Number of employees

As of December 31, 2017, the number of employees rose to 115,490 employees compared with 113,830 employees as of December 31, 2016.

It was distributed over the regions as follows:

Number of employees as of December 31

	2017	2016
Europe	71,653	70,784
Thereof Germany	54,020	53,318
North America	18,295	17,583
Asia Pacific	18,256	18,156
South America, Africa, Middle East	7,286	7,307
BASF Group	**115,490**	**113,830**
Thereof apprentices and trainees	3,103	3,120
temporary staff	2,550	2,334

Employees from joint operations are included in the number of employees at year end relative to BASF's share in the respective company. In total, this included 472 employees in 2017 (2016: 432 employees).

The average number of employees was distributed over the regions as follows:

Average number of employees

	2017	2016
Europe	71,043	69,873
Thereof Germany	53,390	52,608
North America	17,871	17,308
Asia Pacific	18,132	17,473
South America, Africa, Middle East	7,287	7,321
BASF Group	**114,333**	**111,975**
Thereof apprentices and trainees	2,793	2,838
temporary staff	2,691	2,365

Employees from joint operations are included in the average number of employees relative to BASF's share in the company. This comprised a total of 437 employees (2016: 404 employees).

Notes on balance sheet

14 Intangible assets

The **goodwill** of BASF is allocated to 24 cash-generating units (2016: 22), which are defined either on the basis of business units or on a higher level.

Annual impairment testing took place in the fourth quarter of the year on the basis of the cash-generating units. Recoverable amounts were determined in most cases using the value in use. This was done using plans approved by company management and their respective cash flows, generally for the next five years. Thereafter, a terminal value was calculated using a forward projection from the last detailed planning year as a perpetual annuity. The planning is based on experience, current performance and management's best possible estimates on the future development of individual parameters, such as raw materials prices and profit margins. Oil and gas prices are also among the main input parameters that provide the basis for the forecast of cash flows in the current financial plans. Market assumptions regarding, for example, economic development and market growth are included based on external macroeconomic sources as well as sources specific to the industry.

The required discounting of cash flows for impairment testing is calculated with the weighted average cost of capital rate after tax, which is determined using the Capital Asset Pricing Model. It comprises a risk-free rate, a market risk premium, and a spread for credit risk based on the respective industry-specific peer group. The calculation also takes into account capital structure and the beta factor of the respective peer group as well as the average tax rate of each cash-generating unit. Impairment tests of the units (excluding Exploration & Production in the Oil & Gas segment) were conducted assuming a weighted average cost of capital rate after taxes between 5.69% and 8.2% (2016: between 5.07% and 8.01%). This represents a weighted average cost of capital rate before taxes of between 7.13% and 11.31% (2016: between 6.43% and 10.77%). A valuation model based on a field-related valuation approach has been used, for the unit Exploration & Production in the Oil & Gas segment since the business year 2016, which considers the expected cash flows as well as the tax payments in the individual countries. The period under consideration includes the planned license terms and the production profiles of the included oil and gas fields. Furthermore, instead of using a single weighted average cost of capital rate, the country risk and the specific tax rate is considered in each case: this leads to a more precise calculation of the recoverable amount. Considering these parameters, the capital rate after taxes varied between 7.92% and 12.85% (2016: between 7.5% and 13.76%) and before taxes between 11.32% and 20.07% (2016: between 10.96% and 37.68%).

After determining the recoverable amount of the cash-generating units, it was determined for the large majority of them that reasonable possible deviations from the key assumptions would not lead to the carrying amounts of the units exceeding their respective recoverable amounts. For the goodwill of the Construction Chemicals division and the cash-generating units Pigments in the Dispersions & Pigments division, as well as Surface Treatment in the Coatings division, this is not the case.

In the 2017 business year, the recoverable amount of the Construction Chemicals unit exceeded the carrying amount by around €408 million. The weighted average cost of capital rate after taxes used for impairment testing was 8.2% (2016: 8.01%). The recoverable amount would equal the unit's carrying amount if the weighted average cost of capital rate increased by 0.98 percentage points (2016: by 0.69 percentage points) or if income from operations of the last detailed planning year – as the basis for the terminal value – were lower by 15.97% (2016: by 12.0%).

In 2017, the recoverable amount of Pigments exceeded the carrying amount by €9 million. The weighted average cost of capital rate after taxes used for impairment testing was 6.05% (2016: 5.09%). The recoverable amount would equal the unit's carrying amount if the weighted average cost of capital rate increased by 0.04 percentage points (2016: by 0.51 percentage points) or if income from operations of the last detailed planning year – as the basis for the terminal value – were lower by 0.81% (2016: by 13.78%).

An impairment test for the Surface Treatment unit in the Coatings division was carried out for the first time in the business year 2017 (acquisition in December 2016). In 2017, the recoverable amount of this unit exceeded the carrying amount by €100 million. The weighted average cost of capital rate after taxes used for the impairment testing of this unit was 8.19% (2016: –). The recoverable amount would equal the unit's carrying amount if the weighted average cost of capital rate increased by 0.2 percentage points (2016: –) or if income from operations of the last detailed planning year – as the basis for the terminal value – were 6.1% lower (2016: –).

Goodwill of cash-generating units (million €)

	2017		2016	
Cash-generating unit	**Goodwill**	**Growth rate[1]**	**Goodwill**	**Growth rate[1]**
Crop Protection division	1,929	2.0%	2,093	2.0%
Exploration & Production in the Oil & Gas segment	1,504	–	1,712	–
Catalysts division (excluding battery materials)	1,285	2.0%	1,390	2.0%
Construction Chemicals division	732	2.0%	735	1.5%
Personal care ingredients in the Care Chemicals division	499	2.0%	531	2.0%
Pigments in the Dispersions & Pigments division	389	1.5%	431	2.0%
Surface Treatment in the Coatings division	1,490	2.0%	1,555	–
Other cash-generating units	1,525	0.0–2.0%	1,626	0.0–2.0%
Goodwill as of December 31	**9,353**		**10,073**	

[1] Growth rates used in impairment tests to determine terminal values in accordance with IAS 36

Development of intangible assets 2017 (million €)

	Distribution, supply and similar rights	Product rights, licenses and trademarks	Know-how, patents and production technologies	Internally generated intangible assets	Other rights and values[1]	Goodwill	Total
Cost							
Balance as of January 1, 2017	5,051	1,339	1,958	92	435	10,214	19,089
Changes in scope of consolidation	1	–	–	–	–	–	1
Additions	3	19	20	25	34	–	101
Additions from acquisitions	10	47	56	–	25	97	235
Disposals	(40)	(20)	(53)	(1)	(79)	(28)	(221)
Transfers	14	(178)	(24)	–	13	–	(175)
Currency effects	(317)	(57)	(78)	–	(17)	(806)	(1,275)
Balance as of December 31, 2017	4,722	1,150	1,879	116	411	9,477	17,755
Accumulated amortization							
Balance as of January 1, 2017	2,168	435	882	72	229	141	3,927
Changes in scope of consolidation	–	–	–	–	–	–	–
Additions	298	70	166	10	72	–	616
Disposals	(35)	(17)	(53)	(1)	(72)	–	(178)
Transfers	–	–	–	–	–	–	–
Currency effects	(130)	(9)	(41)	–	(7)	(17)	(204)
Balance as of December 31, 2017	2,301	479	954	81	222	124	4,161
Net carrying amount as of December 31, 2017	**2,421**	**671**	**925**	**35**	**189**	**9,353**	**13,594**

[1] Including licenses to such rights and values

Besides goodwill, **intangible assets** also include acquired intangible assets as well as internally generated intangible assets. In addition, they include rights belonging to the Oil & Gas segment, which are amortized in accordance with the unit of production method. As of December 31, 2017, their acquisition costs amounted to €962 million and accumulated amortization to €312 million; amortization in 2017 amounted to €41 million.

Additions from acquisitions amounted to €235 million in 2017. **Goodwill** increased by €79 million as a result of the following significant acquisitions: Rolic AG headquartered in Allschwil, Switzerland; GRUPO Thermotek with headquarters in Monterrey, Mexico; the Henkel group's western European building material business; and ZedX Inc., Bellefonte, Pennsylvania. A further addition to goodwill amounting to €18 million arose primarily from a retroactive purchase price payment for the acquisition of Chemetall from the previous year.

In connection with these transactions, further additions to intangible assets amounted to €138 million. These related predominantly to product rights, licenses and trademarks as well as know-how, patents and production technologies.

Concessions for oil and gas production under the category **product rights, licenses and trademarks** with a net carrying amount of €234 million in 2017 authorize the exploration and production of oil and gas in certain areas. At the end of the term of a concession, the rights are returned.

Disposals of intangible assets amounting to €221 million were largely attributable to the derecognition of software fully written off as well as the sale of the production site for electrolytes in Suzhou, China, the sale of Bleaching Clay and Mineral Adsorbents businesses, and the transfer of the global leather chemicals business to the Stahl group. Related to this, goodwill of €28 million was derecognized.

The **transfers** largely concerned the confirmed oil and gas deposits in the Maria field in Norway to property, plant and equipment. Non-confirmed deposits in connection with acquired concessions are reported as intangible assets under product rights, licenses and trademarks.

In 2017, additions to **accumulated amortization** included impairments of €67 million. This mainly pertained to impairments of non-strategic know-how, patents and production technologies in the Functional Materials & Solutions segment and exploration potential for oil and gas production in Norway. Offsetting this, reversals of impairments of €7 million were included. These related primarily to selling rights in the Functional Materials & Solutions segment.

Development of intangible assets 2016 (million €)

	Distribution, supply and similar rights	Product rights, licenses and trademarks	Know-how, patents and production technologies	Internally generated intangible assets	Other rights and values[1]	Goodwill	Total
Cost							
Balance as of January 1, 2016	4,063	1,318	1,951	91	450	8,500	16,373
Changes in scope of consolidation	–	–	–	–	–	2	2
Additions	–	18	39	10	25	–	92
Additions from acquisitions	1,082	44	108	–	3	1,552	2,789
Disposals	(343)	(39)	(149)	(9)	(60)	(64)	(664)
Transfers	(2)	(16)	(12)	–	13	–	(17)
Currency effects	251	14	21	–	4	224	514
Balance as of December 31, 2016	5,051	1,339	1,958	92	435	10,214	19,089
Accumulated amortization							
Balance as of January 1, 2016	2,160	411	865	67	196	137	3,836
Changes in scope of consolidation							
Additions	260	47	153	14	86	–	560
Disposals	(339)	(24)	(146)	(9)	(55)	–	(573)
Transfers	(1)	–	–	–	–	–	(1)
Currency effects	88	1	10	–	2	4	105
Balance as of December 31, 2016	2,168	435	882	72	229	141	3,927
Net carrying amount as of December 31, 2016	**2,883**	**904**	**1,076**	**20**	**206**	**10,073**	**15,162**

[1] Including licenses to such rights and values

Besides goodwill, **intangible assets** also include acquired intangible assets as well as internally generated intangible assets. In addition, they include rights belonging to the Oil & Gas segment, which are amortized in accordance with the unit of production method. As of December 31, 2016, their acquisition costs amounted to €1,029 million and accumulated amortization to €328 million; amortization in 2016 amounted to €19 million.

