BASF Report 2018

Economic, environmental and social performance

BASF

We create chemistry

BASF Group 2018 at a glance

Key data

		2018	2017	+/–
Sales[1]	million €	62,675	61,223	2.4%
EBITDA before special items[1]	million €	9,481	10,738	(11.7%)
EBITDA[1]	million €	9,166	10,765	(14.9%)
EBIT before special items[1]	million €	6,353	7,645	(16.9%)
EBIT[1]	million €	6,033	7,587	(20.5%)
EBIT after cost of capital[1]	million €	825	2,902	(71.6%)
Net income	million €	4,707	6,078	(22.6%)
Earnings per share	€	5.12	6.62	(22.7%)
Assets	million €	86,556	78,768	9.9%
Investments including acquisitions[2]	million €	10,735	4,364	146.0%

		2018	2017	+/–
Employees at year-end		122,404	115,490	6.0%
Personnel expenses	million €	10,659	10,610	0.5%
Research and development expenses[1]	million €	2,028	1,843	10.0%
Greenhouse gas emissions	million metric tons of CO_2 equivalents	21.8	22.6	(3.5%)
Energy efficiency in production processes	kilograms of sales product/MWh	602	625	(3.7%)
Investments in environmental protection	million €	277	234	18.4%
Number of on-site sustainability audits of raw material suppliers		100	120	(16.7%)

1 Restated figures; for more information, see the Notes to the Consolidated Financial Statements from page 200 onward
2 Additions to intangible assets and property, plant and equipment

Segment data

Chemicals

million €		
Sales	2018	16,501
	2017	16,331
EBIT before special items	2018	3,386
	2017	4,233

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Performance Products

million €		
Sales	2018	15,812
	2017	16,217
EBIT before special items	2018	1,376
	2017	1,416

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Functional Materials & Solutions

million €		
Sales	2018	21,435
	2017	20,745
EBIT before special items	2018	1,307
	2017	1,617

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Agricultural Solutions

million €		
Sales	2018	6,156
	2017	5,696
EBIT before special items	2018	734
	2017	1,033

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Welcome to BASF

Our integrated corporate report combines financial and sustainability reporting to inform shareholders, employees and the interested public about the 2018 business year.

Chemistry for a sustainable future

Business success tomorrow means creating value for the environment, society and business. Our innovations contribute to a sustainable future. We support our customers in being more sustainable through our solutions and create new business opportunities that reinforce our customer relationships and attract new customers. In this way, we also contribute to achieving the U.N. Sustainable Development Goals (SDGs), which were adopted by the United Nations as globally recognized economic, environmental and social objectives.

On the cover:

Globally, BASF is conducting research on innovative cathode materials that make electromobility a reality. BASF's innovations for high-performance lithium-ion batteries can help double the real range of a mid-size car from 300 to 600 kilometers by 2025 and significantly reduce the charging time of electric vehicles. The photo shows a dry room at the research and development center in Ludwigshafen, Germany, where BASF is working on cathode materials for lithium-ion batteries and components for next-generation batteries such as solid-state batteries.

For more information on battery materials, see page 33 and from page 74 onward

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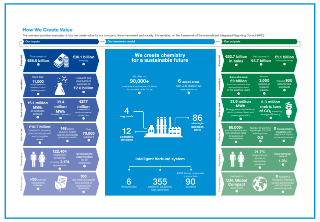


How we create value – an overview of BASF's business model based on the IIRC framework

For more information, see page 22

[About This Report]

Integrated reporting

This integrated report documents BASF's economic, environmental and social performance in 2018. We use examples to illustrate how sustainability contributes to BASF's long-term success and how we as a company create value for our customers, employees, shareholders, business partners, neighbors and the public.

Further information

The following symbols indicate important information:

You can find more information in this report.

You can find more information online.

[ ] The content of this section is not part of the statutory audit of the annual financial statements but has undergone a separate audit with limited assurance by our auditor.

[ ] The content of this section is voluntary, unaudited information, which was critically read by the auditor.

The BASF Report online

HTML version with additional features: **basf.com/report**

PDF version available for download: **basf.com/basf_report_2018.pdf**

Content and structure

- **Integrated BASF Report serves as U.N. Global Compact progress report**
- **Sustainability reporting based on Global Reporting Initiative (GRI) standards**
- **Financial reporting according to International Financial Reporting Standards (IFRS), the German Commercial Code and German Accounting Standards (GAS)**

The BASF Report combines the major financial and nonfinancial information necessary to thoroughly evaluate our performance.

We select the report's topics based on the following reporting principles: Materiality, sustainability context, completeness, balance and stakeholder inclusion. In addition to our integrated report, we publish further information online. Links to this supplementary information are provided in each section.

Our sustainability reporting has been based on Global Reporting Initiative (GRI) standards since 2003 and, since the BASF Report 2017, the "Comprehensive" option of the new Global Reporting Initiative standards.

We have been active in the International Integrated Reporting Council (IIRC) since 2014 in order to discuss our experiences of integrated reporting with other stakeholders and at the same time, receive inspiration for enhancing our reporting. This report addresses elements of the IIRC framework by, for example, providing an illustrative overview of how we create value or demonstrating the relationships between financial and nonfinancial performance in the sections on the segments. The information in the BASF Report 2018 also serves as a progress report on BASF's implementation of the 10 principles of the United Nations' Global Compact and takes into consideration the Blueprint for Corporate Sustainability Leadership of the Global Compact LEAD platform.

WE SUPPORT

Global Compact LEAD PARTICIPANT

GOLD Community BASF 2018

The detailed GRI and Global Compact Index can be found in the online report. It provides an overview of all relevant information to fulfill the GRI indicators, as well as how we contribute to the United Nations' Sustainable Development Goals (SDGs) and the principles of the U.N. Global Compact. The results of the limited assurance audit of this information can also be found here in the form of a report issued by KPMG AG Wirtschaftsprüfungsgesellschaft.

The information on the financial position and performance of the BASF Group comply with the requirements of International Financial Reporting Standards (IFRS), and, where applicable, the German Commercial Code, German Accounting Standards (GAS) and the guidelines on alternative performance measures from the European Securities and Markets Authority (ESMA). Internal control mechanisms ensure the reliability of the information presented in this report. BASF's management confirmed the effectiveness of the internal control measures and compliance with the regulations for financial reporting.

Material topics along the value chain, which we identified in internal strategic discussion processes, ongoing global data analysis and dialog with shareholders, form the focal points of reporting and define the limits of this report.

The 2018 BASF Online Report can be found at basf.com/report

For more information on our selection of sustainability topics, see page 36 onward and basf.com/materiality

For more information on the Global Reporting Initiative, see globalreporting.org

For more information on the Global Compact, see globalcompact.org and basf.com/en/global-compact

The GRI and Global Compact Index can be found at basf.com/en/gri-gc

For a visualization of BASF's business model based on the IIRC framework, see "How we create value" on page 22

For more information on our control and risk management system, see page 123 onward

Data

- **Relevant information included up to the editorial deadline of February 20, 2019**
- **Report published each year in English and German**

All information and bases for calculation in this report are founded on national and international standards for financial and sustainability reporting. The data and information for the reporting period were sourced from the expert units responsible using representative methods. The reporting period is the 2018 business year. Relevant information is included up to the editorial deadline of February 20, 2019. The report is published each year in English and German.

BASF Group's scope of consolidation for its financial reporting comprises BASF SE, with its headquarters in Ludwigshafen, Germany, and all of its fully consolidated material subsidiaries and proportionally included joint operations. Shares in joint ventures and associated companies are accounted for, if material, using the equity method in the BASF Group Consolidated Financial Statements and are thus not included in the scope of consolidation.

The section "Employees" refers to employees active in a company within the BASF Group scope of consolidation as of December 31, 2018.

Our data collection methods for environmental protection and occupational safety are based on the recommendations of the International Council of Chemical Associations (ICCA) and the European Chemical Industry Council (CEFIC). In the section "Environmental Protection, Health and Safety," we report all data including information on the emissions and waste of the worldwide production sites of BASF SE, its subsidiaries, and joint operations based on our interest. Work-related accidents at all sites of BASF SE and its subsidiaries as well as joint operations and joint ventures in which we have sufficient authority in terms of safety management, are compiled worldwide regardless of our interest and reported in full. The assets and businesses acquired from Bayer are not yet included in reporting on environmental protection, health and safety in 2018. Unless otherwise indicated, further data on social responsibility and transportation safety refers to BASF SE and its consolidated subsidiaries.

For more information on companies accounted for in the Consolidated Financial Statements, see the Notes from page 183 onward

The Consolidated Financial Statements begin on page 168

The list of shares held can be found at basf.com/en/corporategovernance

External audit and evaluation

Our reporting is audited by a third party. KPMG AG Wirtschaftsprüfungsgesellschaft has audited the BASF Group Consolidated Financial Statements and the Management's Report and has approved them free of qualification. The audit of the Consolidated Financial Statements including the Notes is based on the likewise audited financial statements of the BASF Group companies.

Statements and figures pertaining to sustainability in the Management's Report and Consolidated Financial Statements are also audited. The audit with limited assurance was conducted in accordance with ISAE 3000 (Assurance Engagements other than Audits or Reviews of Historical Financial Information) and ISAE 3410 (Assurance Engagements on Greenhouse Gas Statements), the relevant international auditing standards for sustainability reporting. The additional content provided on the BASF internet sites indicated in this report is not part of the information audited by KPMG.

KPMG also conducted a substantive audit with limited assurance of the nonfinancial statement (NFS).

The Independent Auditor's Report can be found on page 170

A report on the sustainability information in the BASF Report 2018 can be found at basf.com/sustainability_information

A report on the substantive audit of the NFS can be found at basf.com/nfs-audit-2018

Forward-looking statements and forecasts

This report contains forward-looking statements. These statements are based on current estimates and projections of the Board of Executive Directors and currently available information. Forward-looking statements are not guarantees of the future developments and results outlined therein. These are dependent on a number of factors; they involve various risks and uncertainties; and they are based on assumptions that may not prove to be accurate. Such risk factors include those discussed in Opportunities and Risks on pages 123 to 130. We do not assume any obligation to update the forward-looking statements contained in this report above and beyond the legal requirements.

1

To Our Share- holders

Dear shareholder,

I am very happy to have my first opportunity as Chairman of the Board of Executive Directors of BASF SE and BASF's Chief Technology Officer to present to you our annual report. I feel grateful and motivated to take on these new responsibilities, since I have loved working for this company for the past three decades. We have answers to the challenges facing society, whether it be climate change, urbanization or mobility. Every day I get to see how great our team is and how passionate they are about innovations based on chemistry. Our ambition is clear: We want BASF to remain the world's leading company in the chemical industry. We want to be the first choice of our customers and impress them again and again.

Taking a look at our 2018 financial figures, it is evident that we did not reach our earnings targets. We reported sales of €62.7 billion in 2018. This represents an increase of 2% compared to the previous year. Our EBIT before special items declined to €6.4 billion, down by 17% compared with 2017. Cash flows from operating activities amounted to €7.9 billion, down 10% year on year, while free cash flow was €4.0 billion, compared with €4.8 billion in the prior year.

