particular, IT services for Clearstream customers) have been recognised under the international business position (International Central Securities Depository, ICSD) within the Clearstream segment (previously "Infrastructure Services" in the Market Data + Services segment).
- Since the third quarter of 2017, revenue and costs associated with the development of a common European intraday electricity market (XBID) have been recognised under the "Commodities" position within the Eurex segment (previously "Infrastructure Services" in the Market Data + Services segment).
- Effective as at the first quarter of 2017, the definitions of product groups were adjusted in the Xetra segment, including the introduction of the "partner markets" product group. All revenue and cost items were allocated accordingly.

The previous year's figures were adjusted accordingly.

Segment reporting

	Eurex		Xetra		Clearstream	
	2017 €m	(restated) 2016 €m	2017 €m	(restated) 2016 €m	2017 €m	(restated) 2016 €m
External sales revenue	**1,019.5**	**1,052.8**	**197.8**	**186.8**	**1,023.7**	**933.1**
Internal sales revenue	0	0	0	0	5.7	8.2
Total sales revenue	1,019.5	1,052.8	197.8	186.8	1,029.4	941.3
Net interest income from banking business	26.3	21.4	0	0	106.3	62.6
Other operating income	29.5	26.9	6.7	6.6	7.4	3.2
Total revenue	**1,075.3**	**1,101.1**	**204.5**	**193.4**	**1,143.1**	**1,007.1**
Volume-related costs	-73.2	-65.8	-28.0	-28.8	-256.2	-209.7
Net revenue (total revenue less volume-related costs)	**1,002.1**	**1,035.3**	**176.5**	**164.6**	**886.9**	**797.4**
Staff costs	-259.6	-227.7	-54.0	-49.5	-246.9	-234.3
Other operating expenses	-226.0	-264.8	-39.5	-47.9	-155.4	-179.3
Operating costs[2)]	**-485.6**	**-492.5**	**-93.5**	**-97.4**	**-402.3**	**-413.6**
Net income from equity investments	192.5[3)]	35.1	5.3	1.6	0	0.2
Earnings before interest, tax, depreciation and amortisation (EBITDA)	**709.0**	**577.9**	**88.3**	**68.8**	**484.6**	**384.0**
Depreciation, amortisation and impairment losses	-83.4	-73.9	-7.8	-5.6	-54.5	-40.6
Earnings before interest and tax (EBIT)	**625.6**	**504.0**	**80.5**	**63.2**	**430.1**	**343.4**
Financial result	-55.6	-55.7	-1.5	-0.6	-8.9	-5.1
Earnings before tax (EBT)	**570.0**	**448.3**	**79.0**	**62.6**	**421.2**	**338.3**
Investments in intangible assets and property, plant and equipment[4)]	46.2	55.3	6.8	13.6	71.3	63.6
Employees (as at 31 December)	2,011	1,851	415	323	2,599	2,443
EBIT margin (%)[5)]	**62**	**49**	**46**	**38**	**48**	**43**

1) The consolidation of internal net revenue column shows the elimination of intra-Group sales revenue and profits.
2) Since the second quarter of 2017, operating costs have comprised staff costs as well as other operating expenses; depreciation, amortisation and impairment losses are disclosed separately. The previous year's figures were adjusted accordingly.
3) Including revenue in connection with the partial disposal of Direct Edge Holdings, LLC amounting to €117.0 million and revenue in connection with the disposal of ICE US Holding Company L.P. amounting to €73.6 million
4) Excluding goodwill
5) The EBIT margin is calculated as EBIT divided by net revenue.

	Market Data + Services		Total of all segments		Consolidation of internal net revenue[1]		Group	
	2017 €m	(restated) 2016 €m	2017 €m	2016 €m	2017 €m	2016 €m	2017 €m	2016 €m
	397.5	**384.6**	**2,638.5**	**2,557.3**	**0**	**0**	**2,638.5**	**2,557.3**
	37.5	40.1	43.2	48.3	-43.2	-48.3	0	0
	435.0	424.7	2,681.7	2,605.6	-43.2	-48.3	2,638.5	2,557.3
	0	0	132.6	84.0	0	0	132.6	84.0
	1.4	9.0	45.0	45.7	-13.6	-13.1	31.4	32.6
	436.4	**433.7**	**2,859.3**	**2,735.3**	**-56.8**	**-61.4**	**2,802.5**	**2,673.9**
	-39.6	-42.3	-397.0	-346.6	56.8	61.4	-340.2	-285.2
	396.8	**391.4**	**2,462.3**	**2,388.7**	**0**	**0**	**2,462.3**	**2,388.7**
	-77.8	-74.2	-638.3	-585.7	0	0	-638.3	-585.7
	-72.4	-108.7	-493.3	-600.7	0	0	-493.3	-600.7
	-150.2	**-182.9**	**-1,131.6**	**-1,186.4**	**0**	**0**	**-1,131.6**	**-1,186.4**
	0	0	197.8	36.9	0	0	197.8	36.9
	246.6	**208.5**	**1,528.5**	**1,239.2**	**0**	**0**	**1,528.5**	**1,239.2**
	-14.2	-10.9	-159.9	-131.0	0	0	-159.9	-131.0
	232.4	**197.6**	**1,368.6**	**1,108.2**	**0**	**0**	**1,368.6**	**1,108.2**
	-13.7	-13.2	-79.7	-74.6	0	0	-79.7	-74.6
	218.7	**184.4**	**1,288.9**	**1,033.6**	**0**	**0**	**1,288.9**	**1,033.6**
	24.9	20.1	149.2	152.6	0	0	149.2	152.6
	615	559	5,640	5,176	0	0	5,640	5,176
	59	**50**	**56**	**46**	**n.a.**	**n.a.**	**56**	**46**