Additions from acquisitions amounted to €2,789 million in 2016. Significant acquisitions comprising the purchase of the global surface treatment provider Chemetall from Albemarle Corp., Charlotte, North Carolina, and the automotive refinishing business from Guangdong Yinfan Chemistry, Jiangmen, China, led to an increase of goodwill in the amount of €1,552 million. In connection with these transactions, additions to intangible assets amounted to €1,237 million. These were primarily related to customer relationships and production technologies.

Disposals of intangible assets in the amount of €21 million were largely attributable to the sale of the 25% share in the Byrding field to Statoil and the divestiture of the global photoinitiator business as well as the global polyolefin catalysts business. Related to this, goodwill of €64 million was derecognized.

Concessions for oil and gas production under the category **product rights, licenses and trademarks** with a net carrying amount of €466 million in 2016 authorize the exploration and production of oil and gas in certain areas. At the end of the term of a concession, the rights are returned.

In 2016, additions to **accumulated amortization** included impairments of €61 million. This primarily affected impairments relating to production technologies and distribution rights in the Functional Materials & Solutions segment in the amount of €51 million.

15 Property, plant and equipment

Machinery and technical equipment contain oil and gas deposits, including related wells, production facilities and further infrastructure, which are depreciated according to the unit of production method.

Development of property, plant and equipment 2017 (million €)

	Land, land rights and buildings	Machinery and technical equipment	Thereof depreciation according to the unit of production method	Miscellaneous equipment and fixtures	Construction in progress	Total
Cost						
Balance as of January 1, 2017	11,257	49,893	7,180	4,437	5,989	71,576
Changes in scope of consolidation	–	14	–	–	1	15
Additions	171	1,292	450	272	2,285	4,020
Additions from acquisitions	–	7	–	1	–	8
Disposals	(131)	(825)	(17)	(280)	(36)	(1,272)
Transfers	367	2,635	890	128	(2,945)	185
Currency effects	(495)	(2,458)	(563)	(171)	(495)	(3,619)
Balance as of December 31, 2017	11,169	50,558	7,940	4,387	4,799	70,913
Accumulated depreciation						
Balance as of January 1, 2017	5,969	35,655	3,711	3,308	231	45,163
Changes in scope of consolidation	–	14	–	–	–	14
Additions	385	2,878	931	335	(12)	3,586
Disposals	(95)	(761)	(3)	(266)	(32)	(1,154)
Transfers	–	(50)	–	(1)	53	2
Currency effects	(194)	(1,626)	(310)	(112)	(24)	(1,956)
Balance as of December 31, 2017	6,065	36,110	4,329	3,264	216	45,655
Net carrying amount as of December 31, 2017	**5,104**	**14,448**	**3,611**	**1,123**	**4,583**	**25,258**

Additions to property, plant and equipment arising from investment projects amounted to €4,020 million in 2017. Material investments included the acetylene plant currently under construction as well as plants for the production of catalysts in Ludwigshafen, Germany. Additions also comprised the construction of an aroma ingredients complex in Kuantan, Malaysia, and the modification of production plants for plasticizers in Pasadena, Texas, which have already partly started up. Material investments were also made for the construction of oil and gas facilities and wells in Europe and South America. Furthermore, investments were particularly made at the sites in Ludwigshafen, Germany; Antwerp, Belgium; Shanghai, China; Freeport, Texas; Geismar, Louisiana; and Port Arthur, Texas.

Government grants for the funding of investment measures reduced asset additions by €9 million.

Acquisitions led to an increase in property, plant and equipment in the amount of €8 million primarily from the acquisition of GRUPO Thermotek in Monterrey, Mexico.

In 2017, impairments of €262 million were included in **accumulated depreciation**. These pertained largely to machinery and technical equipment and resulted primarily from the full impairment of a production plant in the Chemicals segment due to overcapacities. The recoverable amount equaled value in use and the weighted average cost of capital rate before taxes was 10.27%.

Depreciation also included impairments in the Oil & Gas segment, which were overcompensated by reversals in the same segment. These primarily concerned construction in progress. In total, reversals of impairments in additions to accumulated depreciation amounted to €182 million.

Disposals of property, plant and equipment were largely attributable to the sale of the Bleaching Clay and Mineral Adsorbents businesses; the production site for electrolytes in Suzhou, China; the inorganic specialties business; and the leather chemicals business.

For more information on divestitures, see Note 2.4 from page 187 onward

The **transfers** largely concerned the confirmed oil and gas deposits in the Maria field in Norway from intangible assets to machinery and technical equipment.

Currency effects reduced property, plant and equipment by €1,663 million and arose mainly from the depreciation of the U.S. dollar relative to the euro.

Development of property, plant and equipment 2016 (million €)

	Land, land rights and buildings	Machinery and technical equipment	Thereof depreciation according to the unit of production method	Miscellaneous equipment and fixtures	Construction in progress	Total
Cost						
Balance as of January 1, 2016	10,711	45,805	5,972	4,216	6,502	67,234
Changes in scope of consolidation	(1)	–	–	2	–	1
Additions	183	1,300	309	203	2,536	4,222
Additions from acquisitions	77	54	–	18	6	155
Disposals	(194)	(760)	(30)	(213)	(88)	(1,255)
Transfers	322	2,796	716	165	(3,145)	138
Currency effects	159	698	213	46	178	1,081
Balance as of December 31, 2016	11,257	49,893	7,180	4,437	5,989	71,576
Accumulated depreciation						
Balance as of January 1, 2016	5,637	32,965	2,827	3,152	220	41,974
Changes in scope of consolidation	(1)	–	–	–	–	(1)
Additions	376	2,930	939	307	78	3,691
Disposals	(100)	(658)	(28)	(182)	(73)	(1,013)
Transfers	(1)	1	–	1	–	1
Currency effects	58	417	(27)	30	6	511
Balance as of December 31, 2016	5,969	35,655	3,711	3,308	231	45,163
Net carrying amount as of December 31, 2016	**5,288**	**14,238**	**3,469**	**1,129**	**5,758**	**26,413**

Additions to property, plant and equipment arising from investment projects amounted to €4,222 million in 2016. Material investments were primarily related to the construction of an integrated aroma ingredients complex in Kuantan, Malaysia, the TDI complex in Ludwigshafen, Germany, and the expansion of the dicamba plant in Beaumont, Texas, which were partially started up in 2016. Further material asset additions included the construction of an ammonia plant in Freeport, Texas, and oil and gas production facilities and wells in Europe and South America.

In addition, investments for expansion purposes were particularly made at the sites in Ludwigshafen, Germany; Geismar, Louisiana; Port Arthur, Texas; and Antwerp, Belgium.

Government grants of €1 million were deducted from asset additions.

Due to acquisitions, property, plant and equipment rose by €155 million primarily from the acquisition of the global surface treatment provider Chemetall from Albemarle Corp., Charlotte, North Carolina.

In 2016, impairments of €254 million were included in **accumulated depreciation**. These pertained largely to impairments of €133 million on machinery and technical equipment as well as buildings due to the new strategic direction of individual businesses in the Chemicals and Functional Materials & Solutions segments. The recoverable amount of these assets equals their value in use amounting to €72 million. The weighted average cost of capital rate before taxes applied ranged between 9.4% and 12.8%.

In 2016, additions to accumulated depreciation contained reversals of impairments of €2 million.

Disposals of property, plant and equipment were largely attributable to the sale of assets of the global polyolefin catalysts business to W.R. Grace & Co., Columbia, Maryland; the sale of the worldwide photoinitiator business to IGM Resins B.V., Waalwijk, Netherlands; the sale of the 25% share in the Byrding field to Statoil; and the sale of industrial coatings business to the AkzoNobel Group.

Currency effects arose particularly from the appreciation of the U.S. dollar as well as the Brazilian real relative to the euro.

16 Investments accounted for using the equity method and other financial assets

Investments accounted for using the equity method (million €)

	2017	2016
Balance as of January 1	4,647	4,436
Changes in scope of consolidation	(50)	–
Additions	223	152
Disposals	(82)	(1)
Transfers	120	(27)
Currency effects	(143)	87
Net carrying amount as of December 31	**4,715**	**4,647**

Other financial assets (million €)

	December 31, 2017	December 31, 2016
Other shareholdings	482	468
Long-term securities	124	137
Other financial assets	**606**	**605**

Changes in the scope of consolidation arose particularly from the first-time consolidation of a company.

Additions arose from the completed combination of the global leather chemicals business with the Stahl group on September 29, 2017. In connection with this, BASF received a 16.6% share in Stahl Lux 2 S.A., Luxembourg. Additions also included capital increases amounting to €34 million.

A significant component of the **disposals** totaling €82 million was the capital reduction at W & G Infrastruktur Finanzierungs-GmbH, Kassel, Germany.

Besides the net income of investments accounted for using the equity method, transfers include dividend distributions and other comprehensive income of the companies.

For a detailed overview of income from companies accounted for using the equity method, see Note 9 on page 197

17 Inventories

Million €	December 31, 2017	December 31, 2016
Raw materials and factory supplies	3,255	3,107
Work-in-process, finished goods and merchandise	6,979	6,808
Advance payments and services-in-process	69	90
Inventories	**10,303**	**10,005**

Work-in-process, finished goods and merchandise are combined into one item due to the production conditions in the chemical industry. Services-in-process primarily relate to services not invoiced as of the balance sheet date.

Cost of sales included inventories recognized as an expense amounting to €29,941 million in 2017, and €26,048 million in 2016.

A reversal of a write-down on inventory was recognized in the amount of €18 million in 2017 and a write-down in the amount of €43 million in 2016.

Of total **inventories**, €863 million was measured at net realizable value in 2017 and €836 million in 2016.