What are the reasons for this? Two-thirds of the earnings decline in 2018 can be attributed to the Chemicals segment. Prices for isocyanates fell sharply and cracker margins were lower than expected in all regions. In the second half of the year, low water levels on the Rhine River posed a particular challenge for us. At the Ludwigshafen site, at times we were unable to receive any deliveries of raw materials via inland waterways. Consequently, we were forced to reduce capacity utilization at our plants. This alone reduced our earnings by around €250 million.

Moreover, we noticed a significant cooling in our key markets, especially the automotive industry, in the second half of the year. In addition, demand from our customers in China decreased considerably. The trade conflict between the United States and China was a factor in this slowdown.

Looking to the stock market, it is clear that the BASF share price was negatively impacted by the considerable year-on-year decline in earnings as well as the unfavorable macroeconomic and geopolitical developments. At the end of 2018, our share price was €60.40. Compared with the closing price at the end of the previous year, this represents a decrease of 34%.

We are not satisfied with our business performance in 2018 or with our share price development. We know that we can do more.

However, market conditions will not get any easier for us in 2019. Political and economic risks have grown. The geopolitical tensions and trade conflicts, especially between the United States and China, will continue. We therefore anticipate a slight decline in global economic growth. Global chemical production will however likely grow about as strongly as it did in 2018.

How do we respond to this? Last year, we already began working intensely on making BASF fit for the future. As part of this, in 2018 we further developed our strategy, *"We further developed our strategy in 2018. Our strategy focuses on growth."*

which we presented in November. The measures we have identified will also put us in a good position to face stronger headwinds.

Our strategy focuses on growth: We want to grow profitably and sustainably. We invest where we see opportunities for growth. At the same time, we will continue to rigorously reduce costs wherever it makes sense. In everything that we do, we are guided by these questions: How can we create more value for our customers, for society and thus for our shareholders? How can we better meet the expectations of our customers?

"We want to achieve CO_2-neutral growth until 2030 and keep our greenhouse gas emissions flat at the 2018 level."

We are driven by our purpose: We create chemistry for a sustainable future. We are convinced that we will only be successful in the long term if we create value for society and our innovations address all three dimensions of sustainability: the economic, environmental and social aspects. This is why we have also set ourselves nonfinancial targets in addition to our financial targets.

Sustainability is very important to us. We are therefore aiming for CO_2-neutral growth until 2030, keeping our greenhouse gas emissions flat at the 2018 level. This is very ambitious since we have already reduced our absolute emissions by half since 1990 while our production volume has doubled over the same period. Most of the potential for optimization has already been exploited. We are therefore developing new lower-carbon technologies as part of our Carbon Management Program.

"One of our targets is to generate sales of around €22 billion with Accelerator products by 2025."

Another BASF targets is to generate sales of around €22 billion with Accelerator products by 2025. These are innovative products that make a decisive contribution to sustainability in the value chain. As part of our commitment to sustainability, we are involved in the U.N. Global Compact and we support the U.N. Sustainable Development Goals (SDGs). BASF is a founding member of the Responsible Cobalt Initiative and the World Economic Forum's Global Battery Alliance. In these initiatives, launched in 2017, companies and international organizations such as the OECD and UNICEF are joining forces to tackle the challenges in the battery materials supply chain.

With our ChemCycling project, we want to take plastic waste which cannot be mechanically recycled and use it as a feedstock. This will reduce our consumption of fossil resources. We strive to be a pioneer in sustainability in the chemical industry. After all, sustainability is also a key growth area for BASF, where we want to systematically utilize our opportunities.

In our new strategy, we have identified additional priorities: operational excellence, digitalization, innovation, portfolio management and employees. In each of these action areas we want to raise the bar and be the pacesetter in our industry. BASF is known for the safe and reliable operation of chemical plants. Through operational excellence, we want to become even stronger and be a leading plant operator. To achieve this, we are investing €400 million per year – more than ever before – to optimize our plants. Furthermore, we plan to digitalize 350 production facilities by 2022. We are accelerating BASF's digital transformation and strengthening our digital competencies. This means we will become faster, more efficient and more effective. This is our vision of internal collaboration aimed at benefiting our customers. With simpler and more flexible processes and more agile structures, we will be even better able to meet our customers' expectations. To accomplish this, we will also be making some organizational changes. This means that many employees from the central units will move to the divisions to work even closer to our customers.

As a scientist, again and again I am inspired by the creativity and ideas of our employees. We have a unique wealth of skills, innovative strength and resources that have made BASF the world's leading chemical company. Nevertheless, we want to improve even more and increase our sales of innovations. This includes work on breakthrough innovations, the development of new innovation strategies and structures that bring our employees in research and development closer to our markets and customers.

We are also further developing our portfolio with innovations as well as investments and, where appropriate and necessary, with targeted acquisitions and divestitures. Our aim is to position each of our businesses so that it can successfully hold its own against the competition. For example, in 2018 we completed the purchase of significant parts of Bayer's crop protection and seed business. We are now the world's fourth-largest producer of crop protection products and seeds – and we are just as good and ambitious as our competitors. This transaction has given us new capacity for innovation and economies of scale.

"Our new strategy capitalizes on the advantages of our Verbund and we will make the Verbund even stronger."

The Verbund remains at the heart of our portfolio. Our new strategy will continue to utilize the advantages the Verbund offers and we will make it even stronger. Our investments in our future will therefore focus primarily on our own plants in growth markets. With our major investment project in the southern Chinese province of Guangdong, we plan to build a new BASF Verbund site in the world's largest chemical market. We signed an agreement with the provincial government at the beginning of 2019. We estimate a total investment of around $10 billion to complete the project, which will be wholly owned by BASF.

In January 2019, we signed a memorandum of understanding with India's Adani Group regarding a major investment in the acrylics value chain in India. This would not only expand our footprint in a fast-growing market. The production facility at Mundra port would also be our first CO_2-neutral site, operated with 100% renewable energy.

What financial targets have we set for ourselves in our new strategy? We want to grow profitably and faster than the market. We are targeting an increase in BASF's EBITDA before special items of 3% to 5% annually and a return on capital employed (ROCE) well above the cost of capital percentage every year. For our shareholders, we want to deliver above-average value compared with the chemical industry and increase our dividend per share each year.

"We have the right strategy, the skills and the passion necessary to make BASF fit for the future."

We stand by our ambitious dividend policy and propose to the Annual Shareholders' Meeting that the dividend for the 2018 business year be raised by €0.10 to €3.20 per share. The BASF share would thus offer a dividend yield of 5.3% based on the 2018 year-end share price. In total, we plan to pay out €2.9 billion to our shareholders.

BASF's success is the result of its employees and their outstanding efforts and commitment to the company. For this excellent team performance and dedication to BASF, I want to thank all employees on behalf of the Board of Executive Directors.

2019 will be an exceptionally demanding year of transformation – economically, politically and strategically. It will be a year in which we make BASF more agile, flexible and customer-focused with our strategy. At the same time, we will maintain a balance: We will introduce structural changes and keep what works, we will achieve cost savings and invest in the future. We want to implement our internal changes by the end of 2019. This will require focus, energy and strength – and these are all things we have.

We have the right strategy, the skills and the passion necessary to make BASF fit for the future. And that is why I am optimistic.

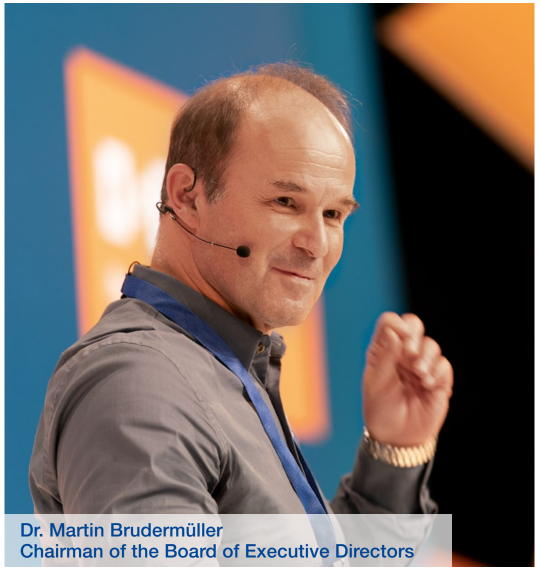
I am certain that BASF will remain the leading global company in this industry. The entire team at BASF is working together to ensure this. This is our ambition. Dear shareholders, I am glad that you are accompanying us on this journey.

Yours,

Martin Brudermüller

Martin Brudermüller

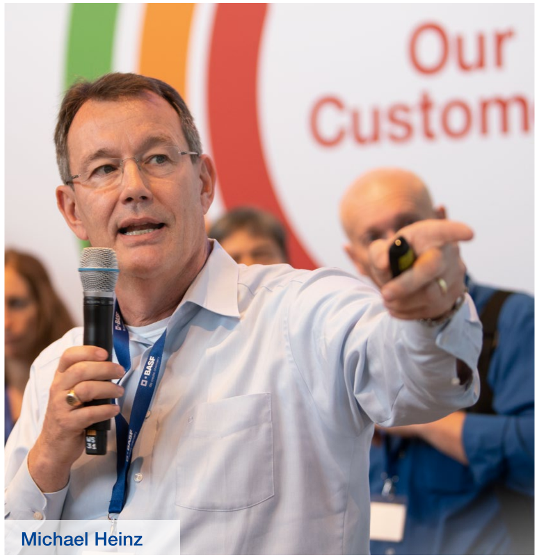
The Board of Executive Directors of BASF SE


Dr. Martin Brudermüller
Chairman of the Board of Executive Directors

Saori Dubourg


Dr. Markus Kamieth


Dr. Hans-Ulrich Engel
Vice Chairman of the Board of Executive Directors



Michael Heinz


Sanjeev Gandhi


Wayne T. Smith

BASF on the Capital Market

In 2018, the stock markets were characterized by long periods of uncertainty as a result of geopolitical tensions and trade conflicts, especially between the United States and China. The BASF share price declined considerably over the course of the year. We stand by our ambitious dividend policy and will propose a dividend of €3.20 per share at the Annual Shareholders' Meeting – an increase of 3.2% compared with the previous year.