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 Eurex to Market Data + Services).

Due to their insignificance to segment reporting, the “financial income” and “financial expense” items have been combined to produce the “financial result”.

In the year under review there was an extraordinary impairment loss of €1.1 million (2016: €6.7 million, see note 8).

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

Breakdown of non-cash valuation allowances and bad debt losses

	2017 €m	2016 €m
Eurex	0.4	0.2
Xetra	0.5	0.4
Clearstream	0.4	0.1
Market Data + Services	-0.1	0.3
Total	**1.2**	**1.0**

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 identified the following information on geographical regions: the euro zone, 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-current assets[3)]		Number of employees	
	2017 €m	2016 €m	2017 €m	2016 €m	2017 €m	2016 €m	2017	2016
Euro zone	1,347.4	1,328.1	144.6	145.7	3,742.7	3,617.4	4,224	3,843
Rest of Europe	1,019.5	992.3	3.6	6.4	485.1	488.4	1,063	1,035
America	169.4	144.9	0.1	0.5	10.6	11.9	157	99
Asia-Pacific	145.4	140.3	0.9	0	4.7	3.9	196	199
Total of all regions	**2,681.7**	**2,605.6**	**149.2**	**152.6**	**4,243.1**	**4,121.6**	**5,640**	**5,176**
Consolidation of internal net revenue	-43.2	-48.3						
Group	**2,638.5**	**2,557.3**	**149.2**	**152.6**	**4,243.1**	**4,121.6**	**5,640**	**5,176**

1) Including countries in which more than 10 per cent of sales revenue was generated: UK (2017: €792.8 million; 2016: €759.0 million) and Germany (2017: €636.7 million; 2016: €640.9 million).
2) Excluding goodwill
3) Including countries in which more than 10 per cent of non-current assets are held: Germany (2017: €3,550.2 million; 2016: €3,327.7 million) and Switzerland (2017: €467.7 million; 2016: €471.1 million).

36. 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 for financial risk is calculated at the end of each month and amounted to €554.0 million as at 31 December 2017, whereby €467.0 million stem from credit risk and €87.0 million stem from market 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 as at 31 Dec 2017 €m	Carrying amounts – maximum risk exposure Amount as at 31 Dec 2016 €m	Collateral Amount as at 31 Dec 2017 €m	Collateral Amount as at 31 Dec 2016 €m
Collateralised cash investments						
Reverse repurchase agreements	Eurex[1]		11.7	289.5	11.8[2]	291.4
	Clearstream	16	4,843.5	4,050.4	4,870.2[3][4]	4,079.8[3][4]
	Group[1]		610.0	660.0	611.3	662.5
			5,465.2	**4,999.9**	**5,493.3**	**5,033.7**
Uncollateralised cash investments						
Money market lendings – central banks	Eurex[1]		27,111.1	24,910.6	0	0
	Clearstream	16	5,471.6	0	0	0
Money market lendings – other counterparties	Clearstream	16	388.3	7,320.0	0	0
Balances on nostro accounts and other bank deposits	Clearstream		1,291.2	1,128.0	0	0
	Group[1]		2,952.8	3,375.6	0	0
Other fixed-income securities	Clearstream	13, 16	317.0	302.3	0	0
	Eurex	13	1.2	0	0	0
Floating-rate notes	Eurex	13	9.5	9.6	0	0
	Clearstream	13, 16	1,500.5	1,894.8	0	0
	Group	13	5.0[5]	5.0[5]	0	0
Fund assets	Group	13	15.1	11.4	0	0
			39,063.3	**38,957.3**	**0**	**0**
Loans for settling securities transactions						
Technical overdraft facilities	Clearstream	16	754.7	293.8	n.a.[6]	n.a.[6]
Automated Securities Fails Financing[7]	Clearstream		597.9[8]	1,403.2[8]	658.9	1,858.3
ASLplus securities lending[7]	Clearstream		52,121.9	44,777.8	52,603.0	47,068.1
			53,474.5	**46,474.8**	**53,261.9**	**48,926.4**
Total			**98,003.0**	**90,432.0**	**58,755.2**	**53,960.1**