18 Receivables and miscellaneous assets

Other receivables and miscellaneous assets (million €)

	December 31, 2017		December 31, 2016	
	Noncurrent	Current	Noncurrent	Current
Loans and interest receivables	782	245	568	250
Derivatives with positive fair values	91	321	176	342
Receivables from finance leases	25	4	29	5
Insurance compensation receivables	0	41	6	14
Miscellaneous	111	329	126	406
Other receivables and assets which qualify as financial instruments	**1,009**	**940**	**905**	**1,017**
Prepaid expenses	54	249	62	258
Defined benefit assets	70	–	66	–
Tax refund claims	125	787	114	747
Employee receivables	–	8	–	10
Precious metal trading items	–	746	–	690
Miscellaneous	74	375	63	356
Other receivables and assets which do not qualify as financial instruments	**323**	**2,165**	**305**	**2,061**
Other receivables and miscellaneous assets	**1,332**	**3,105**	**1,210**	**3,078**

The increase in noncurrent **loans and interest receivables** was predominantly due to the loan in the amount of €325 million granted by Wintershall Nederland Transport and Trading B.V., Rijswijk, Netherlands, to Nord Stream 2 AG, and the loan in the amount of €140 million granted by W & G Transport Holding GmbH, Kassel, Germany, to W & G Infrastruktur Finanzierungs-GmbH, Kassel, Germany, in 2017. In 2017, the loans granted by the fully consolidated WIGA Transport Beteiligungs-GmbH & Co. KG, Kassel, Germany, to NEL Gastransport GmbH, Kassel, Germany, and GASCADE Gastransport GmbH, Kassel, Germany were transferred to the W & G Infrastruktur Finanzierungs-GmbH, which is accounted for using the equity method, and had an offsetting effect of €259 million. In addition to the loans granted already mentioned, there were particularly loans and interest receivables from BASF Belgium Coordination Center Comm. V. Antwerp, Belgium, to finance the business expansion of Asian companies, and receivables in favor of BASF SE from the BASF Pensionskasse VVaG.

The reduction of noncurrent **derivatives with positive fair values** primarily affected the market valuation of combined interest rate and currency swaps. The change in current derivatives with positive fair market values was largely attributable to the lower fair values of precious metal and foreign currency derivatives.

Prepaid expenses in 2017 included prepayments of €62 million related to operating activities compared with €64 million in 2016, as well as €50 million in prepayments for insurance in 2017 compared with €54 million in 2016. Prepayments for license costs decreased from €48 million in 2016 to €42 million in 2017.

The increase in current **tax refund claims** can largely be traced back to the rise in open income tax receivables.

Precious metal trading items primarily comprise physical items and precious metal accounts as well as long positions in precious metals, which are largely hedged through sales or derivatives.

Valuation allowances for receivables 2017 (million €)

	Balance as of January 1, 2017	Additions recognized in income	Reversals recognized in income	Additions not recognized in income	Reversals not recognized in income	Balance as of December 31, 2017
Accounts receivable, trade	370	80	38	12	75	349
Other receivables	118	10	6	–	10	112
Total	**488**	**90**	**44**	**12**	**85**	**461**

Valuation allowances for receivables 2016 (million €)

	Balance as of January 1, 2016	Additions recognized in income	Reversals recognized in income	Additions not recognized in income	Reversals not recognized in income	Balance as of December 31, 2016
Accounts receivable, trade	298	106	35	40	39	370
Other receivables	75	27	1	24	7	118
Total	**373**	**133**	**36**	**64**	**46**	**488**

Changes recognized in income contained individual valuation allowances, group-wise individual valuation allowances and valuation allowances due to transfer risks.

Changes not recognized in income were primarily related to changes in the scope of consolidation, translation adjustments and derecognition of uncollectible receivables.

In the current economic environment, BASF has not observed any material changes in the credit quality of its receivables. In 2017, individual valuation allowances of €61 million were recognized for **accounts receivable, trade,** and €15 million were reversed. In 2016, individual valuation allowances of €71 million were recognized for trade accounts receivable and valuation allowances of €22 million were reversed.

At BASF, a comprehensive, global credit insurance program covers trade accounts receivable. As part of a global excess of loss policy, future bad debts are insured for essentially all BASF Group companies excluding joint ventures. No compensation claims were incurred in either 2016 or 2017.

In 2017, individual valuation allowances of €10 million were recognized for **other receivables** and €6 million were reversed. In 2016, individual valuation allowances of €27 million were recognized for other receivables and €1 million was reversed.

Aging analysis of accounts receivable, trade (million €)

	December 31, 2017		December 31, 2016	
	Gross value	Valuation allowances	Gross value	Valuation allowances
Not yet due	10,449	35	10,295	26
Past due less than 30 days	527	1	381	2
Past due between 30 and 89 days	115	6	159	8
Past due more than 90 days	448	307	487	334
Total	**11,539**	**349**	**11,322**	**370**

As of December 31, 2017, there were no material other receivables classified as financial instruments that were overdue and for which no valuation allowance was made.

19 Capital, reserves and retained earnings

Authorized capital

At the Annual Shareholders' Meeting on May 2, 2014, shareholders authorized the Board of Executive Directors, with the approval of the Supervisory Board, to increase the subscribed capital by issuing new registered shares up to a total of €500 million against cash or contributions in kind through May 1, 2019. The Board of Executive Directors is empowered, following the approval of the Supervisory Board, to decide on the exclusion of shareholders' subscription rights for these new shares in certain predefined cases covered by the enabling resolution. Until now, this option has not been exercised and no new shares have been issued.

BASF SE has only issued fully paid-up registered shares with no par value. There are no preferences or other restrictions. BASF SE does not hold any treasury shares.

Conditional capital

At the Annual Shareholders' Meeting of May 12, 2017, shareholders authorized the Board of Executive Directors, with the approval of the Supervisory Board, to issue, on a one-off basis or in portions on more than one occasion, bearer or registered convertible bonds and/or bonds with warrants, or combinations of these instruments, with or without maturity limitations up to a nominal value of €10 billion through May 11, 2022. The calculated portion of the share capital represented by the BASF shares to be issued in connection with the debt instruments issued under this authorization may not exceed 10% of the share capital.

To this effect, the share capital was increased conditionally by up to €117,565,184 by issuing a maximum of 91,847,800 new registered BASF shares. The conditional capital increase will only be carried out to the extent to which holders of convertible bonds, or warrants attached to bonds with warrants issued, exercise their conversion or option rights. Until now, this authorization has not been exercised.

Authorization of share buybacks

At the Annual Shareholders' Meeting of May 12, 2017, shareholders authorized the Board of Executive Directors to buy back shares up until May 11, 2022, in accordance with section 71(1) no. 8 of the German Stock Corporation Act. The buyback cannot exceed 10% of the company's share capital at the time the resolution was passed and can take place via the stock exchange, a public purchase offer addressed to all shareholders, or a public request to the shareholders to submit sales offers. Until now, this authorization has not been exercised.

Reserves and retained earnings

Capital surplus includes effects from BASF's share program, premiums from capital increases and consideration for warrants and negative goodwill from the capital consolidation resulting from acquisitions of subsidiaries in exchange for the issue of BASF SE shares at par value.

Million €	Dec. 31, 2017	Dec. 31, 2016
Legal reserves	678	625
Other retained earnings	34.148	30.890
Retained earnings	**34.826**	**31.515**

Transfers from **other retained earnings** increased **legal reserves** by €53 million in 2017 (2016: €31 million).

The acquisition of shares in companies which BASF already controls or which are included as a joint arrangement in the Consolidated Financial Statements is treated as a transaction between shareholders, as long as this does not lead to a change in the consolidation method. There were no transactions of this type in 2017, as in the previous year.

Payment of dividends

In accordance with the resolution of the Annual Shareholders' Meeting on May 12, 2017, BASF SE paid a dividend of €3.00 per share from the retained profit of the 2016 fiscal year. With 918,478,694 qualifying shares, this represented total dividends of €2,755,436,082.00. The remaining €53,131,213.65 in retained profits was recorded under retained earnings.

20 Other comprehensive income

Translation adjustments

Especially the increase in the value of the euro, relative to the U.S. dollar, in 2017 led to a decrease of €2.081 million in the translation adjustment to minus €605 million.

Cash flow hedges

Hedging future cash flows at Nord Stream AG, Zug, Switzerland, a company accounted for using the equity method, resulted in a change of minus €17 million in 2017 and of minus €7 million in 2016.

For more information on cash flow hedge accounting, see Note 27.4 from page 227 onward

Remeasurement of defined benefit plans

In 2017, other comprehensive income increased by €1,073 million before taxes due to the positive development of plan assets. In 2016, the change amounting to minus €1,842 million was particularly due to the increase in defined benefit obligations, which resulted from the significant decrease in the discount rate over the course of the year.

For more information on the remeasurement of defined benefit plans, see Note 22 from page 211 onward

21 Minority interests

Group company	Partner	December 31, 2017		December 31, 2016	
		Equity interest		Equity interest	
		%	Million €	%	Million €
WIGA Transport Beteiligungs-GmbH & Co. KG, W & G Transport Holding GmbH[1], OPAL Gastransport GmbH & Co. KG[1]	Gazprom Germania GmbH, Berlin, Germany	49.98[1]	71	49.98[1]	(43)
BASF India Ltd., Mumbai, India	Free float	26.67	39	26.67	36
BASF PETRONAS Chemicals Sdn. Bhd., Shah Alam, Malaysia	PETRONAS Chemicals Group Berhad, Kuala Lumpur, Malaysia	40.00	198	40.00	235
BASF TOTAL Petrochemicals LLC, Port Arthur, Texas	Total Petrochemicals & Refining USA, Inc., Houston, Texas	40.00	243	40.00	260
Shanghai BASF Polyurethane Company Ltd., Shanghai, China	Shanghai Huayi (Group) Company, Shanghai, China, and Sinopec Shanghai Gaoqiao Petrochemical Corporation, Shanghai, China	30.00	199	30.00	95
BASF TODA Battery Materials, LLC, Tokyo, Japan	TODA KOGYO CORP., Hiroshima, Japan	34.00	26	34.00	34
BASF Shanghai Coatings Co. Ltd., Shanghai, China	Shanghai Huayi Fine Chemical Co., Ltd, Shanghai, China	40.00	57	40.00	56
Other			86		88
Total			**919**		**761**

[1] Equity interest in W & G Transportation Holding GmbH and OPAL Gastransport GmbH & Co. KG: 50.03 %; voting rights and portion of earnings: 49.98 %

22 Provisions for pensions and similar obligations

In addition to state pension plans, most employees are granted company pension benefits from either defined contribution or defined benefit plans. Benefits generally depend on years of service, contributions or compensation, and take into consideration the legal framework of labor, tax and social security laws of the countries where the companies are located. To limit the risks of changing financial market conditions as well as demographic developments, employees have been almost exclusively offered defined contribution plans for future years of service in recent years.

The Group Pension Committee monitors the risks of all pension plans of the Group. In this context, it issues guidelines regarding the governance and risk management of pension plans, particularly with regard to the funding of the pension plans and the portfolio structure of the existing plan assets. The organization, responsibilities, strategy, implementation and reporting requirements are documented for the units involved.