BASF share performance

- **BASF share declines 34.2% in 2018**
- **Long-term performance continues to clearly exceed benchmark indexes**

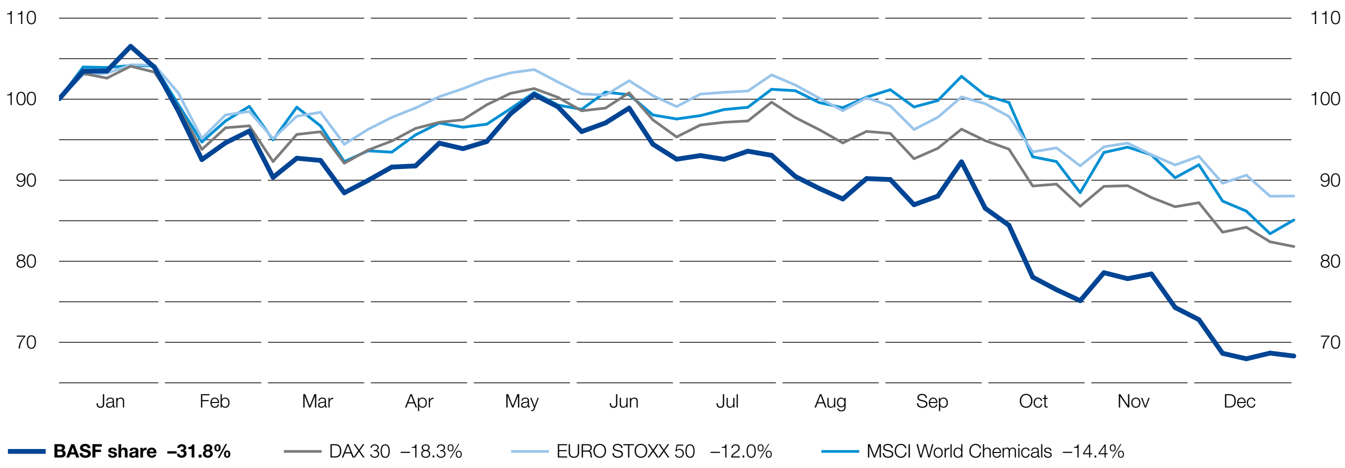
The BASF share closed the 2018 stock market year with a closing price of €60.40, a decrease of 34.2% compared with the previous year's closing price. The considerable year-on-year decline in the BASF Group's earnings was primarily attributable to considerably lower earnings in the Chemicals segment, mainly as a result of lower margins for isocyanates and steam cracker products. The segment's earnings were also negatively impacted by the low water levels on the Rhine River in the second half of 2018. In addition, geopolitical tensions and trade conflicts, especially between the United States and China, led to a slowdown in economic growth over the course of the year particularly in Asia, and there mainly in China. The ensuing downturn in demand from significant customer industries, in particular the automotive industry, further weighed on BASF's share performance.

Assuming that dividends were reinvested, BASF's share performance declined by 31.8% in 2018. The benchmark indexes of the German and European stock markets – the DAX 30 and the EURO STOXX 50 – lost 18.3% and 12.0% over the same period, respectively. The global industry index MSCI World Chemicals fell by 14.4%.

Viewed over a 10-year period, the long-term performance of BASF shares still clearly surpasses the German, European and global benchmark indexes. The assets of an investor who invested €1,000 in BASF shares at the end of 2008 and reinvested the dividends in

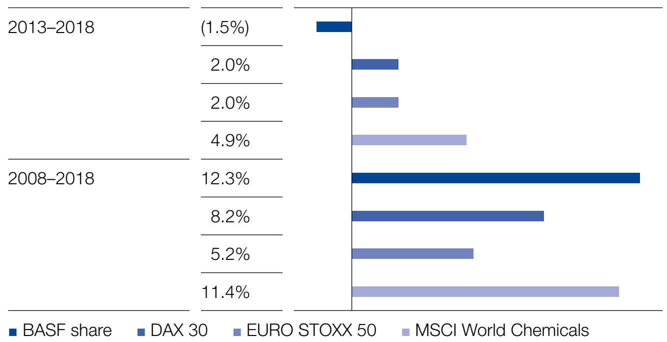
Change in value of an investment in BASF shares in 2018

With dividends reinvested; indexed



Long-term performance of BASF shares compared with indexes

Average annual increase with dividends reinvested



Weighting of BASF shares in important indexes as of December 31, 2018

DAX 30	6.3%
EURO STOXX 50	2.6%
MSCI World Chemicals	7.0%

additional BASF shares would have increased to €3,201 by the end of 2018. This represents an annual yield of 12.3%, placing BASF shares above the returns for the DAX 30 (8.2%), EURO STOXX 50 (5.2%) and MSCI World Chemicals (11.4%) indexes.

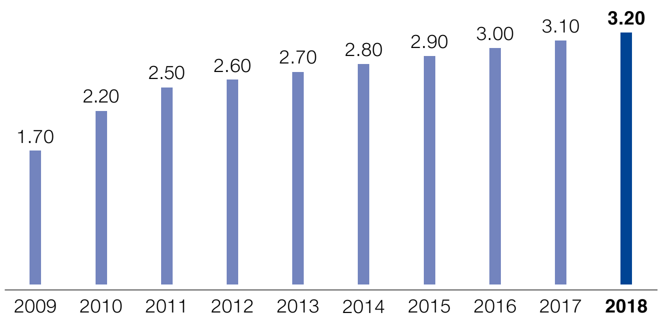
Proposed dividend of €3.20 per share

At the Annual Shareholders' Meeting, the Board of Executive Directors and the Supervisory Board will propose a dividend payment of €3.20 per share. We stand by our ambitious dividend policy of increasing our dividend each year and plan to pay out €2.9 billion to our shareholders.

Based on the year-end share price for 2018, BASF shares offer a high dividend yield of around 5.3%. BASF is part of the DivDAX share index, which contains the 15 companies with the highest dividend yield in the DAX 30.

Dividend per share

€ per share

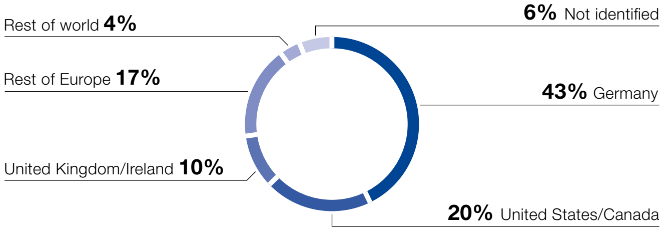


Broad base of international shareholders

With over 600,000 shareholders, BASF is one of the largest publicly owned companies with a high free float. An analysis of the shareholder structure carried out at the end of 2018 showed that, at around 20% of share capital, the United States and Canada made up the largest regional group of institutional investors. Institutional investors from Germany accounted for around 13%. Shareholders from the United Kingdom and Ireland hold 10% of BASF shares, while investors from the rest of Europe hold a further 17% of capital. Approximately 30% of the company's share capital is held by private investors, nearly all of whom reside in Germany. BASF is therefore one of the DAX 30 companies with the largest percentage of private shareholders.

Shareholder structure

By region, rounded



Employees becoming shareholders

In many countries, we offer share purchase programs that turn our employees into BASF shareholders. In 2018, for example, 25,000 employees (2017: 23,700) purchased employee shares worth €79 million (2017: €63 million).

For more information on employee share purchase programs, see page 114

BASF as a sustainable investment

- **CDP includes BASF in its "Climate Change A List"**
- **BASF continues to be rated "AA" by MSCI ESG Research**

BASF has participated in CDP's program for reporting on data relevant to climate protection since 2004. CDP is an an international organization representing more than 650 investors with over $87 trillion in assets and 115 major purchasing organizations with $3.3 trillion in purchasing power. After achieving a score of "A–" for several years, thus attaining "Leadership" status, BASF was included in CDP's "Climate Change A List" with the highest possible rating of "A" in 2018. Companies at this level are distinguished by the completeness and transparency of their reporting, their approaches for managing the opportunities and risks associated with climate change, and clear corporate strategies to reduce emissions. BASF has also reported on water management to CDP since 2010 and was again acknowledged as a global leader in sustainable water management in 2018. The organization awarded BASF an "A–" rating in recognition of its actions to manage water more sustainably.

BASF continued to be included in the MSCI ESG Ratings in 2018 with a score of "AA." The analysts highlighted BASF's Verbund system as a key competitive advantage for resource-efficient processes. BASF's emissions intensity for greenhouse gases and air pollutants – one of the lowest compared with competitors in the chemical industry – was also assessed positively.

For more information on the key sustainability indexes, see basf.com/sustainabilityindexes
For more information on energy and climate protection, see page 103 onward
For more information on water, see page 108 onward

Analysts' recommendations

Around 25 financial analysts regularly publish studies on BASF. The latest analyst recommendations for our shares as well as the average target share price ascribed to BASF by analysts can be found online at basf.com/analystestimates.

Close dialog with the capital market

- **Roadshows for institutional investors and talks with rating agencies**
- **Informational events for private investors**
- **Capital Markets Day on the corporate strategy**

Our corporate strategy aims to create long-term value. We support this strategy through regular and open communication with all capital market participants. We engage with institutional investors and rating agencies in numerous one-on-one meetings, as well as at roadshows and conferences worldwide, and give private investors an insight into BASF at informational events.

In November 2018, we informed analysts and investors about BASF Group's updated corporate strategy at our Capital Markets Day in Ludwigshafen, Germany. Key topics were our even stronger customer focus, the new financial and nonfinancial targets, and the segment structure going forward.

In 2018, we once again offered special events aimed toward investors who base their investment decisions on sustainability criteria. We outlined in particular our measures for climate protection, energy efficiency, health and safety. In addition, we offered several creditor relations roadshows, where credit analysts and creditors could learn more about our business and financing strategy.

For more information on our credit ratings, see the Financial Position on page 54

Analysts and investors have confirmed the quality of our financial market communications. We took first place in the "Best ESG communications" and "Best IR website" categories in the annual survey conducted by Britain's IR Magazine. Germany's Manager Magazin also recognized BASF at the presentation of its Investors' Darling awards with second place in the DAX category and first place in the digital communications category. In January 2019, Institutional Investor magazine awarded BASF first place in the "Best IR in Germany" category for its investor relations program.

For more information about BASF stock, see basf.com/share
Register for the newsletter with current topics and dates at basf.com/share/newsletter
Contact the Investor Relations team by phone at +49 621 60-48230 or email ir@basf.com

Further information on BASF share

Securities code numbers	
Germany	BASF11
United Kingdom	0083142
Switzerland	11450563
United States (CUSIP number)	055262505
ISIN International Securities Identification Number	DE000BASF111

International ticker symbols	
Deutsche Börse	BAS
London Stock Exchange	BFA
Swiss Exchange	BAS

Key BASF share data

		2014	2015	2016	2017	2018
Year-end price	€	69.88	70.72	88.31	91.74	60.40
Year high	€	87.36	96.72	88.31	97.46	97.67
Year low	€	65.61	65.74	56.70	79.64	58.40
Year average	€	77.93	79.28	70.96	88.16	80.38
Daily trade in shares[1]						
	million €	224.5	264.5	201.9	185.7	229.6
	million shares	2.9	3.3	2.9	2.1	2.9
Number of shares December 31	million shares	918.5	918.5	918.5	918.5	918.5
Market capitalization December 31	billion €	64.2	65.0	81.1	84.3	55.5
Earnings per share	€	5.61	4.34	4.42	6.62	5.12
Adjusted earnings per share	€	5.44	5.00	4.83	6.44	5.87
Dividend per share	€	2.80	2.90	3.00	3.10	3.20
Dividend yield[2]	%	4.01	4.10	3.40	3.38	5.30
Payout ratio	%	50	67	68	47	63
Price-earnings ratio (P/E ratio)[2]		12.5	16.3	20.0	13.9	11.8

1 Average, Xetra trading
2 Based on year-end share price

Chapter 2 pages 15–130

2

Management's Report

Overview

The Management's Report comprises the chapter of the same name on pages 15 to 130, as well as the disclosures required by takeover law, the Compensation Report and the Declaration of Corporate Governance, which are presented in the Corporate Governance chapter. The Nonfinancial Statement (NFS) is integrated into the Management's Report.