Credit risk of financial instruments (part 2)

	Segment	Note	Carrying amounts – maximum risk exposure		Collateral	
			Amount as at 31 Dec 2017 €m	Amount as at 31 Dec 2016 €m	Amount as at 31 Dec 2017 €m	Amount as at 31 Dec 2016 €m
Balance brought forward			98,003.0	90,432.0	58,755.2	53,960.1
Other receivables						
Other loans	Group		0.4	0.4	0	0
Other assets	Group	32	514.9	450.2	0	0
Trade receivables	Group	32	329.4	669.8	0	0
Receivables from related parties	Group		2.5	2.0	0	0
Interest receivables	Clearstream	16	16.7	15.3	0	0
Margin requirements	Clearstream	16	14.8	0.4	0	0
			878.7	**1,138.1**	**0**	**0**
Financial instruments held by central counterparties			45,087.3 9)	44,228.2 9)	54,982.8 10)	57,172.8 10)
Derivatives		14	5.3	65.8	0	0
Total			143,974.3	135,864.1	113,738.0	111,132.9

1) Presented in the items “restricted bank balances” and “other cash and bank balances”
2) Thereof none repledged to central banks (2016: nil)
3) Thereof none transferred via transfer of title to central banks (2016: nil)
4) Total of fair value of cash (2017: nil; 2016: €41.0 million) and securities collateral (2017: €4,870.2 million; 2016: €4,038.8 million) received under reverse repurchase agreements
5) The amount includes collateral totalling €5.0 million (2016: €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 IAS 39 criteria for a financial guarantee contract
9) Net value of all margin requirements resulting from executed trades at the reporting date as well as clearing 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 clearing fund requirements

Cash investments

Deutsche Börse Group is exposed to credit risk in connection with the investment of cash funds. 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– (Standard & Poor's/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 (Clearstream subgroup, Eurex Clearing AG and Deutsche Börse AG) was €5,493.3 million (2016: €4,992.7 million). The Clearstream subgroup and Eurex Clearing AG are entitled to repledge the securities received to their central banks to regain liquidity.

As at 31 December 2017, Deutsche Börse Group has not pledged any securities to central banks (2016: nil).

A portion of the available-for-sale fixed-income financial instruments and floating-rate notes held by Clearstream is transferred via transfer of title to central banks to collateralise the settlement facilities obtained. The fair value of transferred securities was €1,195.9 million as at 31 December 2017 (2016: €1,818.5 million).

Clearstream receives cash deposits from its customers in various currencies, and invests these cash deposits in money market instruments. Eurex Clearing AG receives cash collateral from its clearing members mainly in its clearing currencies euro and Swiss francs. In both cases, negative interest rates resulting from reinvestments are passed on to the respective Clearstream customers or Eurex Clearing clearing members after applying an additional margin.

Loans for settling securities transactions

Clearstream 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 largely collateralised. Technical overdraft facilities amounted to €106.6 billion as at 31 December 2017 (2016: €123.8 billion). Of this amount, €3.6 billion (2016: €3.3 billion) is unsecured, whereby a large proportion relates to credit lines granted to central banks and other government-backed institutions. Actual outstandings at the end of each business day generally represent a small fraction of the facilities and amounted to €754.7 million as at 31 December 2017 (2016: €293.8 million); see note 16.

Clearstream also guarantees the risk resulting from the Automated Securities Fails Financing programme it offers to its customers. This risk is collateralised. Guarantees given under this programme amounted to €597.9 million as at 31 December 2017 (2016: €1,403.2 million). Collateral received by Clearstream Banking S.A. in connection with these loans amounted to €658.9 million (2016: €1,858.3 million).

Under the ASLplus securities lending programme, Clearstream Banking S.A. had securities borrowings from various counterparties totalling €52,121.9 million as at 31 December 2017 (2016: €44,777.8 million). These securities were fully lent to other counterparties. Collateral received by Clearstream Banking S.A. in connection with these loans amounted to €52,603.0 million (2016: €47,068.1 million).

In 2016 and 2017, 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 safety mechanisms of the Group's central counterparties are described in detail in the risk report.

The aggregate margin calls based on the executed transactions and clearing fund requirements after haircuts was €45,087.3 million at the reporting date (2016: €44,228.2 million). Collateral totalling €54,982.8 million (2016: €57,172.8 million) was actually deposited.