Economic and legal environment of the plans

In some countries – especially in Germany, the United Kingdom, Switzerland and Belgium – there are pension obligations subject to government supervision or similar legal restrictions. For example, there are minimum funding requirements to cover pension obligations, which are based on actuarial assumptions that may differ from those in IAS 19. Furthermore, there are restrictions in qualitative and quantitative terms relating to parts of the plan assets for the investment in certain asset categories. This could result in fluctuating employer contributions, financing requirements and the assumption of obligations in favor of the pension funds to comply with the regulatory requirements.

The obligations and the plan assets used to fund the obligations are exposed to demographic, legal and economic risks. Economic risks are primarily due to unforeseen developments on commodity and capital markets. They affect, for example, pension adjustments based on the level of inflation in Germany and in the United Kingdom, as well as the impact of the discount rate on the amount of the defined benefit obligation. In previous years, measures taken to close plans with defined benefits for future service, especially benefits based on final pay promises and the assumption of healthcare costs for former employees, however, led to a reduction in risk with regard to future benefit levels.

The strategy of the BASF Group with regard to financing pension commitments is aligned with country-specific supervisory and tax regulations.

In some countries, pension benefits were granted for which the employer has a subsidiary liability. Pension benefits in a number of countries include minimum interest guarantees to a limited extent. If the pension fund cannot generate the income needed to service the minimum guarantee, this must be provided by the employer under the subsidiary liability. To the extent that recourse to the employer is unlikely based on the structure and provision of the pension benefits as well as the asset situation of the pension fund, these plans are treated as defined contribution plans.

Description of the defined benefit plans

The typical plan structure in the individual countries is described in the following. Different arrangements may exist, in particular due to the assumption of plans as part of acquisitions; however, these do not have any material impact on the description of plans in the individual countries.

Germany

For BASF SE and German Group companies, a basic level of benefits is provided by BASF Pensionskasse VVaG, a legally independent funded plan, which is financed by contributions of employees and the employer as well as the return on plan assets. BASF SE ensures the necessary contributions to adequately finance the benefits promised by BASF Pensionskasse VVaG. Some of the benefits financed via the BASF Pensionskasse VVaG are subject to adjustments that must be borne by its member companies to the extent that these cannot be borne by BASF Pensionskasse VVaG due to the regulations imposed by the German supervisory authority. In 2004, the basic benefits plan at BASF was closed for newly hired employees at German BASF companies and replaced by a defined contribution plan. At BASF SE, occupational pension promises that exceed the basic level of benefits are financed under a contractual trust arrangement by BASF Pensionstreuhand e.V.; at German Group companies, these benefits are almost exclusively financed via pension provisions. The benefits are largely based on cash balance plans. Furthermore, employees are given the option of participating in various deferred compensation schemes.

United States

Employees are granted benefits based on defined contribution plans.

Since 2010, the existing defined benefit plans were closed to further increases in benefits based on future years of service, and benefits earned in the past have been frozen. There is no entitlement to pension adjustments to compensate for cost-of-living increases.

The legal and regulatory frameworks governing the plans are based on the U.S. Employee Retirement Income Security Act (ERISA), which requires the plan sponsor to ensure a minimum funding level. Any employer contributions necessary to meet the minimum funding level would be based on the results of an actuarial valuation. Furthermore, there are unfunded pension plans that are not subject to ERISA.

Additional similar obligations arise from plans which assume the healthcare costs and life insurance premiums of retired employees and their dependents. Such plans are closed to new entrants since 2007. In addition, the amount of the benefits for such plans is frozen.

Switzerland

The employees of the BASF Group in Switzerland receive a company pension, which is financed through a pension fund by employer and employee contributions as well as the return on assets. The pension plan is accounted for as a defined benefit plan, as the obligatory minimum pension guaranteed by law according to the Swiss law “Berufliche Vorsorge (BVG)” is included in the scheme. All benefits vest immediately. According to government regulations, the employer is obligated to make contributions, so that the pension funds are able to grant minimum benefits guaranteed by law. The pension funds are managed by boards, where employer and employees are equally represented, which steer and monitor the benefit plans and assets.

United Kingdom

Employees are granted benefits based on a defined contribution plan.

The BASF Group maintains defined benefit plans in the United Kingdom, which were closed for further increases in benefit from future years of service. Adjustments to compensate for increases in the cost of living until the beginning of retirement are legally required for beneficiaries of defined benefit plans.

The financing of the pension plans is determined by the provisions of the regulatory authority for pensions and the relevant social and labor law requirements. The defined benefit plans are administered by a trust company, whose Board of Trustees, according to the trustee agreement and law, represents the interests of the beneficiaries and ensures that the benefits can be paid in the future. The required funding is determined using technical valuations according to local regulations every three years.

Other countries

In the case of subsidiaries in other countries, defined benefits are covered in some cases by pension provisions, but mainly by external insurance companies or pension funds.

Actuarial assumptions

The valuation of the defined benefit obligation is largely based on the following assumptions:

Assumptions used to determine the defined benefit obligation as of December 31

	Germany		United States		Switzerland		United Kingdom	
	2017	2016	2017	2016	2017	2016	2017	2016
Discount rate	1.90	1.80	3.60	4.00	0.50	0.60	2.60	2.80
Projected pension increase	1.50	1.50	–	–	–	–	3.10	3.10

Assumptions used to determine expenses for pension benefits in the respective business year

	Germany		United States		Switzerland		United Kingdom	
	2017	2016	2017	2016	2017	2016	2017	2016
Discount rate	1.80	2.50	4.00	4.20	0.60	0.80	2.80	4.00
Projected pension increase	1.50	1.50	–	–	–	–	3.10	2.90

The assumptions used to ascertain the defined benefit obligation as of December 31 are used in the following year to determine the expenses for pension plans.

A Group-wide, uniform procedure is used to determine the discount rates used for the valuation of material pension obligations of the BASF Group. Accordingly, the discount rates were derived from the yields on corporate bonds in the respective currency zones with an issuing volume of more than 100 million units of the respective currency with a minimum rating of AA– up to AA+ from at least one of the three rating agencies: Fitch, Moody's, or Standard & Poor's.

The valuation of the defined benefit obligation is generally made using the most recent actuarial mortality tables as of December 31 of the respective business year, which in Germany and the United States are derived from the BASF Group population and were last updated for the pension obligations in Germany in 2015 and for the pension obligations in the United States in 2014.

Actuarial mortality tables (significant countries) as of Dec. 31, 2017

Germany	Heubeck Richttafeln 2005G (modified)
United States	RP-2014 (modified) with MP-2014 generational projection
Switzerland	BVG 2015 generational
United Kingdom	S1PxA (standard actuarial mortality tables for self-administered plans (SAPS))

Sensitivity analysis

A change in the material actuarial assumptions would have the following effects on the defined benefit obligation:

Sensitivity of the defined benefit obligation as of December 31 (million €)

	Increase by 0.5 percentage points		Decrease by 0.5 percentage points	
	2017	2016	2017	2016
Discount rate	(1,930)	(1,990)	2,200	2,270
Projected pension increase	1,240	1,175	(1,130)	(1,110)

An alternative valuation of the defined benefit obligation was conducted in order to determine how changes in the underlying assumptions would influence the amount of the defined benefit obligation. A linear extrapolation of these amounts based on alternative changes in the assumptions as well as an addition of combined changes in the individual assumptions is not possible.

Explanation of the amounts in the statement of income and balance sheet

Composition of expenses for pension benefits (million €)

	2017	2016
Expenses for defined benefit plans	402	346
Expenses for defined contribution plans	303	281
Expenses for pension benefits (recognized in income from operations)	**705**	**627**
Net interest expenses from underfunded pension plans and similar obligations	175	183
Net interest income from overfunded pension plans	(2)	(5)
Interest cost for the asset ceiling	–	–
Expenses for pension benefits (recognized in the financial result)	**173**	**178**

The net interest on the defined benefit liability is recognized in the financial result. This results from the difference between the interest cost of the defined benefit obligation and the standardized return on plan assets as well as the interest cost for the asset ceiling. The expected contribution payments and benefits paid over the course of the business year are considered in the determination of net interest.

Net interest expense of the respective business year is based on the discount rate and the defined benefit obligation at the beginning of the year.

Development of defined benefit obligation (million €)

	2017	2016
Defined benefit obligation as of January 1	27,603	24,861
Current service cost	400	360
Interest cost	568	671
Benefits paid	(1,048)	(1,024)
Participants' contributions	48	49
Actuarial gains/losses		
for adjustments relating to financial assumptions	1	2,571
adjustments relating to demographic assumptions	(2)	(20)
experience adjustments	(5)	66
Effects from acquisitions and divestitures	8	148
Past service cost	2	(14)
Plan settlements	–	–
Other changes	124	(2)
Currency effects	(828)	(63)
Defined benefit obligation as of December 31	**26,871**	**27,603**

As of December 31, 2017, the weighted average duration of the defined benefit obligation amounted to 15.5 years (previous year: 15.7 years).

Development of plan assets (million €)

	2017	2016
Plan assets as of January 1	19,460	18,681
Standardized return on plan assets	393	492
Deviation between actual and standardized return on plan assets	1,067	775
Employer contributions	1,102	207
Participants' contributions	48	49
Benefits paid	(919)	(627)
Effects from acquisitions and divestitures	(2)	64
Past service cost	–	–
Plan settlements	–	–
Other changes	106	(20)
Currency effects	(607)	(161)
Plan assets as of December 31	**20,648**	**19,460**

The standardized return on plan assets is calculated by multiplying plan assets at the beginning of the year with the discount rate used for existing defined benefit obligations at the beginning of the year, taking into account benefit and contribution payments expected to be made during the year.

The expected contribution payments for 2018 amount to approximately €200 million.

Special contributions were made in 2017 to improve the funding levels of the plans. These primarily related to BASF Pensionstreuhand e.V. (€500 million), BASF Pensionskasse VVaG (€317 million) and the U.S. plans ($143 million).

Development of the net defined benefit liability (million €)

	2017	2016
Net defined benefit liability as of January 1	(8,143)	(6,180)
Current service cost	(400)	(360)
Interest cost	(568)	(671)
Standardized return on plan assets	393	492
Deviation between actual and standardized return on plan assets	1,067	775
Actuarial gains/losses of the defined benefit obligation	6	(2,617)
Changes in asset ceiling recognized directly in equity	–	–
Benefits paid by unfunded plans	129	397
Employer contributions	1,102	207
Effects from acquisitions and divestitures	(10)	(84)
Past service cost	(2)	14
Other changes	(18)	(18)
Currency effects	221	(98)
Net defined benefit liability as of December 31	**(6,223)**	**(8,143)**
Thereof defined benefit assets	70	66
provisions for pensions and similar obligations	(6,293)	(8,209)

Regional allocation of defined benefit plans as of December 31 (million €)

	Pension obligations		Plan assets		Net defined benefit liability	
	2017	2016	2017	2016	2017	2016
Germany	18,104	18,242	13,576	12,282	(4,528)	(5,960)
United States	4,053	4,524	2,687	2,806	(1,366)	(1,718)
Switzerland	2,070	2,272	1,889	1,974	(181)	(298)
United Kingdom	1,884	1,909	1,880	1,898	(4)	(11)
Other	760	656	616	500	(144)	(156)
Total	**26,871**	**27,603**	**20,648**	**19,460**	**(6,223)**	**(8,143)**

Explanations regarding plan assets

The target asset allocation has been defined by using asset liability studies and is reviewed regularly. Accordingly, plan assets are aligned with the long-term development of the obligations, taking into consideration the risks associated with the specific asset classes and the regulations relating to the investment of plan assets. The existing portfolio structure is oriented towards the target asset allocation. In addition, current market assessments are taken into consideration. In order to mitigate risks and maximize returns, a widely spread global portfolio of individual assets is held.