Nonfinancial Statement (NFS) in accordance with sections 315b and 315c of the German Commercial Code (HGB)

The NFS disclosures can be found in the relevant sections of the Management's Report and have been prepared in accordance with the appropriate frameworks: the Global Reporting Initiative Standards ("Comprehensive" application option) and the reporting requirements of the U.N. Global Compact.

The table on the following page shows the sections and subsections in which the individual disclosures can be found. In addition to a description of the business model, the NFS includes disclosures on the following matters, to the extent that they are required to understand the development and performance of the business, the Group's position and the impact of business development on the following matters:
- Environmental matters
- Employee-related matters
- Social matters
- Respect for human rights
- Anti-corruption and bribery matters

Within the scope of the audit of the annual financial statements, the external auditor KPMG checked pursuant to section 317(2) sentence 4 HGB that the NFS was presented in accordance with the statutory requirements. KPMG also conducted a substantive audit with limited assurance of the NFS. A report on this substantive audit can be found online at basf.com/nfs-audit-2018 and is part of the BASF Report 2018. The audit was conducted in accordance with ISAE 3000 (Assurance Engagements other than Audits or Reviews of Historical Financial Information) and ISAE 3410 (Assurance Engagements on Greenhouse Gas Statements), the relevant international auditing standards for sustainability reporting.

Compensation Report and disclosures in accordance with section 315a HGB

The Compensation Report including the description of the principles of the compensation system in accordance with section 315a(2) HGB can be found in the Corporate Governance chapter from page 146 onward, and the disclosures in accordance with section 315a(1) HGB (takeover-related disclosures) from page 137 onward. They form part of the Management's Report, which is audited as part of the audit of the annual financial statements.

Consolidated Declaration of Corporate Governance in accordance with section 315d HGB in connection with section 289f HGB

The Consolidated Declaration of Corporate Governance in accordance with section 315d HGB in connection with section 289f HGB can be found in the Corporate Governance chapter from page 131 onward and is a component of the Management's Report. It comprises:
- The Corporate Governance Report including the description of the diversity concept for the composition of the Board of Executive Directors and the Supervisory Board (excluding the disclosures required by takeover law in accordance with section 315a(1) HGB)
- Compliance reporting
- The Declaration of Conformity pursuant to section 161 of the German Stock Corporation Act

Pursuant to section 317(2) sentence 6 HGB, the auditor checked that the disclosures according to section 315d HGB were made.

Further information

The following symbols indicate important information:

You can find more information in this report.

You can find more information online.

[ ] The content of this section is not part of the statutory audit of the annual financial statements but has undergone a separate audit with limited assurance by our auditor.

The content of this section is voluntary, unaudited information, which was critically read by the auditor.

Nonfinancial Statement (NFS) disclosures in the relevant chapters of the integrated report

NFS disclosure	Topics	Concepts and results
Business model	The BASF Group	Pages 18–21
Environmental matters	Process safety	Page 24 (goals) Pages 95 and 97–98 (goals, measures, results)
	Emergency response and corporate security	Pages 95 and 98–99 (goals, measures, results)
	Product stewardship	Page 24 (goals) Pages 95 and 100–101 (goals, measures, results)
	Transportation and storage	Pages 95 and 102 (goals, measures, results)
	Energy and climate protection	Page 24 (goals) Pages 95 and 103–106 (goals, measures, results)
	Emissions to air	Pages 95 and 107 (goals, measures, results)
	Management of waste and contaminated sites	Pages 95 and 107 (goals, measures, results)
	Water	Page 24 (goals) Pages 95 and 108–109 (goals, measures, results)
	Portfolio management	Page 24 (goals) Pages 37–38 (goals, measures, results)
	Supplier management	Page 23 (goals) Pages 90–91 (goals, measures, results)
Employee-related matters	Occupational safety	Page 24 (goals) Pages 95 and 96–97 (goals, measures, results)
	Health protection	Page 24 (goals) Pages 95 and 98 (goals, measures, results)
	Employee engagement	Page 111 (goals, measures, results)
	What we expect from our leaders	Page 111 (goals, measures, results)
	Inclusion of diversity	Page 23 (goals) Page 112 (goals, measures, results)
	Competition for talent	Page 113 (goals, measures, results)
	Learning and development	Pages 113–114 (goals, measures, results)
	Compensation and benefits	Page 114 (goals, measures, results)
	Dialog with employee representatives	Page 115 (goals, measures, results)
	Global labor and social standards	Page 115 (goals, measures, results)
	Supplier management	Page 23 (goals) Pages 90–91 (goals, measures, results)
Social matters	Social commitment	Page 40 (goals, measures, results)
Respect for human rights	Responsibility for human rights	Page 39 (goals, measures, results)
	Global labor and social standards	Page 115 (goals, measures, results)
	Supplier management	Page 23 (goals) Pages 90–91 (goals, measures, results)
Anti-corruption and bribery matters	Compliance	Pages 140–141 (goals, measures, results)
	Supplier management	Page 23 (goals) Pages 90–91 (goals, measures, results)

The BASF Group

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The approximately 122,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Until December 31, 2018, our portfolio was arranged into four segments: Chemicals, Performance Products, Functional Materials & Solutions and Agricultural Solutions.[1] Since January 1, 2019, BASF's activities have been grouped into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions.

Intelligent Verbund concept

Production, technology, market, digitalization

In 90+ countries

employees contribute to our success and that of our customers worldwide

New organization

since January 1, 2019

Closer to customers

by embedding business-critical parts of the functional units into the divisions

Organization of the BASF Group until December 31, 2018

- **Twelve divisions grouped into four segments**
- **Regional divisions, functional units and corporate and research units support our business**

Until December 31, 2018, our 12 divisions[1] were grouped into four segments based on their business models: Chemicals, Performance Products, Functional Materials & Solutions and Agricultural Solutions. On September 27, 2018, BASF and LetterOne signed a definitive agreement to merge their oil and gas businesses in a joint venture. The new joint venture will operate under the name Wintershall DEA. Since the agreement was signed, we have no longer reported on BASF's oil and gas business as a separate Oil & Gas segment. Until closing, its earnings will be presented as a separate item, income after taxes from discontinued operations. Closing of the transaction is expected in the first half of 2019, subject to the approvals of merger control and foreign investment authorities as well as mining authorities and the German Federal Network Agency. In the Agricultural Solutions segment, we renamed the division from Crop Protection to Agricultural Solutions after the acquisition of significant businesses from Bayer was closed in August 2018, especially for seeds.

Our divisions bear operational responsibility and are organized according to sectors or products. They manage our 54 global and regional business units and develop strategies for the 86 strategic business units.[1]

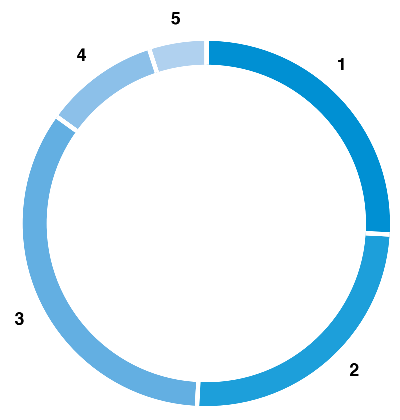
Our regional units are responsible for optimizing local infrastructure, and contribute to tapping our market potential. For financial reporting purposes, we organize the regional divisions into four regions: Europe; North America; Asia Pacific; South America, Africa, Middle East.

Seven functional units and eight corporate units support the BASF Group's business activities. The functional and corporate units provide services in areas such as finance, human resources, engineering and site management, environmental protection, health and

BASF structure until December 31, 2018[1]

Percentage of total sales in 2018

1	Chemicals	– Petrochemicals – Monomers – Intermediates	26%
2	Performance Products	– Dispersions & Pigments – Care Chemicals – Nutrition & Health – Performance Chemicals	25%
3	Functional Materials & Solutions	– Catalysts – Construction Chemicals – Coatings – Performance Materials	34%
4	Agricultural Solutions	– Agricultural Solutions	10%
5	Other		5%



1 Excluding the oil and gas activities presented as discontinued operations

safety, investor relations, and communications. Our global research units safeguard our innovative capacity and competitiveness.

Business processes such as the procurement of raw materials and services, production and transport to customers are the shared responsibility of the divisions and the functional units.

For more information on the products and services offered by the segments, see from pages 61, 68, 75 and 81 onward

For more information on the effects of the agreement with LetterOne, see page 86

New organization of the BASF Group as of January 1, 2019

As of January 1, 2019, we have twelve divisions grouped into six segments as follows:

- **Chemicals:** Petrochemicals and Intermediates
- **Materials:** Performance Materials and Monomers
- **Industrial Solutions:** Dispersions & Pigments and Performance Chemicals
- **Surface Technologies:** Catalysts, Coatings and Construction Chemicals
- **Nutrition & Care:** Care Chemicals and Nutrition & Health
- **Agricultural Solutions:** Agricultural Solutions

We are considering the possibility of merging our construction chemicals business with a strong partner, as well as the option of divesting this business. The outcome of this review is open. The Construction Chemicals division will be reported under the Surface Technologies segment until signing of a transaction agreement.

BASF's new segment structure will allow a more differentiated steering of our businesses according to their market-specific competitive environment. It will increase transparency regarding the results of our segments and divisions and highlight the importance of the Verbund and value chains to our business success. BASF aims to clearly position its businesses against their relevant competitors and establish a high-performance organization to enable BASF to be successful in an increasingly competitive market environment.

The **Chemicals** segment will remain the cornerstone of our Verbund structure. It supplies the other segments with basic chemicals and intermediates, contributing to the organic growth of our key value chains. Alongside internal accounts, our customers include the chemical and plastics industries. We aim to increase our competitiveness through technological leadership and operational excellence.

The **Materials** segment's portfolio comprises advanced materials and their precursors for new applications and systems. These include isocyanates and polyamides as well as inorganic basic products and specialties for the plastics and plastics processing industries. We aim to grow organically through differentiation via specific technological expertise, industry know-how and customer proximity to maximize value in the isocyanate and polyamide value chains.

The **Industrial Solutions** segment develops and markets ingredients and additives for industrial applications such as polymer dispersions, pigments, resins, electronic materials, antioxidants and admixtures. We aim to drive organic growth in key industries such as automotive, plastics or electronics and expand our position in value-enhancing ingredients and solutions by leveraging our comprehensive industry expertise and application know-how.

The **Surface Technologies** segment comprises our businesses that offer chemical solutions on and for surfaces. Its portfolio includes coatings, rust protection products, catalysts and battery materials for the automotive and chemical industries. The aim is to drive organic growth by leveraging our portfolio of technologies and know-how, and to establish BASF as a leading and innovative provider of battery materials as well.