Composition of collateral held by central counterparties

	Collateral value as at 31 Dec 2017 €m	Collateral value as at 31 Dec 2016 €m
Cash collateral (cash deposits)[1)2)]	28,751.5	27,772.0
Securities and book-entry securities collateral[3)4)]	26,231.3	29,400.8
Total	**54,982.8**	**57,172.8**

1) The amount includes the clearing fund totalling €2,990.0 million (2016: €2,529.3 million).
2) The collateral value is determined on the basis of the fair value less a haircut amounting to €438.5 million (2016: €573.3 million).
3) The amount includes the clearing fund totalling €1,466.7 million (2016: €1,714.8 million).
4) The collateral value is determined on the basis of the fair value less a haircut amounting to €3,192.2 million (2016: €2,406.8 million).

Other receivables
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. As a result of default by customers, receivables of €2.4 million (2016: €2.1 million) relating to fees for trading and the provision of data and IT services are not expected to be collectible.

In contrast to the risk-oriented net analysis of the transactions conducted via the central counterparties, the gross amounts are reported in the balance sheet, as the offsetting rules defined in IAS 32 cannot be met. For a detailed explanation of this balance sheet item, see the "Financial instruments held by central counterparties" section in note 3 or note 15. For an analysis of the carrying amount, see note 15.

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.

Compliance with regulatory requirements on concentration risks and so-called large exposures, such as those arising from 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 article D, chapter II of the Basel Committee on Banking Supervision's "Supervisory framework for measuring and controlling large exposures" is ensured. See also note 20 for an explanation of regulatory capital requirements.

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 €467.0 million as at 31 December 2017 (2016: €407.0 million).

Deutsche Börse Group also applies additional methods in order to detect credit concentration risks. In 2017, no significant credit concentrations were assessed.

Market risk

In Deutsche Börse Group, market risk arises to a limited extent from changes in interest rates, foreign exchange rates and other market prices.

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

Deutsche Börse Group did not issue any bonds in 2017. For an overview on details on all bonds issued by Deutsche Börse Group see the "Net assets" section in the combined management report.

Currency mismatches are avoided to the maximum extent possible. Additionally, as part of annual planning, Deutsche Börse Group's treasury policy requires any net earnings exposure from an individual currency to be hedged using forward foreign-exchange transactions if the unhedged exposure of such currency exceeds 10 per cent of consolidated EBIT. Foreign-exchange exposures below 10 per cent of consolidated EBIT may also be hedged.

On an intraperiod basis, the risk exposure described above is monitored against the latest EBIT forecast.

In addition, 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 2017, there were no significant net foreign-exchange positions.

Currency risks in the Group arise mainly from operating income and expenses denominated in US dollars and from that portion of Clearstream's sales revenue and net interest income from banking business (less expenses) that is directly or indirectly generated in US dollars. The Clearstream segment generated 17 per cent of its sales revenue and net interest income (2016: 10 per cent) directly or indirectly in US dollars.

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

The required economic capital for market risk is calculated on a monthly basis. As at 31 December 2017, the required economic capital for market risk was €87.0 million (2016: €67.0 million).

In financial year 2017, impairment losses amounting to €1.1 million (2016: €7.1 million) were recognised in profit or loss for strategic investments that are not included in the VaR for market risk.

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. Eurex Clearing AG remains almost perfectly matched with respect to the durations of customer cash margins received and investments, only a limited amount of which may have tenors of up to one month. The Clearstream subgroup may invest customer balances up to a maximum of one year in secured money market products, or in high-quality securities with a remaining maturity of less than ten years, with an exception for UK gilts accepting a maximum remaining life to maturity of 30 years, subject to strict monitoring of mismatch and interest rate limits (see note 31 for an overview of the maturity structure). 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.

Contractually agreed credit lines

Company	Purpose of credit line	Currency	Amount as at 31 Dec 2017 €m	Amount as at 31 Dec 2016 €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

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.

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 2017 (2016: 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 (2016: US$2.5 billion). Furthermore, Eurex Clearing AG holds a credit facility of US$1.6 billion (2016: US$1.7 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 (2016: 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 2017, commercial paper with a nominal value of €274.7 million had been issued (2016: €349.5 million).

In November 2017, Standard & Poor's confirmed Deutsche Börse AG's AA credit rating with a stable outlook. Deutsche Börse AG was one of only three DAX-listed companies that had been given an AA rating by Standard & Poor's. 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 Standard & Poor's in 2017. For further details on the rating of Deutsche Börse Group, see the "Financial position" section in the combined management report.

37. 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 (without rental and lease agreements, see note 38) are presented in the following:

Breakdown of future financial obligations

	31 Dec 2017 €m	31 Dec 2016 €m
Up to 1 year	41.7	47.0
1 to 5 years	27.2	39.2
More than 5 years	6.9	9.1
Total	**75.8**	**95.3**

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 (as far as have already taken place) as well as expert opinions and evaluations of legal advisors. However, it is also possible that no reliable estimate for any 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 informed about 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 abandoned.

In July 2013, the US court ordered 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 then by the US Supreme Court on 20 April 2016. Once the process of distribution of funds to the plaintiffs is complete, a related case, Heiser vs Clearstream Banking S.A., also seeking turnover of the same assets, should be dismissed.