Liability-driven investment (LDI) techniques, such as hedging the risk of changes in interest rates and inflation, are used in some pension plans, especially in the U.K. and U.S. plans.

Structure of plan assets (%)

	2017	2016
Equities	29	28
Debt instruments	52	53
Thereof for government debtors	16	16
for other debtors	36	37
Real estate	3	4
Alternative investments	15	15
Cash and cash equivalents	1	–
Total	**100**	**100**

The asset class **debt instruments** comprises promissory notes and debentures (Pfandbriefe) in addition to corporate and government bonds. Government bonds primarily concern bonds from those countries enjoying the highest credit ratings, such as the United States, United Kingdom, Germany and Switzerland. Corporate bonds mainly comprise investment-grade bonds, whereby particular high-yield bonds are also held to a limited extent. In connection with the ongoing monitoring of default risk based on a given risk budget and on the continuous observation of the development of the creditworthiness of issuers, an adjustment of plan asset allocation to a revised market assessment may be made, if necessary. **Alternative investments** largely comprise investments in private equity, absolute return funds and senior secured loans.

Almost all of the **equities** are priced on active markets. The category **debt instruments** includes promissory notes and debentures (Pfandbriefe), which were acquired through private placements with a market value in the amount of €575 million as of December 31, 2017, and €853 million as of December 31, 2016. For such securities, especially those held by domestic pension plans, there is no active market. The capital market compensates for this lack of fungibility with yield premiums depending on the maturity. With only a few exceptions, there is no active market for plan assets in **real estate** and **alternative investments**.

Plan assets contained securities issued by BASF Group companies with a market value of €15 million in 2017 and €16 million in 2016. The market value of the properties of legally independent pension funds rented to BASF Group companies amounted to €111 million on December 31, 2017, and €117 million on December 31, 2016.

Since 2010 there has been an agreement between BASF SE and BASF Pensionskasse about the granting of profit participation capital with a nominal value of €80 million, which is used to strengthen the financing of the BASF Pensionskasse. In 2017, a number of special endowments were provided to improve the funding levels of the plans. No material transactions beyond this took place between the legally independent pension funds and BASF Group companies in 2017.

The funding of the plans was as follows:

Current funding situation of the pension plans as of December 31 (million €)

	2017		2016	
	Defined benefit obligation	Plan assets	Defined benefit obligation	Plan assets
Unfunded pension plans	2,814	–	2,869	–
Funded pension plans	24,057	20,648	24,734	19,460
Total	**26,871**	**20,648**	**27,603**	**19,460**

Defined contribution plans and government pensions

The contributions to defined-contribution plans contained in income from operations amounted to €303 million in 2017 and €281 million in 2016.

Contributions to government pension plans were €592 million in 2017 and €590 million in 2016.

23 Other provisions

Million €	December 31, 2017		December 31, 2016	
		Thereof current		Thereof current
Restoration obligations	1,296	17	1,297	29
Environmental protection and remediation costs	600	112	588	116
Employee obligations	2,173	1,553	1,933	1,217
Obligations from sales and purchase contracts	1,080	1,070	928	919
Restructuring measures	143	119	208	161
Litigation, damage claims, warranties and similar commitments	103	48	109	37
Other	1,312	310	1,406	323
Total	**6,707**	**3,229**	**6,469**	**2,802**

Restoration obligations primarily relate to the estimated costs for the filling of wells and the removal of production equipment after the end of production in the Oil & Gas segment.

Provisions for **environmental protection and remediation costs** cover expected costs for rehabilitating contaminated sites, recultivating landfills, removal of environmental contamination at existing production or storage sites and similar measures.

Provisions for **employee obligations** primarily include obligations for the granting of long-service bonuses and anniversary payments, variable compensation including associated social security contributions, as well as provisions for early retirement programs for employees nearing retirement. The increase was primarily attributable to higher accruals for variable compensation components.

For more information on provisions for the long-term incentive program, see Note 30 from page 231 onward

Obligations from sales and purchase contracts largely include obligations arising from rebates granted and other price discounts in the Agricultural Solutions segment, warranties and product liability, sales commissions, expected losses on contracts. The increase in provisions resulted from higher accruals for rebate programs and for product liabilities.

The **restructuring measures** provisions include severance payments to departing employees as well as expected costs for site closures, including the costs for demolition and similar measures.

Provisions for **litigation, damage claims, warranties and similar commitments** contain anticipated expenses from lawsuits in which BASF is the defendant party, as well as obligations under damage claims against BASF and fines.

Other largely includes noncurrent tax provisions.

The following table shows the development of other provisions by category. Other changes include changes in the scope of consolidation, divestitures, currency effects and the reclassification of obligations to liabilities when the amount and timing of these obligations become known.

Development of other provisions in 2017 (million €)

	Jan. 1, 2017	Additions	Unwinding of the discount	Utilization	Reversals	Other changes	Dec. 31, 2017
Restoration obligations	1,297	108	29	(30)	(21)	(87)	1,296
Environmental protection and remediation costs	588	111	3	(60)	(5)	(37)	600
Employee obligations	1,933	1,720	2	(1,235)	(154)	(93)	2,173
Obligations from sales and purchase contracts	928	1,027	–	(681)	(66)	(128)	1,080
Restructuring measures	208	35	–	(65)	(22)	(13)	143
Litigation, damage claims, warranties and similar commitments	109	54	–	(24)	(24)	(12)	103
Other	1,406	264	1	(225)	(85)	(49)	1,312
Total	**6,469**	**3,319**	**35**	**(2,320)**	**(377)**	**(419)**	**6,707**

24 Liabilities

Financial indebtedness (million €)

		Currency	Nominal value (million, currency of issue)	Effective interest rate	Carrying amounts based on effective interest method: December 31, 2017	Carrying amounts based on effective interest method: December 31, 2016
BASF SE						
Commercial paper		USD			–	1,033
variable	Bond 2014/2017	EUR	300	variable	–	300
5.875%	Bond 2009/2017	GBP	400	6.04%	–	467
4.625%	Bond 2009/2017	EUR	300	4.69%	–	300
1.375%	Bond 2014/2017	GBP	250	1.46%	–	292
variable	Bond 2013/2018	EUR	300	variable	300	300
1.5%	Bond 2012/2018	EUR	1,000	1.51%	999	999
1.375%	Bond 2014/2019	EUR	750	1.44%	750	749
variable	Bond 2017/2019	EUR	1,250	variable	1,261	–
variable	Bond 2013/2020	EUR	300	variable	300	300
1.875%	Bond 2013/2021	EUR	1,000	1.47%	1,007	1,016
2.5%	Bond 2017/2022	USD	500	2.65%	414	–
2%	Bond 2012/2022	EUR	1,250	1.93%	1,254	1,255
0.925%	Bond 2017/2023	USD	850	0.83%	664	–
0.875%	Bond 2016/2023	GBP	250	1.06%	279	289
2.5%	Bond 2014/2024	EUR	500	2.60%	497	497
1.750%	Bond 2017/2025	GBP	300	1.87%	335	–
3.675%	Bond 2013/2025	NOK	1,450	3.70%	147	159
0.875%	Bond 2017/2027	EUR	1,000	1.04%	984	–
2.670%	Bond 2017/2029	NOK	1,600	2.69%	162	–
1.5%	Bond 2016/2031	EUR	200	1.58%	198	198
0.875%	Bond 2016/2031	EUR	500	1.01%	492	491
2.37%	Bond 2016/2031	HKD	1,300	2.37%	139	159
1,450%	Bond 2017/2032	EUR	300	1.57%	296	–
3%	Bond 2013/2033	EUR	500	3.15%	491	491
2.875%	Bond 2013/2033	EUR	200	3.09%	198	198
1.625%	Bond 2017/2037	EUR	750	1.73%	736	–
3.25%	Bond 2013/2043	EUR	200	3.27%	199	199
3.89%	U.S. Private Placement Series A 2013/2025	USD	250	3.92%	208	237
4.09%	U.S. Private Placement Series B 2013/2028	USD	700	4.11%	582	663
4.43%	U.S. Private Placement Series C 2013/2034	USD	300	4.45%	250	284
BASF Finance Europe N.V.						
0.0%	Bond 2016/2020	EUR	1,000	0.14 %	996	995
0.75%	Bond 2016/2026	EUR	500	0.88%	494	494
Ciba Specialty Chemicals Finance Luxembourg S.A.						
4.875%	Bond 2003/2018	EUR	477	4.88%	474	461
Other bonds					**547**	**631**
Bonds and other liabilities to the capital market					**15,653**	**13,457**
Liabilities to credit institutions					2,379	2,855
Financial indebtedness					**18,032**	**16,312**

Breakdown of financial indebtedness by currency (million €)

	December 31, 2017	December 31, 2016
Euro	13,326	10,897
U.S. dollar	2,922	3,346
British pound	614	1,048
Norwegian krone	309	159
Hong Kong dollar	139	159
Argentinian peso	137	194
Chinese renminbi	127	118
South African rand	73	28
Turkish lira	65	59
Ukrainian hryvnia	63	55
Japanese yen	58	–
Brazilian real	53	113
Indonesian rupiah	43	29
Other currencies	103	107
Total	**18,032**	**16,312**

Maturities of financial indebtedness (million €)

	December 31, 2017	December 31, 2016
Following year 1	2,497	3,767
Following year 2	2,052	1,887
Following year 3	1,845	2,115
Following year 4	1,140	1,304
Following year 5	1,781	1,049
Following year 6 and maturities beyond this year	8,717	6,190
Total	**18,032**	**16,312**

Other bonds

Other bonds consist primarily of industrial revenue and pollution control bonds of the BASF Corporation group that were used to finance investments in the United States. Both the weighted-average interest rate of these bonds as well as their weighted-average effective interest rate amounted to 3.1% in 2017 and 2.1% in 2016. The average residual term amounted to 183 months as of December 31, 2017 (December 31, 2016: 195 months).