In the **Nutrition & Care** segment, we strive to expand our position as a leading provider of nutrition and care ingredients for consumer products in the area of nutrition, home and personal care. Customers include food and feed producers as well as the pharmaceutical, cosmetics, detergent and cleaner industries. We aim to enhance and broaden our product and technology portfolio. Our goal is to drive organic growth by focusing on emerging markets, new business models and sustainability trends in consumer markets, supported by targeted acquisitions.

The **Agricultural Solutions** segment aims to further strengthen our market position as an integrated provider of crop protection products and seeds. Its portfolio comprises fungicides, herbicides, insecticides and biological crop protection products, as well as seeds and seed treatment products. We also offer farmers digital solutions combined with practical advice. Our main focus is on innovation-driven organic growth, targeted portfolio expansion as well as leveraging synergies from the acquired businesses.

In addition to the new segment structure, the composition of a number of divisions will also change. The propylene oxide and propylene glycol business will be transferred from the Petrochemicals division to the Monomers division. The superabsorbents business will be allocated to the Petrochemicals division rather than the Care Chemicals division in the future. The styrene, polystyrene and styrene-based foams business, which previously mainly fell under the Performance Materials division and a small part under Other, will be bundled in the Petrochemicals division.

In addition, BASF will embed business-critical parts of its functional units – such as engineering services, procurement and logistics – into the divisions to bring its employees closer to its customers and improve customer-specific agility. We will create leaner structures in our functional units, research and development and in governance functions.

For more information on the new segment structure as of January 1, 2019, see the Notes to the Consolidated Financial Statements from page 211 onward

Sites and Verbund

- Six Verbund sites with intelligent plant networking
- 355 additional production sites worldwide

BASF has companies in more than 90 countries. We operate six Verbund sites and 355 additional production sites worldwide. Our Verbund site in Ludwigshafen, Germany, is the world's largest chemical complex owned by a single company that was developed as an integrated network. This was where the Verbund principle was originally established and continuously optimized before being implemented at additional sites.

The Verbund system is one of BASF's great strengths. We add value by using our resources efficiently. The Production Verbund intelligently links production units and their energy supply so that, for example, the waste heat of one plant provides energy to others. Furthermore, one facility's by-products can serve as feedstock elsewhere. This not only saves us raw materials and energy, it also avoids emissions, lowers logistics costs and leverages synergies.

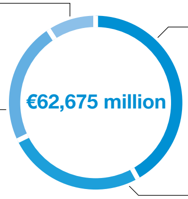
We also make use of the intelligent Verbund principle for more than production, applying it for technologies, the market and digitalization as well. Expert knowledge is pooled in our global research platforms.

For more information on the Verbund concept, see basf.com/en/verbund

BASF sites

BASF sales by region 2018

Location of customer



Procurement and sales markets

- **Over 90,000 customers; broad customer portfolio**
- **More than 70,000 suppliers**

BASF supplies products and services to over 90,000 customers[1] from various sectors in almost every country in the world. Our customer portfolio ranges from major global customers and medium-sized businesses to end consumers.

We work with over 70,000 Tier 1 suppliers from different sectors worldwide. They supply us with important raw materials, chemicals, investment goods and consumables, and perform a range of services. Some of our most important raw materials are naphtha, natural gas, methanol, ammonia and benzene.

For more information on customers, see page 116; for more information on suppliers, see page 90 onward

BASF sales by industry 2018

Direct customers

>20%	Chemicals and plastics
10–20%	Consumer goods | Transportation
5–10%	Agriculture | Construction | Energy and resources
<5%	Health and nutrition | Electronics

Business and competitive environment

BASF's global presence means that it operates in the context of local, regional and global developments and is bound by various conditions. These include:

- Global economic environment
- Legal and political requirements (such as European Union regulations)
- International trade agreements
- Industry standards
- Environmental agreements (such as the E.U. Emissions Trading System)
- Social aspects (such as the U.N. Universal Declaration of Human Rights)

BASF holds one of the top three market positions in around 75% of the business areas in which it is active. Our most important global competitors include Arkema, Clariant, Covestro, DowDuPont, DSM, Evonik, Formosa Plastics, Huntsman, Lanxess, SABIC, Sinopec, Solvay, Wanhua and many hundreds of local and regional competitors. We expect competitors from Asia and the Middle East in particular to gain increasing significance in the years ahead.

Corporate legal structure

As the publicly traded parent company, BASF SE takes a central position: Directly or indirectly, it holds the shares in the companies belonging to the BASF Group, and is also the largest operating company. The majority of Group companies cover a broad spectrum of our business. In the BASF Group Consolidated Financial Statements, 323 companies including BASF SE are fully consolidated. We consolidate eight joint operations on a proportional basis, and account for 35 companies using the equity method.

For more information, see the Notes to the Consolidated Financial Statements from page 202 onward

1 The method used to calculate customers in the previous year has been adjusted to "sold-to" parties of our consolidated companies. The updated figure for 2017 is over 80,000 customers.

How We Create Value

The overview provides examples of how we create value for our company, the environment and society. It is modeled on the framework of the International Integrated Reporting Council (IIRC).[1]

Our inputs

Financial
- Total assets of **€86.6 billion**
- **€36.1 billion** in equity

Innovation
- More than **11,000** employees in research and development
- Research and development expenses of **€2.0 billion**

Environment
- **15.1 million MWh** of electricity demand
- **39.4 million MWh** of steam demand
- **€277 million** invested in environmental protection

Operations
- **€10.7 billion** invested in property, plant and equipment and intangible assets
- **148** safety, security, health and environmental protection audits
- Over **70,000** suppliers

Employees
- **122,404** employees worldwide, of which **3,174** apprentices
- **Development opportunities** for all employees

Partnerships
- **> 50** external compliance hotlines
- **100** raw material supplier sites audited on sustainability standards

Our business model

We create chemistry for a sustainable future

- We offer our **90,000+** customers innovative solutions for a sustainable future
- **6 action areas** help us to sharpen our customer focus
- **4** segments
- **12** operating divisions
- **86** strategic business units

Intelligent Verbund system

- **6** Verbund sites
- **355** additional production sites worldwide
- BASF Group companies in more than **90** countries

Our outputs

Financial
- **€62.7 billion** in sales
- Net income of **€4.7 billion**
- **€1.1 billion** in income taxes

Innovation
- Sales of around **€9 billion** from innovations that we have launched in the past five years
- Around **3,000** projects in research pipeline
- Around **900** patents filed worldwide

Environment
- **31.6 million MWh energy** saved by the Verbund and combined heat and power generation
- **6.3 million metric tons of CO_2** saved by energy efficiency

Operations
- **60,000+** product applications assessed and rated for aspects of sustainability
- Number of lost-time injuries per 200,000 working hours: **0.3**
- **0 transportation incidents** with significant impact on the environment

Employees
- **21.7%** Proportion of women in leadership positions
- **Early turnover rate of 1.3%**

Partnerships
- Involved in **U.N. Global Compact** since 2000
- **8** Academic Research Alliances bundle partnerships with university research groups

1 The figures in this graphic have been audited within the scope of the relevant sections of the Management's Report in which they appear.

Goal Achievement in 2018

We carry out our corporate purpose, "We create chemistry for a sustainable future," by pursuing ambitious goals along our entire value chain. In this way, we aim to achieve profitable growth and take on social and environmental responsibility. This also helps to achieve the United Nations' Sustainable Development Goals (SDGs).[1] We are focusing on issues where we as a company can make a significant contribution, such as sustainable consumption and production, climate protection or fighting hunger.

Goal areas along the value chain

SUPPLIERS	BASF	CUSTOMERS
Procurement	Growth and profitability; employees; safety in production; product stewardship; energy and climate protection; water	Products and solutions

Procurement

	2020 goal	Status at end of 2018	SDGs	More on
Assessment of sustainability performance of relevant suppliers[2]; development of action plans where improvement is necessary	70%	60%	SDG 8, 12, 16, 17	Page 90

2 Our suppliers are evaluated based on risk due to the size and scale of our supplier portfolio. We define relevant suppliers as Tier 1 suppliers showing an elevated sustainability risk potential as identified by our risk matrices and our purchasers' assessments. We also use further sources of information to identify relevant suppliers such as evaluations from Together for Sustainability (TfS), a joint initiative of chemical companies for sustainable supply chains.

Growth and profitability

As determined in 2015, our aim was, on average, to grow sales slightly faster and EBITDA considerably faster than global chemical production (excluding pharmaceuticals; 2018: 2.7%; average change since 2015: 3.3%), and to earn a significant premium on our cost of capital. Another goal was to achieve a high level of free cash flow each year, either raising or at least maintaining the dividend at the prior-year level.

For more information on our results of operations in 2018, see pages 46 to 50
For more information on our financial position in 2018, see pages 53 to 56
For a definition of "slight" and "considerable," see Actual Development Compared with Outlook for 2018 on page 57

	2018	Change since 2017	Average change since 2015[4]
Sales[3]	€62.7 billion	2.4%	3.3%
EBITDA[3]	€9.2 billion	(14.9%)	3.8%
Dividends per share paid out	€3.10	€0.10	
Premium on cost of capital	€0.8 billion		
Free cash flow	€4.0 billion		

3 The average change was calculated using the changes in the non-adjusted figures from 2015 to 2017 and the change in the adjusted figures from 2018 to 2017. This gives an approximate average change on a comparable basis in each case. However, the figures does not take into account the structural decline in sales and EBITDA due to the classification of the oil and gas business as a discontinued operation.

4 Baseline 2015: excluding the gas trading and storage business transferred to Gazprom

Employees

	2021 goal	Status at end of 2018	SDGs	More on
Proportion of women in leadership positions with disciplinary responsibility	22–24%	21.7%	SDG 5, 16	Page 112
	Long-term goals			
International representation among senior executives[5]	Increase in proportion of non-German senior executives (baseline 2003: 30%)	40.4%		Page 112
Senior executives with international experience	Proportion of senior executives with international experience over 80%	85.4%		Page 112

5 The term "senior executives" refers to leadership levels 1 to 4, whereby level 1 denotes the Board of Executive Directors. In addition, individual employees can attain senior executive status by virtue of special expertise.

1 Sustainable Development Goals (SDGs): SDG 1 – No poverty, SDG 2 – Zero hunger, SDG 3 – Good health and well-being, SDG 4 – Quality education, SDG 5 – Gender equality, SDG 6 – Clean water and sanitation, SDG 7 – Affordable and clean energy, SDG 8 – Decent work and economic growth, SDG 9 – Industry, innovation and infrastructure, SDG 10 – Reduced inequalities, SDG 11 – Sustainable cities and communities, SDG 12 – Responsible consumption and production, SDG 13 – Climate action, SDG 14 – Life below water, SDG 15 – Life on land, SDG 16 – Peace, justice and strong institutions, SDG 17 – Partnerships for the goals

For more information on the SDGs, see sustainabledevelopment.un.org

Safety in production

	2025 goal	Status at end of 2018	SDGs	More on
Reduction of worldwide lost-time injury rate per 200,000 working hours	≤0.1	0.3	SDG 3, 8	Page 96
Reduction of worldwide process safety incidents per 200,000 working hours	≤0.1	0.3	SDG 3, 12, 15	Page 97
	Annual goal			
Health Performance Index	>0.9	0.96	SDG 3, 8	Page 98

Product stewardship

	2020 goal	Status at end of 2018	SDGs	More on
Risk assessment of products that we sell in quantities of more than one metric ton per year worldwide	>99%	91%	SDG 3, 12	Page 100

Energy and climate protection

	2020 goal	Status at end of 2018	SDGs	More on
Coverage of our primary energy demand by certified energy management systems (ISO 50001) at all relevant sites[1]	90%	73.0%	SDG 7, 12, 13, 14, 15	Page 105
Reduction of greenhouse gas emissions per metric ton of sales product (excluding the oil and gas business, baseline 2002)	(40%)	(34.2%)	SDG 12, 13, 14, 15	Page 104

1 The selection of relevant sites is determined by the amount of primary energy used and local energy prices; figures relate to BASF operations including the discontinued oil and gas business.