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 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 US. Clearstream Banking S.A. filed a petition for rehearing the case with the appellate court in December 2017, which the appellate court has rejected, and is now considering a petition to the US Supreme Court.

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 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.

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 of 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 which are currently subject to US and Luxembourg litigation brought by US plaintiffs, and addresses assets that were previously transferred out of Clearstream Banking S.A. to Banca UBAE S.P.A.

MBB Clean Energy AG
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 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 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.

Proceedings by the Public Prosecutor's Office in Frankfurt/Main
On 1 February 2017, Deutsche Börse AG announced that the Public Prosecutor's Office in Frankfurt/Main was investigating Deutsche Börse AG in respect of a share purchase by its former Chief Executive Officer Carsten Kengeter which was carried out on 14 December 2015, in implementation of the Executive Board's remuneration programme as approved by the Supervisory Board of Deutsche Börse AG. On 18 July 2017, the Public Prosecutor's Office in Frankfurt/Main issued a notification of hearing to Deutsche Börse AG. According to this notification of hearing, the Public Prosecutor's Office intends to formally involve the company in the ongoing investigation proceedings against Carsten Kengeter. In the notification of hearing, the Public Prosecutor, with regard to the company, held out the prospect that two fines totalling €10.5 million could be imposed on Deutsche Börse AG in accordance with section 30 of the Gesetz über Ordnungswidrigkeiten (OWiG, German Act on Regulatory Offences) due to an alleged violation of the insider trading prohibition in December 2015 and an alleged failure to disclose an ad-hoc announcement in January 2016. On 13 September 2017, Deutsche Börse AG's Executive Board and Supervisory Board decided to accept the fine which would potentially be imposed by the competent local court (Amtsgericht). On 23 October 2017, however, the local court of Frankfurt am Main refused to approve the closure of the investigation proceedings against the former Chief Executive Officer of Deutsche Börse AG, Carsten Kengeter, subject to conditions in the form of payment of €500,000, as applied for by the Public Prosecutor. In light of the significance of the proceedings the court considers it appropriate to continue the investigation proceedings at this time. The further

investigations could lead from a closure of the proceedings due to lack of adequate suspicion to an indictment. The court has returned the matter, both as relates to the investigation proceedings against Carsten Kengeter as well as to potential actions against Deutsche Börse AG, to the Public Prosecutor which will now decide upon further procedural steps.

On 26 October 2017, Carsten Kengeter informed the Supervisory Board of Deutsche Börse AG that he would like to step down as the company's Chief Executive Officer with effect from 31 December 2017. The Supervisory Board accepted this request.

Following expert consultation, Deutsche Börse AG continues to believe the allegations made are unfounded in all respects.

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 depending on the probability of occurrence. In a second step, these risks are 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.

38. Leases

Finance leases

There were no minimum lease payments from finance leases for Deutsche Börse Group neither as at 31 December 2017 nor as at 31 December 2016.

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 buildings, IT hardware and software.

Minimum lease payments from operating leases[1)]

	31 Dec 2017 €m	31 Dec 2016 €m
Up to 1 year	63.4	59.8
1 to 5 years	177.2	176.7
More than 5 years	84.0	116.7
Total	**324.6**	**353.2**

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 €68.8 million (2016: €58.5 million) were recognised as expenses. For subleases or contingent rentals, no expenses were incurred in the reporting period (2016: nil).

Operating leases for buildings, some of which are subleased, have a maximum remaining term of six 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 2017 €m	31 Dec 2016 €m
Up to 1 year	0.7	0.6
1 to 5 years	2.3	0
Total	**3.0**	**0.6**

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

39. Share-based payment

Stock Bonus Plan (SBP)

In the reporting period, the company established an additional tranche of the SBP. In order to participate in the SBP, a beneficiary must have earned a bonus. The number of stock options for senior executives 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 two or three years after the grant date (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.

For the stock bonus of senior executives under the 2014 tranche, Deutsche Börse AG has an option to settle a beneficiary's claim in cash or shares. The company resolved a cash settlement for claims relating to the 2014 tranche due in March 2018. Cash settlement has been agreed upon with the introduction of the 2015 tranche.

The SBP for members of the Executive Board of Deutsche Börse AG was terminated prematurely on 31 December 2015. Settlement of the stock bonus from the 2013 to 2015 tranches took place in the first half of 2016; payments made from the 2014 and 2015 tranches were subject to a restriction on disposal until 31 December 2016 and 31 December 2017, respectively. According to the remuneration scheme launched in 2016, members of the Executive Board are obliged to invest the payments made in Deutsche Börse AG shares, where not restricted by legal provisions.

For further information on the number of stock options granted to members of the Executive Board, and the remuneration system for members of the Executive Board applicable since 1 January 2016, please also refer to the remuneration report.