Liabilities to credit institutions

In order to finance the natural gas transportation business, a €1,650 million loan was incurred with a 5-year term at an interest rate of 1.08% in 2014. In 2017, €925 million of this amount was transferred to the newly established company W & G Infrastruktur Finanzierungs-GmbH, Kassel, Germany, accounted for using the equity method, to finance the natural gas transportation companies, GASCADE Gastranport GmbH, Kassel, Germany, and NEL Gastransport GmbH, Kassel, Germany, which are also accounted for using the equity method.

The weighted average interest rate on loans amounted to 4.1% in 2017 compared with 4.5% in 2016.

Unused credit lines

BASF SE had committed and unused credit lines with variable interest rates amounting to €6,000 million both as of December 31, 2017 and as of December 31, 2016.

Other liabilities (million €)

	December 31, 2017		December 31, 2016	
	Noncurrent	Current	Noncurrent	Current
Derivatives with negative fair values	290	274	78	571
Liabilities from finance leases	99	25	84	22
Loan and interest liabilities	283	212	280	199
Miscellaneous liabilities	94	1,289	97	791
Other liabilities which qualify as financial instruments	**766**	**1,800**	**539**	**1,583**
Advances received on orders	–	564	–	556
Liabilities related to social security	67	77	95	68
Employee liabilities	28	253	45	310
Liabilities from precious metal trading positions	–	17	–	13
Deferred income	197	78	171	66
Miscellaneous liabilities	37	275	23	254
Other liabilities which do not qualify as financial instruments	**329**	**1,264**	**334**	**1,267**
Other liabilities	**1,095**	**3,064**	**873**	**2,850**

Other liabilities

The increase in current other liabilities was primarily due to cash deposits from group companies accounted for using the equity method, which are reported under **miscellaneous liabilities**. Current derivatives with negative fair values decreased due to negative fair market values arising from foreign currency hedging. By contrast, the noncurrent negative fair values increased. This related primarily to higher negative fair values from hedging using combined interest and cross-currency swaps involving USD, GBP and HKD bonds.

For more information on financial risks and derivative instruments, see Note 27 from page 222 onward

For more information on liabilities arising from leasing contracts, see Note 28 from page 228 onward

Secured liabilities (million €)

	Dec. 31, 2017	Dec. 31, 2016
Liabilities to credit institutions	22	24
Accounts payable, trade	6	6
Other liabilities	169	63
Secured liabilities	**197**	**93**

Liabilities to credit institutions were secured primarily with registered land charges. The increase in secured **other liabilities** compared with December 31, 2016, is primarily attributable to higher collateral for derivative instruments with negative fair values. As in the previous year, there were no secured contingent liabilities in 2017.

25 Other financial obligations

The figures listed below are stated at nominal value:

Million €	December 31, 2017	December 31, 2016
Bills of exchange	9	9
Guarantees	11	12
Warranties	49	43
Collateral granted on behalf of third-party liabilities	1	1
Initiated investment projects	4,109	5,394
Thereof purchase commitments	1,045	1,391
for the purchase of intangible assets	16	7
Payment and loan commitments and other financial obligations	19	25

BASF provides unlimited guarantees, particularly to the Danish government as well as the state-owned company Nordsøfonden, as a precondition for the exploration for and production of hydrocarbons in the Danish concession area by the joint venture Wintershall Noordzee B.V., Rijswijk, Netherlands. Partially countering the possible 100% liability of BASF arising from these guarantees are the 50% guarantees of the joint-venture partner in favor of BASF. Drawing on these guarantees was not foreseeable as of December 31, 2017.

Assets used under long-term leases

Assets used under long-term leases primarily concerned buildings and IT infrastructure.

For more information on liabilities arising from leasing contracts, see Note 28 from page 228 onward

Obligations arising from long-term leases (excluding finance leases) (million €)

2018	362
2019	273
2020	207
2021	137
2022	111
2023 and maturities beyond this year	320
Total	**1,410**

Obligations arising from purchase contracts

Obligations arising from purchase contracts resulted primarily from long-term purchase obligations for raw materials. Firm purchase obligations as of December 31, 2017, were as follows:

Obligations arising from purchase contracts (million €)

2018	7,306
2019	4,776
2020	2,688
2021	2,374
2022	2,362
2023 and maturities beyond this year	7,112
Total	**26,618**

Further possible obligations arising from agreements existing as of December 31, 2017 are shown in 2.4: Acquisitions and divestitures.

26 Risks from litigation and claims

In the arbitration proceedings initiated in May 2013, Metrogas S.A., Chile, claims damages valued in an amount of €227 million as a result of insufficient gas deliveries against Wintershall Energía S.A., Argentina (WIAR), Total Austral S.A., Argentina, and Pan American Energy LLC, Argentina. The defendants, as sellers, concluded a natural gas supply contract with Metrogas in 1997. WIAR's share of supply in the contract is 37,5%. After the resignation of the chairman of the Arbitral Tribunal in mid-2016, the International Chamber of Commerce (ICC) nominated a new Arbitral Tribunal that pursued the arbitration proceedings during 2017. The hearing took place in April 2017. On February 2, 2018, the Arbitral Tribunal dismissed the Metrogas claim in its entirety and imposed the procedural costs on Metrogas.

BASF Corporation has potential liability under the Comprehensive Response, Compensation and Liability Act of 1980, as amended, and related state laws for investigation and cleanup at certain sites. The Lower Passaic River Study Area (LPRSA) is one such site comprising the lower 17 miles of the Passaic River in New Jersey. BASF Corporation and more than 60 other companies (collectively, the Lower Passaic River Study Area Cooperating Parties Group or CPG) are conducting a remedial investigation / feasibility study (RI/FS) of the LPRSA. In 2016, the United States Environmental Protection Agency (USEPA) selected a final remedy for the lower 8 miles of the LPRSA. An agreement with USEPA on work in the upper portion of the LPRSA may occur as early as 2018.

Between November 2014 and March 2015, a putative class action lawsuit and several additional lawsuits were filed in the United States District Court of the Southern District of New York against BASF Metals Limited (BML), based in the United Kingdom, along with other defendants, alleging violations of antitrust and commodities laws stemming from the price discovery process for platinum and palladium. The lawsuits were consolidated, and a Second Consolidated Amended Class Action Complaint was eventually filed in July 2015. This Complaint also names as a defendant, among others, BASF Corporation. On September 21, 2015, the defendants filed a Joint Motion to Dismiss the Second Consolidated Amended Class Action Complaint, and BML and BASF Corporation filed individual motions to dismiss. On March 28, 2017, the Court dismissed the Second Consolidated Amended Class Action Complaint against BASF Corporation and BML on jurisdictional grounds. On May 15, 2017, the plaintiffs filed an amended Complaint that renews allegations against defendants and BML, while BASF Corporation is not named as a defendant. The defendants filed a renewed Joint Motion to Dismiss and BML filed a renewed Motion to Dismiss. A pro se complaint filed in September 2015 was dismissed by the U.S. District Court on October 19, 2017. The plaintiff filed an appeal to the U.S. Court of Appeals on November 19, 2017.

Furthermore, BASF SE and its affiliated companies are defendants in or parties to a variety of judicial, arbitrational or regulatory proceedings on a recurring basis. To our current knowledge, none of these proceedings will have a material effect on the economic situation of BASF.

27 Supplementary information on financial instruments

27.1 Financial risks

Market risks

Foreign currency risks: Changes in exchange rates could lead to losses in the value of financial instruments and adverse changes in future cash flows from planned transactions. Foreign currency risks from financial instruments result from the translation at the closing rate of financial receivables, loans, securities, cash and financial liabilities into the functional currency of the respective Group company. Foreign currency contracts in a variety of currencies are used to hedge foreign exchange risks from nonderivative financial instruments and planned transactions.

The foreign currency risk exposure corresponds to the net amount of the nominal volume of the primary and the derivative financial instruments which are exposed to currency risks. In addition, planned purchase and sales transactions of the respective following year are included, if they fall under the currency risk management system. Long and short positions in the same currency are offset against each other.

The sensitivity analysis is conducted by simulating a 10% appreciation of the respective functional currency against the other currencies. The effect on BASF's income before taxes and minority interests would have been minus €252 million as of December 31, 2017, and minus €300 million as of December 31, 2016. The effect from the items designated under hedge accounting would have increased the equity of the shareholders of BASF SE before income taxes by €46 million as of December 31, 2017 (2016: increase of €24 million). This only refers to transactions in U.S. dollars. The foreign currency risk exposure amounted to €1,976 million as of December 31, 2017 and €2,113 million as of December 31, 2016.

Exposure and sensitivity by currency (million €)

	December 31, 2017		December 31, 2016	
	Exposure	Sensitivity	Exposure	Sensitivity
USD	1,410	(143)	1,849	(241)
Other	566	(63)	264	(35)
Total	**1,976**	**(206)**	**2,113**	**(276)**

Due to the use of options to hedge currency risks, the sensitivity analysis is not a linear function of the assumed changes in exchange rates.

Interest rate risks: Interest rate risks result from changes in prevailing market interest rates, which can cause a change in the fair value of fixed-rate instruments, and changes in the interest payments of variable-rate instruments. To hedge these risks, interest rate swaps and combined interest rate and currency derivatives are used. While these risks are relevant to the financing activities of BASF, they are not of material significance for BASF's operating activities.

The variable interest exposure, which also includes fixed rate bonds set to mature in the following year, amounted to minus €986 million as of December 31, 2017 (2016: minus €2,447 million). An increase in all relevant interest rates by one percentage point would have raised income before taxes and minority interests by €4 million as of December 31, 2017, and raised income before taxes and minority interests by €1 million as of December 31, 2016. The effect from the items designated under hedge accounting would have increased the equity of the shareholders of BASF SE before income taxes by €9 million as of December 31, 2017 (2016: increase of €16 million).

Carrying amount of nonderivative interest-bearing financial instruments (million €)

	December 31, 2017		December 31, 2016	
	Fixed interest rate	Variable interest rate	Fixed interest rate	Variable interest rate
Loans	569	439	208	610
Securities	88	87	105	568
Financial indebtedness	14,703	3,329	12,564	3,748

Nominal and fair values of interest rate swaps and combined interest and cross-currency swaps (million €)

	December 31, 2017		December 31, 2016	
	Nominal value	Fair value	Nominal value	Fair value
Interest rate swaps	**600**	**(13)**	**1,700**	**(27)**
Thereof payer swaps	600	(13)	1,700	(27)
Combined interest and cross-currency swaps	**3,337**	**(175)**	**2,745**	**45**
Thereof fixed rate	3,337	(175)	2,476	121

Commodity price risks: Some of BASF's divisions are exposed to strong fluctuations in raw materials prices. These result primarily from raw materials (for example naphtha, propylene, benzene, lauric oils, cyclohexane, methanol, natural gas, butadiene, LPG condensate and ammonia) as well as from precious metals. BASF takes the following measures to reduce price risks associated with the purchase of raw materials:

- BASF uses commodity derivatives to hedge the risks from the volatility of raw materials prices. These are primarily options and swaps on crude oil, oil products and natural gas.
- In the Oil & Gas segment, risks to margins arise in volatile markets when purchase and sales contracts are priced differently. Corresponding oil and gas derivatives are used to hedge these risks.
- The Catalysts division enters into both short-term and long-term purchase contracts with precious metal producers. It also buys precious metals on spot markets from a variety of business partners. The price risk from precious metals purchased to be sold on to third parties, or for use in the production of catalysts, is hedged using derivative instruments. This is mainly done using forward contracts which are settled by either entering into offsetting contracts or by delivering the precious metals.
- In the Crop Protection division, the sales prices of products are sometimes coupled to the price of certain agricultural commodities. To hedge the resulting risks, derivatives on agricultural commodities are concluded.