Water

	2025 goal	Status at end of 2018	SDGs	More on
Introduction of sustainable water management at all production sites in water stress areas and at all Verbund sites (excluding the oil and gas business)	100%	50.0%	SDG 3, 6, 12, 14, 15	Page 108

Products and solutions

	2020 goal	Status at end of 2018	SDGs	More on
Increase the proportion of sales generated by products that make a substantial contribution to sustainable development (Accelerator products)	28%	27.7%	SDG 3, 8, 9, 12, 13	Page 37

Business expansion in emerging markets

Sales[2] in emerging markets

	Emerging markets	Industrialized countries
2018	35%	65%
2008	29%	71%

■ Emerging markets ■ Industrialized countries

2 Percentage of BASF Group sales by location of customer

Overall, growth in the emerging markets declined slightly in 2018. We define the emerging markets as Greater China, the ASEAN countries,[3] India, Pakistan and Bangladesh; Central and South America; eastern Europe; the Middle East, Turkey and Africa. Momentum eased slightly in eastern Europe. The eastern E.U. countries continued to post dynamic growth, albeit slower than in the previous year. Russia's output rose faster than in the previous year, buoyed by the comparatively high oil price and strong growth in the construction sector. In the emerging markets of Asia, which account for over 60% of the gross domestic product (GDP) of all emerging economies, growth declined slightly. The Chinese economy noticeably cooled, while India and Thailand saw stronger increases in economic output compared with the previous year. In South America, the economy darkened significantly as Argentina fell back into recession. Brazil continued its moderate recovery despite political uncertainty ahead of the presidential elections and production outages caused by strikes in the spring. Although growth slowed significantly in Turkey, the Middle East as a whole only recorded a slight decline. The oil-producing states benefited from rising oil prices. Growth remained more or less stable in Africa, too. The weaker trend in South Africa was offset by a marked upturn in Nigeria.

Compared with 2017, sales at our companies located in emerging markets rose by 2% to €17,144 million, largely as a result of higher sales prices and volumes. Measured by location of customer, we increased sales in the emerging markets by 1% to €21,799 million. This brought sales to customers in emerging markets to around 35% of total sales in 2018.

3 Brunei, Indonesia, Malaysia, Myanmar, Cambodia, Laos, the Philippines, Singapore, Thailand, Vietnam

Our Strategy

⌈Corporate Strategy⌋

At BASF, we are passionate about chemistry and our customers. Thanks to our expertise, our innovative and entrepreneurial spirit, and the power of our Verbund integration, our innovations have decisively contributed to changing the world we live in for the better for more than 150 years. To be the world's leading chemical company for our customers, we will grow profitably and add value to society. This is how we create chemistry for a sustainable future.

Today, the world is changing more rapidly than ever before, driven by demographic change and new digital technologies. Our customers in different industries and regions face diverse social and environmental challenges due to limited natural resources and increasing consumer demands. Chemistry is key to solving many of these challenges. By combining our unique expertise with our customers' competence, we will jointly develop profitable, innovative and responsible solutions for these global trends.

Our purpose reflects what we do and why we do it: We create chemistry for a sustainable future. We pursue this purpose with our corporate strategy, which was updated in 2018. We want to contribute to a world that provides a viable future with enhanced quality of life for everyone. This is why we offer products and solutions that make the best use of available resources.

Corporate purpose

We create chemistry for a sustainable future

Global trends provide opportunities for growth in the chemical industry

Demographic change:
Share of population aged 60 and over by 2050
+130%

Digitalization:
Rapid growth in volume of data
50
zettabytes by 2020

Population growth:
Driven by the emerging markets by 2050
+32%

Climate change:
Required reduction of greenhouse gas emissions to achieve the 2°C goal
–70%
by 2050

China the largest market:
Share of global chemical market by 2030
~50%

Electromobility:
Growing demand for battery materials by 2025
+300%

Sources: U.N., IEA, UBS Foresight, BASF

Our aspiration is to be the world's leading chemical company. With our updated corporate strategy, which was announced in November 2018, we are targeting profitable growth. We aim to grow organically and thus will strengthen our customer focus. The Asian market plays an important role in our growth strategy. With a share of more than 40%, China is already the largest chemical market and drives the growth of global chemical production. By 2030, China's share will increase to nearly 50%, and we want to participate in this growth. To drive forward our growth in this dynamic market, we plan to build an integrated Verbund site in Zhanjiang in the southern Chinese province of Guangdong. We also want to expand our existing joint venture with Sinopec in Nanjing.

As part of our aspiration to be the world's leading chemical company for our customers, we want to strengthen our passion for customers throughout the entire organization. We want to grow profitably and create value for society. To achieve this, we have set ourselves ambitious financial and nonfinancial targets.

New targets from 2019 onward

Business success tomorrow means creating value for the environment, society and business. We have set ourselves new financial and nonfinancial targets so that our customers, investors, employees and other stakeholders can track our progress.

We want to grow faster than the market and thus be economically successful and profitable. Furthermore, we want to provide answers to the most pressing challenges of our time. To combat climate change and global warming, we have committed ourselves to growing production volumes without adding further CO_2 emissions until 2030. This means we will decouple greenhouse gas emissions from organic growth. We have also defined targets for a sustainable product portfolio, responsible procurement and engaged employees. Safety for people and the environment, inclusion of diversity and water management will remain a top priority.

The new targets will apply from 2019 onward and will replace our previous goals. In this way, we want to steer our business into a sustainable future and, at the same time, contribute to the implementation of the United Nations' Sustainable Development Goals (SDGs).

Financial targets

Grow **sales volumes faster** than **global chemical production** every year

Increase **EBITDA before special items** by **3% to 5%** per year

Achieve a **return on capital employed (ROCE)**[1] considerably **above the cost of capital percentage** every year

Increase the **dividend per share** every year based on a **strong free cash flow**

Nonfinancial targets

Grow **CO_2-neutrally** until 2030

For more information, see pages 103 to 106

Achieve **€22 billion** in **Accelerator sales**[2] by 2025

For more information, see pages 37 to 38

Cover **90%** of our relevant spend[3] with **sustainability evaluations** by 2025, and have **80%** of our suppliers improve their **sustainability performance** upon re-evaluation

For more information, see pages 90 to 91

More than **80%** of our **employees** feel that at BASF, they can **thrive** and **perform at their best**

For more information, see pages 110 to 115

Existing nonfinancial targets

Reduce the worldwide **lost-time injury rate** per 200,000 working hours to **≤0.1** by 2025

For more information, see pages 96 to 97

Reduce worldwide **process safety incidents** per 200,000 working hours to **≤0.1** by 2025

For more information, see pages 97 to 98

Introduce sustainable **water management** at all production sites **in water stress areas** and at all **Verbund sites** by 2030

For more information, see pages 108 to 109

Increase the proportion of **women in leadership positions** with disciplinary responsibility to **22–24%** by 2021

For more information, see pages 110 to 115

1 Return on capital employed (ROCE) is a measure of the profitability of our operations. We calculate this indicator as the EBIT generated by the segments as a percentage of the average cost of capital basis.
2 Accelerator products are products that make a substantial sustainability contribution in the value chain.
3 We understand relevant spend as procurement volumes with suppliers defined as relevant. For more information, see page 90.

Our strategic action areas

To reach our goals and be the leading company in the chemical industry for our customers, we want to strengthen our performance in innovation and in operations as the leading chemical producer and plant operator, leverage digital ways of working across the entire company, and integrate sustainability more deeply into our business decisions. We want to strengthen our passion for our customers in all employees. We aim to strengthen our portfolio and further develop our organization to better meet customer needs using the power of our Verbund integration. We have defined six strategic action areas through which we will sharpen our customer focus.[1]

Innovation

Our ambition is to be the most attractive partner for our customers whenever they are confronted with challenges that can be approached with chemistry. Our research and development competences are unique in the chemical industry. We aim to build on and leverage our position as a leading innovator to jointly develop innovations for our customers. We will design our innovation chain to be as seamless as possible so that we can bring products to the market more quickly. This means fostering a higher level of excellence throughout the entire innovation process, starting from the lab all the way to the customer.

For more information on innovation, see page 31 onward

Sustainability

We are successful in the long term when our products, solutions and technologies add value to the environment, society and the economy. We want to be a thought leader in sustainability and increase the relevance of sustainability in our decision-making processes and business models. This secures the long-term success of our company, creates business opportunities and establishes us as a key partner supporting our customers.

For more information on the integration of sustainability, see page 36 onward

Action areas sharpen customer focus

Operations

We are committed to running our production safely, efficiently and reliably so that we can deliver products to our customers on spec and on time. We aim to further improve the reliability and availability of our plants, as well as our agility. Above and beyond this, continuous process improvements and effective debottlenecking of our existing asset base are paramount to ensure our competitiveness.

For more information on operations, see page 96 onward

Digitalization

We want to make digitalization an integral part of BASF's business. This will create additional value for our customers, grow our business and improve efficiency. By promoting comprehensive digital skills among our future leaders and our entire workforce, we will ensure that the necessary resources are available.

For more information on digitalization, see pages 33 and 111

Portfolio

We will sharpen our portfolio and focus our capital allocation more towards growing business areas. We will focus primarily on organic growth through capital expenditures and innovation, but also make targeted acquisitions where this makes strategic sense and creates value. The new segment structure will create a higher transparency regarding the steering of our businesses, the importance of value chains and the role of our Verbund. The physical, technological, market and digital integration of the Verbund continues to be at the core of our portfolio and our unique strength.

For more information on our organization and the Verbund, see page 18 onward

Employees

We aim to clearly position each business against its relevant competitors and establish a high-performance organization to enable us to be successful in an increasingly competitive market environment. We will adapt our business models and organizational structures so that each business unit can optimally serve its market segment. Our people are what will make the implementation of our updated strategy successful. We rely on the engagement of our employees and give them the tools and skills necessary to be able to offer our customers differentiated and customized products and services.

For more information on employees, see page 110 onward

1 We defined six strategic action areas in our updated corporate strategy, which was announced in November 2018. They build on the four strategic principles of the "We create chemistry" strategy – we add value as one company; we innovate to make our customers more successful; we drive sustainable solutions; we form the best team – according to global trends and challenges as well as their implications for BASF.