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 2017	Tranche 2016	Tranche 2015	Tranche 2014
Term to		28 Feb 2021	28 Feb 2020	31 Mar 2019	31 Mar 2018
Risk-free interest rate	%	-0.34	-0.5	-0.64	-0.78
Volatility of Deutsche Börse AG shares	%	23.18	22.63	17.82	17.73
Dividend yield	%	1.82	1.62	1.21	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 as at 31 Dec 2017 Number	Deutsche Börse AG share price as at 31 Dec 2017 €	Intrinsic value/ option as at 31 Dec 2017 €	Fair value/ option as at 31 Dec 2017 €	Settlement obligation €m	Current provision as at 31 Dec 2017 €m	Non-current provision as at 31 Dec 2017 €m
2014	17,974	96.80	96.80	76.98–95.86	1.6	1.6	0
2015	15,445	96.80	96.80	67.30	1.0	0	1.0
2016	19,532	96.80	96.80	44.87	0.9	0	0.9
2017	16,347[1)]	96.80	96.80	21.94	0.4	0	0.4
Total	**69,298**				**3.9**	**1.6**	**2.3**

1) Given that the 2017 tranche stock options for senior executives will not be granted until 2018, the number of shares applicable as at the reporting date may be adjusted subsequently.

Average price of the exercised and forfeited stock options

Tranche	Average price of the exercised stock options €	Average price of the forfeited stock options €
2013	83.18	74.65
2014	88.43	65.58
2015	89.85	44.10
2016	93.71	34.47

The stock options from the 2013 SBP tranche were exercised in the reporting period following expiration of the waiting period. Shares of the SBP tranches 2014, 2015 and 2016 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 €3.9 million were recognised at the reporting date of 31 December 2017 (31 December 2016: €7.3 million). The total expense for the stock options in the reporting period was €2.9 million (2016: €2.3 million).

Change in number of SBP shares allocated

	Balance as at 31 Dec 2016	Additions/ (disposals) Tranche 2014	Additions/ (disposals) Tranche 2015	Additions/ (disposals) Tranche 2016	Additions Tranche 2017	Fully settled cash options	Options forfeited	Balance as at 31 Dec 2017
To senior executives	132,186[1)]	0	0	-5,629	16,347	72,038	1,568	69,298

1) Given that the 2017 SBP tranche stock options for senior executives will not be granted until 2018, the number of shares applicable as at the reporting date may be adjusted subsequently.

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 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 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. This results in individual LSI tranches for the LSI bonus, which have maturities of between one and up to five years. The RSU bonus is used as a basis for a further four-year tranche. Payment of each tranche is made after a waiting period of one year. The remuneration system does not stipulate any condition of service. Following the expiry of the waiting period, both the LSI and the RSU shares 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. 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 2017	Tranche 2016	Tranche 2015	Tranche 2014
Term		31 Dec 2018– 31 Dec 2022	31 Dec 2017– 31 Dec 2021	31 Dec 2016– 31 Dec 2020	31 Dec 2017– 31 Dec 2019
Risk-free interest rate	%	–0.72 to –0.18	–0.78 to –0.34	–0.78 to –0.50	–0.78 to –0.64
Volatility of Deutsche Börse AG shares	%	17.44 to 23.40	0 to 23.4	0 to 23.4	0 to 21.73
Dividend yield	%	2.43	0 to 2.43	0 to 2.43	0 to 2.43
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 LSI and RSU shares

Tranche	Balance as at 31 Dec 2017 Number	Deutsche Börse AG share price as at 31 Dec 2017 €	Intrinsic value/ option as at 31 Dec 2017 €	Fair value/ option as at 31 Dec 2017 €	Settlement obligation €m	Current provision as at 31 Dec 2017 €m	Non-current provision as at 31 Dec 2017 €m
2014	15,379[1)]	96.80	96.80	92.26–97.36	1.5	0.7	0.8
2015	25,160[1)]	96.80	96.80	90.07–97.36	2.4	0.9	1.5
2016	100,338[1)]	96.80	96.80	87.93–97.36	9.4	2.7	6.7
2017	83,775[1)]	96.80	96.80	85.85–94.50	7.4	0	7.4
Total	**224,652**				**20.7**	**4.3**	**16.4**

1) Given that some of the 2014 to 2017 tranche stock options will only be granted in future financial years, the number of shares applicable as at the reporting date may be adjusted subsequently.

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 €20.7 million were recognised as at 31 December 2017 (31 December 2016: €13.1 million). The total expense for LSI stock options in the reporting period amounted to €9.7 million (31 December 2016: €7.6 million).