In addition, BASF holds limited unhedged precious metal and oil product positions, which can also include derivatives, for trading on its own account. The value of these positions is exposed to market price volatility and is subject to constant monitoring.

In connection with CO_2 emissions trading, various types of CO_2 certificates are purchased and sold using forward contracts. The goal of these transactions is to benefit from market price differences. These deals are settled by physical delivery. As of December 31, 2017 and as of December 31, 2016, there were no deals outstanding.

By holding commodity derivatives and precious metal trading positions, BASF is exposed to price risks. The valuation of commodity derivatives and precious metal trading positions at fair value means that adverse changes in market prices could negatively affect the earnings and equity of BASF.

BASF performs value-at-risk analyses for all commodity derivatives and precious metals trading positions. Using the value-at-risk analysis, we continually quantify market risk and forecast the maximum possible loss within a given confidence interval over a defined period. The value-at-risk calculation is based on a confidence interval of 95% and a holding period of one day. The value-at-risk calculation for precious metals is based on a confidence interval of 99%. BASF uses the variance-covariance approach.

BASF uses value at risk as a supplement to other risk management tools. Besides value at risk, BASF sets volume-based limits as well as exposure and stop-loss limits.

Exposure to commodity derivatives (million €)

	December 31, 2017		December 31, 2016	
	Exposure	Value at Risk	Exposure	Value at Risk
Crude oil, oil products and natural gas	90	1	6	1
Precious metals	36	2	5	1
Emission certificates	–	–	–	–
Agricultural commodities	0	0	(40)	0
Total	**126**	**3**	**(29)**	**2**

The exposure corresponds to the net amount of all long and short positions of the respective commodity category.

For more information regarding financial risks and BASF's risk management, see the Opportunities and risks report in the Management's Report from page 111 onward

Default and credit risk

Default and credit risks arise when counterparties do not fulfill their contractual obligations. BASF regularly analyzes the creditworthiness of each significant debtor and grants credit limits on the basis of this analysis. Due to the global activities and diversified customer structure of the BASF Group, there is no significant concentration of default risk. The carrying amount of all receivables, loans and interest-bearing securities plus the nominal value of other financial obligations subject to default risk represents the maximum default risk for BASF.

For more information on credit risks, see Note 18 from page 208 onward

Liquidity risks

BASF promptly recognizes any risks from cash flow fluctuations as part of the liquidity planning. BASF has ready access to sufficient liquid funds from our ongoing commercial paper program and confirmed lines of credit from banks.

27.2 Maturity analysis

The interest and principal payments as well as other payments for derivative financial instruments are relevant for the presentation of the maturities of the contractual cash flows from financial liabilities. Future cash flows are not discounted here.

Derivatives are included using their net cash flows, provided they have a negative fair value and therefore represent a liability. Derivatives with positive fair values are assets and are therefore not considered.

Trade accounts payable are generally interest-free and due within one year. Therefore, the carrying amount of trade accounts payable equals the sum of future cash flows.

Maturities of contractual cash flows from financial liabilities as of December 31, 2017 (million €)

	Bonds and other liabilities to the capital market	Liabilities to credit institutions	Liabilities resulting from derivative financial instruments	Miscellaneous liabilities	Total
2018	2,097	698	180	1,578	4,553
2019	2,237	34	70	80	2,421
2020	1,527	541	8	82	2,158
2021	1,219	132	–	46	1,397
2022	1,865	113	50	38	2,066
2023 and thereafter	9,234	861	225	278	10,598
Total	**18,179**	**2,379**	**533**	**2,102**	**23,193**

Maturities of contractual cash flows from financial liabilities as of December 31, 2016 (million €)

	Bonds and other liabilities to the capital market	Liabilities to credit institutions	Liabilities resulting from derivative financial instruments	Miscellaneous liabilities	Total
2017	2,687	1,356	561	1,097	5,701
2018	2,025	128	15	88	2,256
2019	936	1,368	11	47	2,362
2020	1,475	10	13	53	1,551
2021	1,163	5	–	81	1,249
2022 and thereafter	7,269	4	60	305	7,638
Total	**15,555**	**2,871**	**660**	**1,671**	**20,757**

27.3 Classes and categories of financial instruments

For trade accounts receivable, other receivables and miscellaneous assets, loans, cash and cash equivalents, as well as trade accounts payable and other liabilities, the carrying amount approximates the fair value. Shareholdings which are not traded on an active market and whose fair value could not be reliably determined are recognized at amortized cost and are reported under other financial assets.

The fair value of financial indebtedness is determined on the basis of interbank interest rates. The difference between carrying amounts and fair values results primarily from changes in market interest rates.

Carrying amounts and fair values of financial instruments as of December 31, 2017 (million €)

	Carrying amount	Total carrying amount within scope of application of IFRS 7	Valuation category in accordance with IAS 39[2]	Fair value	Thereof fair value level 1[3]	Thereof fair value level 2[4]	Thereof fair value level 3[5]
Shareholdings[1]	482	482	Afs	–	–	–	–
Receivables from finance leases	29	29	n/a	29	–	–	–
Accounts receivable, trade	11,190	11,190	LaR	11,190	–	–	–
Derivatives – no hedge accounting	340	340	aFVtPL	340	14	326	–
Derivatives – with hedge accounting	72	72	n/a	72	–	72	–
Other receivables and other assets[6]	3,996	1,508	LaR	1,508	–	–	–
Securities	175	175	Afs	175	175	–	–
Securities	1	1	Htm	–	–	–	–
Cash and cash equivalents	6,495	6,495	LaR	6,495	6,495	–	–
Total assets	**22,780**	**20,292**		**19,809**	**6,684**	**398**	**–**
Bonds	15,653	15,653	AmC	16,406	–	–	–
Commercial paper	–	–	AmC	–	–	–	–
Liabilities to credit institutions	2,379	2,379	AmC	2,379	–	–	–
Liabilities from finance leases	124	124	n/a	124	–	–	–
Accounts payable, trade	4,971	4,971	AmC	4,971	–	–	–
Derivatives – no hedge accounting	551	551	aFVtPL	551	36	515	–
Derivatives – with hedge accounting	13	13	n/a	13	–	13	–
Other liabilities[6]	3,471	1,878	AmC	1,878	–	–	–
Total liabilities	**27,162**	**25,569**		**26,322**	**36**	**528**	**–**

Carrying amounts and fair values of financial instruments as of December 31, 2016 (million €)

	Carrying amount	Total carrying amount within scope of application of IFRS 7	Valuation category in accordance with IAS 39[2]	Fair value	Thereof fair value level 1[3]	Thereof fair value level 2[4]	Thereof fair value level 3[5]
Shareholdings[1]	468	468	Afs	–	–	–	–
Receivables from finance leases	34	34	n/a	34	–	–	–
Accounts receivable, trade	10,952	10,952	LaR	10,952	–	–	–
Derivatives – no hedge accounting	346	346	aFVtPL	346	14	332	–
Derivatives – with hedge accounting	172	172	n/a	172	–	172	–
Other receivables and other assets[6]	3,736	1,370	LaR	1,370	–	–	–
Securities	672	672	Afs	672	672	–	–
Securities	1	1	Htm	–	–	–	–
Cash and cash equivalents	1,375	1,375	LaR	1,375	1,375	–	–
Total assets	**17,756**	**15,390**		**14,921**	**2,061**	**504**	**–**
Bonds	12,424	12,424	AmC	13,144	–	–	–
Commercial paper	1,033	1,033	AmC	1,033	–	–	–
Liabilities to credit institutions	2,855	2,855	AmC	2,855	–	–	–
Liabilities from finance leases	106	106	n/a	106	–	–	–
Accounts payable, trade	4,610	4,610	AmC	4,610	–	–	–
Derivatives – no hedge accounting	623	623	aFVtPL	623	0	623	–
Derivatives – with hedge accounting	26	26	n/a	26	–	26	–
Other liabilities[6]	2,968	1,367	AmC	1,367	–	–	–
Total liabilities	**24,645**	**23,044**		**23,764**	**0**	**649**	**–**

1 The difference between carrying amount and fair value results from shareholdings measured at acquisition cost, for which the fair value could not be reliably determined (2017: €482 million; 2016: €468 million).

2 Afs: available-for-sale (category: available-for-sale financial assets); LaR: loans and receivables (category: loans and receivables); aFVtPL: at-fair-value-through-profit-or-loss (category: financial assets and liabilities at fair value recognized in the income statement); AmC: amortized cost (category: financial liabilities which are not derivatives); Htm: Held-to-maturity (category: financial assets held to maturity); a more detailed description of the categories can be found in Note 1 from page 173 onward.

3 Determination of the fair value based on quoted, unadjusted prices on active markets

4 Determination of the fair value based on parameters for which directly or indirectly quoted prices on active markets are available

5 Determination of the fair value based on parameters for which there is no observable market data

6 Not including separately shown derivatives as well as receivables and liabilities from finance leases

Offsetting of financial assets and financial liabilities as of December 31, 2017 (million €)

	Amounts which can be offset			Amounts which cannot be offset		
	Gross amount	Amount offset	Net amount	Due to global netting agreements	Relating to financial collateral	Potential net amount
Derivatives with positive fair values	376	(39)	337	(55)	(10)	272
Derivatives with negative fair values	(373)	(39)	(412)	(55)	(139)	(606)

Offsetting of financial assets and financial liabilities as of December 31, 2016 (million €)

	Amounts which can be offset			Amounts which cannot be offset		
	Gross amount	Amount offset	Net amount	Due to global netting agreements	Relating to financial collateral	Potential net amount
Derivatives with positive fair values	491	(46)	445	(101)	(124)	220
Derivatives with negative fair values	515	(46)	469	(101)	(47)	321

The table “Offsetting of financial assets and financial liabilities” shows the extent to which financial assets and financial liabilities are offset in the balance sheet, as well as potential effects from the offsetting of instruments subject to a legally enforceable global netting agreement or similar agreement. For positive fair values of combined interest and cross-currency swaps, the respective counterparties provided cash collaterals in corresponding amounts to the outstanding fair values.