Corporate values

guide our conduct and actions

How we act is critical for the successful implementation of our strategy: This is what our values represent. They guide our actions and define how we want to work together – as a team, with our customers and our partners. Our updated strategy affirms our four core values – creative, open, responsible, entrepreneurial – and adjusts the descriptions slightly.

Creative: We make great products and solutions for our customers. This is why we embrace bold ideas and give them space to grow. We act with optimism and inspire one another.

Open: We value diversity, in people, opinions and experience. This is why we foster feedback based on honesty, respect and mutual trust. We learn from our setbacks.

Responsible: We value the health and safety of people above all else. We make sustainability part of every decision. We are committed to strict compliance and environmental standards.

Entrepreneurial: We focus on our customers, as individuals and as a company. We seize opportunities and think ahead. We take ownership and embrace personal accountability.

Global standards

- **We act according to our values and internationally recognized standards of conduct and review our performance with audits**

Our standards fulfill or exceed existing laws and regulations and take internationally recognized principles into account. We respect and promote:
- The 10 principles of the U.N. Global Compact
- The Universal Declaration of Human Rights and the two U.N. Human Rights Covenants
- The core labor standards of the ILO and the Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy (MNE Declaration)
- The OECD Guidelines for Multinational Enterprises
- The Responsible Care® Global Charter
- The German Corporate Governance Code

We stipulate rules for our employees with standards that apply throughout the Group. We set ourselves ambitious goals with voluntary commitments and monitor our performance in terms of environmental protection, health and safety using our Responsible Care Management System. In terms of labor and social standards, this takes place using three elements: the Compliance Program (including the compliance hotlines, which can be used for internal and external questions or complaints), close dialog with our stakeholders (such as with employee representatives or international organizations), and the global management process to respect international labor norms.

Our business partners are expected to comply with prevailing laws and regulations and to align their actions with internationally recognized principles. We have established appropriate monitoring systems to ensure this.

For more information on labor and social standards, see page 115
For more information on the Responsible Care Management System, see page 95
For more information on supplier standards, see page 90 onward
For more information on corporate governance and compliance, see page 132 onward

The BASF brand

BASF's success as an integrated global chemical company relies on having a strong brand. Our brand and mission are manifested in our strategy and our corporate purpose – "We create chemistry for a sustainable future" – as well as our values. "Connected" describes the essence of the BASF brand. Connectedness is one of BASF's great strengths. Our Verbund concept – realized in production, technologies, the market and digitalization – enables innovative solutions for a sustainable future. The claim that "We create chemistry," as stated in the BASF logo, helps us embed this solution-oriented strategy in the public perception. Our brand creates value by helping communicate its benefits for our stakeholders as well as our values.

Wherever our stakeholders encounter our brand, we want to convince them that BASF stands for connectedness, intelligent solutions, value-adding partnerships, an attractive working environment and sustainability. This contributes to our customers' confidence and to our company value.

We are constantly developing our brand image. We regularly measure awareness of and trust in our brand, and therefore in our company. A global study conducted by an independent market research institution every two years again showed in 2018 that, in terms of awareness and trust, BASF is above the industry average in numerous countries. Our goal is to continue increasing awareness of BASF in all of our relevant markets.

Value-Based Management

A company can only create value in the long term if it generates earnings that exceed the cost of the capital employed. This is why we encourage and support all employees in thinking and acting entrepreneurially in line with our value-based management concept. From the 2019 business year onward, the return on capital employed (ROCE) will replace EBIT after cost of capital as the most important key performance indicator for steering the BASF Group. ROCE already replaced the return on assets as the metric for variable compensation in 2018.

The BASF Group's steering concept

We follow a value-oriented steering concept with our financial targets. We previously used income from operations (EBIT) after cost of capital for operational steering as a key target and management indicator for the BASF Group, its operating divisions and business units. This figure combines the company's economic performance as summarized in EBIT with the costs for the capital made available to us by shareholders and creditors. When EBIT exceeds cost of capital, we earn a premium on our cost of capital and exceed the return expected by our shareholders.

From the 2019 business year onward, EBIT after cost of capital will be replaced by the return on capital employed (ROCE). This is calculated as the EBIT generated by the segments as a percentage of the average cost of capital basis. As stated in our strategic goals, we aim to achieve a ROCE considerably above the cost of capital percentage every year.

The change to ROCE means that the same logic and data will be used for internal management, external communication with the capital markets and variable compensation. This improves the consistency of the indicators used for BASF's value-based management with variable compensation and pension systems, and our shareholders' objectives.

Calculating EBIT after cost of capital and ROCE

To calculate **EBIT after cost of capital**, we take the BASF Group's EBIT and deduct the EBIT of activities recognized under Other – not allocated to the divisions – and subtract the cost of capital of the BASF Group from the resulting figure. Cost of capital is determined by applying the cost of capital percentage before taxes to the value of the cost of capital basis at each month-end. Monthly cost of capital is then added up over the course of the year.

The **cost of capital percentage** is determined using the weighted cost of capital from equity and borrowing costs (weighted average cost of capital, WACC). To calculate a pre-tax figure similar to EBIT, it is adjusted using the projected tax rate for the BASF Group for the business year. In addition, the projected net expense of Other is already provided for by an adjustment to the cost of capital percentage. The cost of equity is ascertained using the capital asset pricing model. Borrowing costs are determined based on the financing costs of the BASF Group. As in 2017 and 2018, we anticipate a cost of capital percentage of 10% in 2019.

The **cost of capital basis** consists of the operating assets of the segments and is calculated using the month-end figures. Operating assets comprise the current and noncurrent asset items of the segments. These include tangible and intangible fixed assets, investments accounted for using the equity method, inventories, trade accounts receivable, other receivables and other assets generated by core business activities and, where appropriate, the assets of disposal groups. The cost of capital basis also includes customer and supplier financing.

ROCE is calculated as the EBIT of the segments as a percentage of the average cost of capital basis at each month-end.

Value-based management throughout the company

An important part of our value management is the target agreement process, which aligns individual employee targets with BASF's targets. Until the end of the 2018 business year, the most important financial performance indicator in the operating units was EBIT after cost of capital. This will be replaced by ROCE from 2019 onward. By contrast, the functional units' contribution to value is assessed according to effectiveness and efficiency on the basis of quality and cost targets.

Until the end of the 2018 business year, the most important key performance indicators for measuring economic success as well as for steering the BASF Group and its operating units were **EBIT after cost of capital**, **EBIT** and **EBIT before special items**.

From 2019 onward, we will use **ROCE** as the most important key performance indicator for steering the BASF Group. EBIT before special items and capex (capital expenditure) are key performance indicators for BASF that have a direct impact on ROCE and as such, support its management.

- **EBIT before special items** is used to steer profitability at Group and segment level. As in the past, this is calculated by adjusting the EBIT reported in the Consolidated Financial Statements for special items, making it especially suitable for assessing economic development over time. **Special items** arise from the integration of acquired businesses, restructuring measures, certain impairments, gains or losses resulting from divestitures and sales of shareholdings, and other expenses and income that arise outside of ordinary business activities.
- **Capital expenditures (capex)** comprises additions to property, plant and equipment excluding additions from acquisitions, IT investments, capitalized exploration, restoration obligations and right-of-use assets arising from leases. It is used to manage capital employed in the BASF Group. Capex is not just relevant to ROCE management, but also supports our long-term goal to increase our dividend each year based on a strong free cash flow.

Furthermore, we will continue to comment on and forecast **sales** at Group and segment level in our financial reporting as a significant driver for EBIT before special items and thus ROCE.

BASF's nonfinancial targets are focused more on the long term. As part of the implementation of our strategy, we are investigating the possibility of establishing short-term steering mechanisms for our nonfinancial targets as well.

For more information on the development of these indicators, see Results of Operations from page 46 onward

Innovation

A growing need for food, energy and clean water for a booming world population, limited resources and protecting the climate – reconciling all these factors is the greatest challenge of our time. Innovations based on chemistry play a key role here, as they contribute decisively to new solutions. Effective and efficient research and development is a prerequisite for innovation as well as an important growth engine for BASF. We develop innovative processes, technologies and products for a sustainable future and drive forward digitalization in research worldwide. This is how we ensure our long-term business success with chemistry-based solutions for our customers in almost all industry sectors.

Innovation has made BASF the leading chemical company worldwide. This has always been the key to BASF's success, especially in a challenging market environment. Our innovative strength is based on a global team of highly qualified employees with various specializations. We had more than 11,000 employees involved in research and development in 2018. Our team grew by around 1,600 research and development employees at 17 sites around the world in 2018 as a result of the acquisition of a range of businesses and assets from Bayer. The businesses acquired include research and development activities for soybean, cotton, canola and vegetable seeds, which optimally complement our crop protection and biotechnology activities.

Our three global research divisions are run from our key regions – Europe, Asia Pacific and North America: Process Research & Chemical Engineering (Ludwigshafen, Germany), Advanced Materials & Systems Research (Shanghai, China) and Bioscience Research (Research Triangle Park, North Carolina). Together with the development units in our operating divisions, they form the core of our global Know-How Verbund. BASF New Business GmbH and BASF Venture Capital GmbH supplement this network with the task of using new technologies to tap into attractive markets and new business models for BASF.

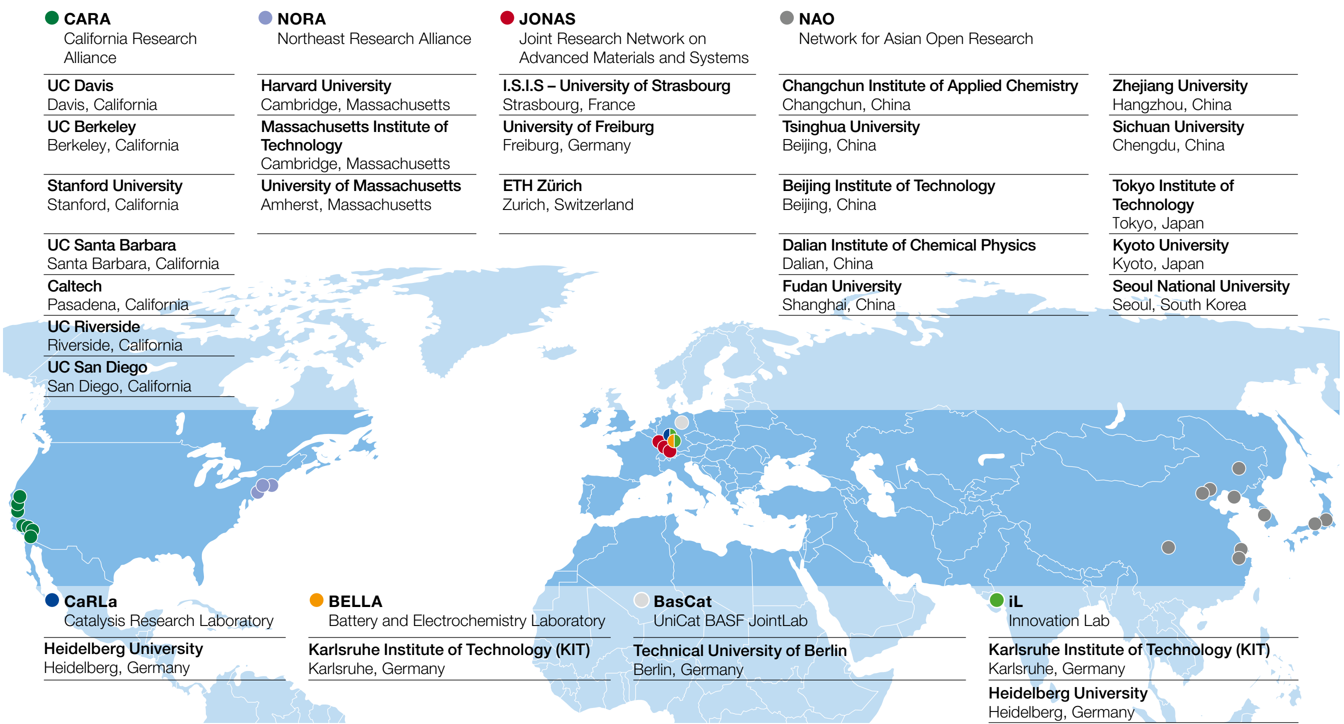
In 2018, we generated sales of around €9 billion with products launched on the market in the past five years that stemmed from research and development activities. In the long term, we aim to continue significantly increasing sales and earnings with new and improved products.