Change in number of LSI and RSU shares allocated

	Balance as at 31 Dec 2016	Additions/ (disposals) Tranche 2014	Additions/ (disposals) Tranche 2015	Additions/ (disposals) Tranche 2016	Additions/ (disposals) Tranche 2017	Fully settled cash options	Options forfeited	Balance as at 31 Dec 2017
To senior executives	182,978	-9,519[1)]	-23,949[1)]	-8,633[1)]	83,775[1)]	0	0	224,652
Total	**182,978**	**-9,519**	**-23,949**	**-8,633**	**83,775**	**0**	**0**	**224,652**

1) Given that some of the 2014 to 2017 tranche stock options will only be granted in future financial years, the number of shares applicable as at the reporting date may be adjusted subsequently.

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 holding 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 its new 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 2017	Tranche 2016	Tranche 2015
Term to		31 Dec 2021	31 Dec 2020	31 Dec 2019
Risk-free interest rate	%	-0.34	-0.50	-0.64
Volatility of Deutsche Börse AG shares	%	22.25	23.40	21.73
Dividend yield	%	0	0	0
Exercise price	€	0	0	0
Relative total shareholder return	%	102.00	132.00	112.00
Net profit for the period attributable to Deutsche Börse AG shareholders	%	220.00	80.00	250.00

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 2017 Number	Deutsche Börse AG share price as at 31 Dec 2017 €	Intrinsic value/ option as at 31 Dec 2017 €	Fair value/ option as at 31 Dec 2017 €	Settlement obligation €m	Current provision as at 31 Dec 2017 €m	Non-current provision as at 31 Dec 2017 €m
2015	124,957	96.80	96.80	60.02	7.5	0	7.5
2016	90,007	96.80	96.80	40.60	3.7	0	4.6
2017	147,713	96.80	96.80	13.83 to 19.84	2.9	0	5.4
Total	**362,677**				**14.1**	**0**	**17.5**

Provisions for the CPIP and the PSP amounting to €17.5 million were recognised at the reporting date of 31 December 2017 (31 December 2016: €5.1 million). Of the provisions, €14.8 million were attributable to members of the Executive Board (2016: €4.6 million). The total expense for CPIP and PSP stock options in the reporting period was €12.3 million (2016: €4.1 million). Of that amount, an expense of €10.2 million was attributable to members of the Executive Board active at the reporting date (2016: €3.6 million).

Change in number of CPIP and PSP shares allocated

	Balance as at 31 Dec 2016	Additions/ (disposals) Tranche 2015	Additions/ (disposals) Tranche 2016	Additions/ (disposals) Tranche 2017	Fully settled cash options	Options forfeited	Balance as at 31 Dec 2017
To the Executive Board	134,529	-9,572	56,392	88,021	0	0	269,370
To other senior executives	84,177	0	-50,562	59,692	0	0	93,307
Total	**218,706**	**-9,572**	**5,830**	**147,713**	**0**	**0**	**362,677**

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 2017 GSP tranche, eligible employees were able to buy up to 100 shares of the company. The purchased shares must be held for at least two years.

In the reporting period, an expense totalling €3.6 million (2016: €2.6 million) was recognised in staff expense for the GSP.

40. Executive bodies

The members of the company's executive bodies are listed in the "The Executive Board" and "The Supervisory Board" chapters of this financial report.

41. Corporate governance

On 12 December 2017, 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 statement and corporate governance report).

42. 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 2017, the fixed and variable remuneration of the members of the Executive Board, including non-cash benefits, amounted to a total of €15.3 million (2016: €20.4 million).

During the 2017 financial year, expenses of €3.7 million (2016: €2.7 million) were recognised in connection with the Co-Performance Investment Plan (CPIP). In addition, expenses of €6.5 million were recognised in connection with the Performance Share Plan (PSP) during the year under review.

The actuarial present value of the pension obligations to Executive Board members was €21.2 million as at 31 December 2017 (2016: €21.5 million). Expenses of €1.8 million (2016: €2.8 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 €4.3 million in 2017 (2016: €4.5 million). The actuarial present value of the pension obligations was €69.9 million at 31 December 2017 (2016: €74.2 million).

Supervisory Board

The aggregate remuneration paid to members of the Supervisory Board in financial year 2017 was €1.8 million (2016: €1.8 million).

In financial year 2017, the employee representatives on Deutsche Börse AG's Supervisory Board received salaries (excluding Supervisory Board remuneration) amounting to €0.5 million (2016: €0.5 million). The total consists of the respective total gross amounts for those employee representatives who drew salaries from Deutsche Börse AG in the year under review.

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 2017 financial year. All transactions were concluded at prevailing market terms.

Transactions with related entities

	Amount of the transactions: revenue		Amount of the transactions: expenses		Outstanding balances: receivables		Outstanding balances: liabilities	
	2017 €m	2016 €m	2017 €m	2016 €m	31 Dec 2017 €m	31 Dec 2016 €m	31 Dec 2017 €m	31 Dec 2016 €m
Associates	12.6	13.0	-18.5	-12.3	2.9	2.5	-1.5	-3.6
Other shareholdings	0	0.5	0	-1.0	0	0	0	0
Total of business transactions	**12.6**	**13.5**	**-18.5**	**-13.3**	**2.9**	**2.5**	**-1.5**	**-3.6**

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. ECC Luxembourg paid €14.0 thousand for these management services during the 2017 financial year.