Deviations from the derivatives with positive fair values and derivatives with negative fair values reported in other receivables and other liabilities at the end of 2017 and 2016 arose from derivatives not subject to any netting agreements as well as from embedded derivatives and are therefore not included in the table above.

Net gains and losses from financial instruments comprise the results of valuations, the amortization of discounts, the recognition and reversal of impairments, results from the translation of foreign currencies as well as interest, dividends and all other effects on the earnings resulting from financial instruments. The line item financial instruments at fair value through profit or loss contains only those gains and losses from instruments which are not designated as hedging instruments as defined by IAS 39. Net gains or net losses from available-for-sale financial assets contain income and expenses from write-downs/reversals of write-downs, interest, dividends and the reclassification of valuation effects from equity on the sale of the securities and shareholdings.

Net gains and losses from financial instruments (million €)

	2017	2016
Loans and receivables	(311)	(166)
Thereof interest result	90	74
Available-for-sale financial assets	(24)	22
Thereof interest result	2	2
Financial liabilities measured at amortized cost	249	(124)
Thereof interest result	(359)	(390)
Financial instruments at fair value through profit or loss	(396)	(558)

The decrease in net losses from financial liabilities measured at amortized cost primarily arose from the currency translation of financing-related liabilities denominated in foreign currencies, which resulted in a higher translation gain in 2017 than in the previous year. There was also a decline in the net loss for financial instruments measured at fair value through profit or loss. This development is primarily due to realized and unrealized results from derivatives to hedge foreign currency transactions. Countering this was a higher net loss from loans and receivables largely attributable to the foreign currency translation of receivables.

The gains and losses from the valuation of securities and shareholdings recognized in the equity of the shareholders of BASF SE are shown in the Statement of income and expense recognized in equity on page 169.

27.4 Derivative instruments and hedge accounting

The use of derivative instruments

BASF is exposed to foreign-currency, interest-rate and commodity-price risks during the normal course of business. These risks are hedged through a centrally determined strategy employing derivative instruments. Hedging is only employed for underlying items from the operating business, cash investments, and financing as well as for planned sales, raw material purchases and capital measures. The risks from the underlying transactions and the derivatives are constantly monitored. Where derivatives have a positive market value, BASF is exposed to credit risks from derivative transactions in the event of nonperformance of the other party. To minimize the default risk on derivatives with positive market values, transactions are exclusively conducted with creditworthy banks and partners and are subject to predefined credit limits.

To ensure effective risk management, risk positions are centralized at BASF SE and certain Group companies. The contracting and execution of derivative financial instruments for hedging purposes are conducted according to internal guidelines, and subject to strict control mechanisms.

The fair values of derivative financial instruments are calculated using valuation models which use input parameters observable on the market. Exceptions to this are some commodity derivatives, whose valuation is based directly on market prices.

Fair value of derivative instruments (million €)

	December 31, 2017	December 31, 2016
Foreign currency forward contracts	65	(163)
Foreign currency options	37	15
Foreign currency derivatives	**102**	**(148)**
Thereof designated hedging instruments as defined by IAS 39 (hedge accounting)	34	3
Interest rate swaps	(13)	(27)
Thereof designated hedging instruments as defined by IAS 39 (hedge accounting)	(13)	(21)
Combined interest and cross-currency swaps	(175)	45
Thereof designated hedging instruments as defined by IAS 39 (hedge accounting)	38	163
Interest derivatives	**(188)**	**18**
Commodity derivatives	**(66)**	**(1)**
Thereof designated hedging instruments as defined by IAS 39 (hedge accounting)	1	1
Derivative financial instruments	**(152)**	**(131)**

Cash flow hedge accounting

Some of the planned purchases of naphtha are hedged using swaps and options on oil and oil products. For the reporting of these hedges in the Consolidated Financial Statements of the BASF Group, no hedge accounting was applied in 2017 and in 2016.

Cash flow hedge accounting continues to be used to a minor extent for natural gas purchases, so that gains and losses from hedging instruments are initially recognized in equity. Gains and losses from hedging instruments are included in cost of sales at the point in time at which the hedged item is recognized in profit or loss.

The planned transactions and their effect on earnings occur in the year following the balance sheet date. In 2017, effective changes in the fair value of hedging instruments of €200,000 (2016: €1 million) were recognized in the equity of the shareholders of BASF SE. In 2017, effective changes in the fair value of hedging instruments of €300,000 were derecognized from the equity of shareholders of BASF SE and recognized in other operating income (2016: €1 million). The ineffective part in the change in value of the hedge amounted to minus €100,000 in 2017 and minus €1 million in 2016. These amounts were reported in the income statement in other operating expenses.

BASF also uses cash flow hedge accounting for some foreign currency derivatives to hedge planned sales denominated in U.S. dollars. The impact on earnings from the underlying transactions occurs in 2018. In 2017, the effective change in values of the hedges was €71 million (2016: €9 million), which was recognized in the equity of the shareholders of BASF SE. A total of €44 million (2016: €11 million) was derecognized from the equity of shareholders of BASF SE and was recognized in income from foreign currency and hedging transactions. The hedges were entirely effective.

To hedge foreign currency risk which existed for a part of the U.S. dollar-denominated purchase price for the acquisition of Chemetall, BASF used options and foreign currency forward contracts in the previous year. These were designated as hedging instruments and led to effective changes in the amount of €97 million, which was recognized in the equity of the shareholders of BASF SE. Upon completion of the transaction in December 2016, this amount was derecognized from the equity of the shareholders of BASF SE reducing the purchase price accordingly and along with that the resulting goodwill arising from the transaction. The ineffective part of the fair value changes of the hedging instruments amounted to minus €10 million and was recognized in other operating expenses.

The interest rate risk of the floating rate notes issued by BASF SE in 2013 was hedged using interest rate swaps. The bond and the interest rate swaps were designated in a hedging relationship. The effective changes in the fair value of the hedging instruments amounting to €6 million were recognized in equity of the shareholders of BASF SE in 2017. In the previous year, the variable interest bond issued in 2014 and expired in 2017 was also hedged by interest rate swaps. The effective changes in the fair value recognized in equity of the shareholders of BASF SE amounted to €6 million in 2016. There were no ineffective parts in either year.

Furthermore, BASF SE's fixed-rate U.S. private placement of $1.25 billion, issued in 2013, was converted into euros using currency swaps. This hedge was designated as a cash flow hedge. The hedge was entirely effective. In 2017, this resulted in changes in fair value of minus €125 million, which were recognized in the equity of the shareholders of BASF SE (2016: minus €33 million). In 2017, €144 million was derecognized from other comprehensive income and recorded as an expense in the financial result (2016: €38 million income in financial result).

28 Leases

Leased assets

Property, plant and equipment include assets which are considered to be economically owned through a finance lease. They primarily concern the following items:

Leased assets (million €)

	December 31, 2017		December 31, 2016	
	Acquisition cost	Net book value	Acquisition cost	Net book value
Land, land rights and buildings	22	9	46	26
Machinery and technical equipment	118	43	136	43
Miscellaneous equipment and fixtures	113	44	59	25
Total	**253**	**96**	**241**	**94**

Liabilities from finance leases (million €)

	December 31, 2017			December 31, 2016		
	Minimum lease payments	Interest portion	Leasing liability	Minimum lease payments	Interest portion	Leasing liability
Following year 1	32	5	27	28	5	23
Following year 2	37	5	32	30	4	26
Following year 3	22	4	18	19	4	15
Following year 4	19	3	16	17	3	14
Following year 5	12	2	10	12	3	9
More than 5 years	26	5	21	35	14	21
Total	**148**	**24**	**124**	**141**	**33**	**108**

In the current business year and in the previous year, no additional lease payments exceeding minimum lease payments were recognized in the income statement due to contractual conditions for finance leases. In 2017 and in the previous year, leasing liabilities were not offset by any future minimum lease payments from subleases.

In addition, BASF is a lessee under operating lease contracts. The lease commitments totaling €1,410 million in 2017 (2016: €1,513 million) are due in the following years:

Commitments from operating lease contracts (million €)

	Nominal value of the future minimum lease payments	
	Dec. 31, 2017	Dec. 31, 2016
Less than 1 year	362	360
1-5 years	728	757
More than 5 years	320	396
Total	**1,410**	**1,513**

Future minimum lease payments from subleasing contracts based on existing agreements amounted to €10 million in 2017 (2016: €12 million).

In 2017, minimum lease payments of €448 million (2016: €446 million) were included in income from operations. In 2017, conditional lease payments of €1 million (2016: €1 million) were also included in income from operations. Furthermore, sublease payments of €3 million were included in income from operations in 2017 (2016: €4 million).

BASF as lessor

BASF acts as a lessor for finance leases to a minor extent only. Receivables on finance leases were €29 million in 2017 (2016: €33 million).

In 2017, claims arising from operating leases amounted to €93 million (2016: €89 million).

Future minimum lease payments to BASF from operating lease contracts (million €)

	Nominal value of the future minimum lease payments	
	Dec. 31, 2017	Dec. 31, 2016
Less than 1 year	19	17
1-5 years	50	49
More than 5 years	24	23
Total	**93**	**89**

Other explanatory notes

29 Statement of cash flows and capital structure management

Statement of cash flows

Cash provided by operating activities contained the following payments:

Million €	2017	2016
Income tax payments	2,147	1,495
Interest payments	409	459
Dividends received	498	225

Interest payments comprised interest payments received of €161 million (2016: €156 million) and interest paid of €570 million (2016: €615 million).

In 2017, BASF SE transferred securities in the amount of €500 million to BASF Pensionstreuhand e.V., Ludwigshafen, Germany. This transfer was not cash effective and therefore had no effect on the statement of cash flows.

In 2016, cash provided by operating activities included €262 million in pension benefits paid, which are covered by a contractual trust arrangement.

Cash used in investing activities included €150 million in payments made for acquisitions (2016: €2,828 million). In the previous year, payments had especially been made for the acquisition of the global surface treatment provider Chemetall from Albemarle Corp., Charlotte, North Carolina.

Payments of €177 million were received for divestitures in 2017 (2016: €664 million). In the previous year, payments had been received primarily from the sale of the Coatings division's industrial coatings business to the AkzoNobel Group and from the sale of the global polyolefin catalysts business to W.R. Grace & Co., Columbia, Maryland.

The payments made for property, plant and equipment, and intangible assets in the amount of €3,996 million included investments for 2017, to the extent that they already had an effect on cash.

Cash and cash equivalents were not subject to any utilization restrictions, as in the previous year.

For more information on cash flow from acquisitions and divestitures, see Note 2.4 from page 187 onward