Moreover, a member of the Supervisory Board of STOXX Ltd., Zurich, 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 €394.8 thousand in the 2017 financial year. As at 31 December 2017, liabilities amounted to €20.7 thousand.

The Board of Directors of Powernext SAS, Paris, France, a subsidiary of European Energy Exchange AG, Leipzig, Germany, comprises representatives of other shareholders of Powernext SAS. These shareholder representatives also hold key positions in the following companies which were Powernext SAS's shareholder companies until its full acquisition by European Energy Exchange AG: GRTgaz, Bois-Colombes, France (parent company of 3GRT, Tarascon, France), and EDEV S.A., Courbevoie, France. During the 2017 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. The company generated €612.5 thousand in revenue with these services during the 2017 financial year. As at 31 December 2017, receivables amounted to €151.5 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 have been business transactions with Clearstream Banking S.A., Luxembourg, Clearstream Services S.A., Luxembourg, Clearstream International S.A., Luxembourg, and Clearstream Banking AG, Frankfurt/Main, Germany, to LuxCSD S.A. Overall, revenue of €2,127.2 thousand as well as expenses of €1,283.3 thousand were recognised for such contracts during the 2017 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 2017 financial year, Deutsche Börse Group realised revenue of €3,627.7 thousand and incurred expenses of €15,843.1 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 2017 financial year, Deutsche Börse Group realised revenue of €177.3 thousand and incurred expenses of €216.1 thousand based on the business relationship with CEINEX.

Other business relationships with key management personnel
Selected executives of Deutsche Börse Group subsidiaries 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.

43. Employees

Employees

	2017	2016
Average number of employees during the year	5,567	5,095
Employed at the reporting date	5,640	5,176
Employees (average annual FTEs)	5,183	4,731

Of the average number of employees during the year, 31 (2016: 29) were classified as Managing Directors (excluding Executive Board members), 335 (2016: 348) as senior executives and 5,201 (2016: 4,718) as employees.

There was an average of 5,183 full-time equivalent (FTE) employees during the year (2016: 4,731). Please refer also to the "Employees" section in the combined management report.

44. Events after the end of the reporting period

For details on the ongoing disputes between the Central Bank of Iran and Clearstream Banking S.A., Luxembourg, see note 37.

45. Date of approval for publication

Deutsche Börse AG's Executive Board approved the consolidated financial statements for submission to the Supervisory Board on 6 March 2018. The Supervisory Board is responsible for examining the consolidated financial statements and stating whether it endorses them.

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, 9 March 2018
Deutsche Börse AG

Theodor Weimer   Andreas Preuss   Gregor Pottmeyer

Hauke Stars   Jeffrey Tessler

Independent Auditor's Report

To Deutsche Börse Aktiengesellschaft, Frankfurt am Main

Report on the Audit of the Consolidated 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 2017, 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 2017, 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 2017 to 31 December 2017. In accordance with the German legal requirements we have not audited the content of the combined corporate governance statement, which is included 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 2017 and of its financial performance for the financial year from 1 January to 31 December 2017, 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 2017. 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 2017, goodwill amounted to EUR 2,770.9 million (previous year: EUR 2,721.1 million). The goodwill thus represents 2 per cent of the assets of the Group at 31 December 2017.

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 911.2 million (previous year: EUR 859.9 million) at 31 December 2017. The other intangible assets thus represent 0.7 per cent of the assets of the Group at 31 December 2017.

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 cashflows 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 (Tax provisions) and note 37 (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 339.4 million at 31 December 2017.

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 17 May 2017. We were engaged by the audit committee of the Supervisory Board on 12 September 2017. In compliance with the transitional provisions of Article 41 (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, audits of financial statements in the context of M&A activities, 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 Andreas Dielehner.

Frankfurt/Main, 9 March 2018

KPMG AG
Wirtschaftsprüfungsgesellschaft

Dielehner Wirtschaftsprüfer (German Public Auditor)	Hommel Wirtschaftsprüfer (German Public Auditor)

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Contact

Investor Relations
E-mail ir@deutsche-boerse.com
Phone +49-(0) 69–2 11–1 16 70
Fax +49-(0) 69–2 11–1 46 08
www.deutsche-boerse.com/ir_e

Group Sustainability
E-mail group-sustainability@deutsche-boerse.com
Phone +49-(0) 69–2 11–1 42 26
Fax +49-(0) 69–2 11–61 42 26
www.deutsche-boerse.com/sustainability

Group Marketing
E-mail corporate.report@deutsche-boerse.com
Phone +49-(0) 69–2 11–1 49 84
Fax +49-(0) 69–2 11–61 49 84

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