Global network

- **Close cooperation with universities, research institutes and companies**
- **Academic Research Alliances bundle partnerships by topic and region**

Our global network of outstanding universities, research institutes and companies forms an important part of our Know-How Verbund. It gives us direct access to external scientific expertise, talented minds from various disciplines as well as new technologies, and helps us to quickly and efficiently develop marketable innovations,

Global network: eight Academic Research Alliances



strengthen our portfolio with creative new projects and in this way, reach our long-term growth goals. Our eight academic research alliances bundle partnerships with several research groups in a geographic region or with a specific research focus.

The Northeast Research Alliance (NORA, previously the North American Center for Research on Advanced Materials) and the California Research Alliance (CARA) are located in the United States. NORA focuses on materials science and biosciences, catalysis research, digitalization and cooperation with startups, while the interdisciplinary CARA research center works on new functional materials and in the area of biosciences. The Joint Research Network on Advanced Materials and Systems (JONAS) research center is active in Europe. Research here concentrates on supramolecular chemistry as well as nanotechnology and polymer chemistry. At the Network for Asian Open Research (NAO) in the Asia Pacific region, research focuses on polymer and colloid chemistry, catalysis and machine learning.

We are working on innovative components and materials for electrochemical energy storage with the Karlsruhe Institute of Technology (KIT) at the Battery and Electrochemistry Laboratory (BELLA). At the joint Catalysis Research Laboratory (CaRLa), BASF is researching homogeneous catalysis in cooperation with the University of Heidelberg. BasCat is a joint laboratory operated by the UniCat cluster of excellence and BASF at the Technical University of Berlin, where new heterogenous catalysis concepts are being explored together with the Fritz Haber Institute of the Max Planck Society. The iL (Innovation Lab) in Heidelberg, Germany, focuses on functional printing, printed sensors and IoT (internet of things) applications.

Our eight academic research alliances are complemented by cooperations with around 300 universities and research institutes as well as collaborations with a large number of companies. These academic research alliances and bilateral cooperations have been integrated into our excellence program, UNIQUE – The BASF Academic Partnership Program.

Strategic focus

- **Research units closer aligned with business and customer needs**
- **Further development of our innovation strategies**

In 2018, our **research pipeline** comprised around 3,000 projects. **Expenses** for research and development amounted to €2,028 million, above the prior-year level (€1,888 million). The increase was primarily attributable to the acquisition of the seed business from Bayer in August 2018. The operating divisions accounted for 80% of total research and development expenses in 2018. The remaining 20% related to cross-divisional corporate research focusing on long-term topics of strategic importance to the BASF Group. In the coming year, we anticipate significantly higher research and development expenses due to the acquisition of the research-intensive seed business.

We will continue to focus on developing attractive innovations for our customers. Under our updated strategy, research and development will be more closely connected organizationally in the future and thus more focused on customer needs. Our aim is to shorten the time to market and accelerate the company's organic growth. Creativity, efficiency and collaboration with external partners are among the most important success factors here. In order to bring promising ideas to market as quickly as possible, we regularly assess our research projects using a multistep process and align our focus areas accordingly.

The aim of our **innovation approach** is to increase our company's power of innovation and to secure our long-term competitiveness. We aim to achieve this by concentrating our research focus on topics that are strategically relevant for our business, strengthening our existing scientific processes as well as increasingly using new scientific methods and digital tools, as well as optimizing our organizational structures.

Our cross-divisional corporate research will remain closely aligned with the requirements of our operating divisions and allows space to quickly review creative research approaches. We strengthen existing and continually develop new key technologies that are of central significance for our operating divisions, such as polymer technologies, catalyst processes or biotechnological methods.

We are fine-tuning our innovation strategies in all of our business areas to ensure a balanced portfolio of incremental and breakthrough innovation, as well as of process, product and business model innovation. One of the steps taken in 2018 to further promote breakthrough innovation was the establishment of BASF-Inkubator Chemovator GmbH, based in Mannheim, Germany. This actively nurtures promising business ideas with the help of external experts, who act as consultants, coaches, mentors or intermediaries, and quickly bring these to market readiness. We have also identified additional, far-sighted topics that go above and beyond the current focus areas of our divisions. The aim is to use these to exploit new business opportunities within the next few years. Above and beyond this, we are working on overarching projects with a high technological, social or regulatory relevance. For instance, one global research and development program is focusing on the energy-intensive underlying production processes for basic chemicals. These basic chemicals account for more than half of the CO_2 emissions produced by the European chemical industry. The program covers topics such as the development of new catalysts for methane pyrolysis and the direct conversion of syngas, as well as research into materials and safety for the electrification of steam cracker heating.

We believe that the businesses acquired from Bayer offer tremendous innovation potential. The research and breeding capabilities of the new seed businesses, for instance, provide the opportunity to further develop and market high-yielding wheat hybrids. In addition, a breeding project improving the oil quality of Brassica juncea (Indian mustard) to canola grade and certain non-selective herbicide and nematicide research projects perfectly complement our existing R&D activities.

We continued to work on harnessing the enormous opportunities of digitalization for research and development in 2018. In the years ahead, we will continue to consistently expand our expertise in fields like scientific modeling and simulation and to develop new digital applications.

Our global research and development presence is vital to our success. We want to continue advancing our research and development activities, particularly in Asia as well as in North America, and are adapting this to growth in regional markets. A stronger presence outside Europe creates new opportunities for developing and expanding customer relationships and scientific collaborations as well as for gaining access to talented employees. This strengthens our Research and Development Verbund and makes BASF an even more attractive partner and employer.

The number and quality of our patents also attest to our power of innovation and long-term competitiveness. We filed around 900 new patents worldwide in 2018. In 2018, we once again ranked among the leading companies in the Patent Asset Index, a method that compares patent portfolios industry-wide.

For a multiyear overview of research and development expenditures, see the Ten-Year Summary on page 280

Research focus areas – examples

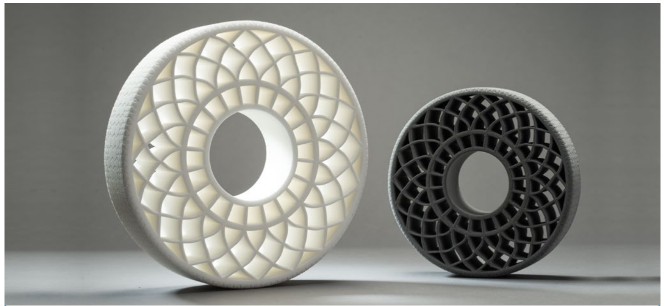
- **Increased use of digital technologies**
- **Innovative battery materials for electromobility**
- **Expansion of business activities in 3D printing**

Our focus areas in research are derived from the three major areas in which chemistry-based innovations will play a key role in the future:
- Resources, environment and climate
- Food and nutrition
- Quality of life

Our supercomputer Quriosity in Ludwigshafen, Germany, was started up in the fall of 2017. It is mainly used in product development and enables us to calculate much more complex models with significantly greater variation in parameters. Previously unknown correlations can also be identified and used to advance new research approaches. In 2018, for example, we simulated detergent formulations to determine how existing and potential new BASF products work at a molecular level. Such simulations enable us to better identify and exploit correlations in formulations. Another application is a large database calculated by Quriosity with over 8,000 molecular properties such as solubility or compatibility with metal surfaces. Machine learning can be used to establish the link between these properties and the mode of action of BASF products. This enables us to identify promising molecules for innovative, customer-centric products.

Around the world, experts in the research area Process Research & Chemical Engineering are working on innovative cathode materials for lithium-ion batteries to meet the growing demand for powerful, reliable and low-cost electric vehicles. They aim to create the highest-density cathode materials on the market by making selective changes to the chemical composition, structure and the manufacturing process. The ultimate goal is to double the on-road range of a mid-size vehicle from 300 to 600 kilometers on a single battery charge, halve battery size and reduce charging time to 15 minutes by 2025. In 2018, the focus was on creating pilot-scale customer models as well as research into materials with a nickel content of over 80%, which is needed to reach our range and cost targets.

For more information on research and development, see basf.com/innovations

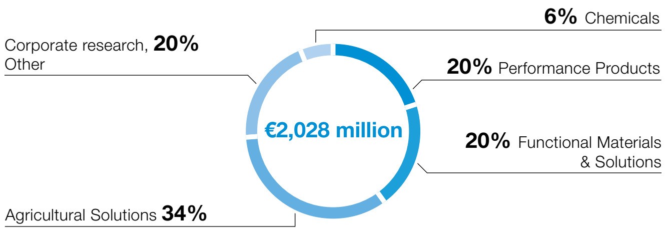


3D printing

BASF is developing new, innovative materials for 3D printing. In the chemical industry, BASF already has a broad portfolio with materials, system solutions, components and services. Focus areas in new materials development are polyamide-based polymers, thermoplastic polyurethanes and polypropylene, as well as new photopolymers and filaments with custom attributes. At our laboratories – in Heidelberg and Ludwigshafen, Germany; Basel, Switzerland; Shanghai, China; and Wyandotte, Michigan – we refine and enhance products such as our thermoplastic and light-curing plastics, optimize processes and develop customer applications. In 2018, BASF New Business GmbH acquired shares in Advanc3D Materials GmbH, Hamburg, Germany, and in Setup Performance SAS, Lyon, France, to continue the targeted expansion of the business.

Innovations in the segments – examples

Research and development expenses by segment 2018



Chemicals: BASF's **ChemCycling project** focuses on reusing plastic waste in chemical production rather than disposing of it. Thermochemical processes are used to transform plastic waste into new raw materials, which are then fed into the BASF Verbund instead of fossil resources. In October 2018, the first pyrolysis oil derived from plastic waste by our partners was used in Ludwigshafen, Germany. The new chemical products manufactured from this pyrolysis oil have the same quality as products made from fossil feedstock. The Eco-Efficiency Analysis developed by BASF ensures that the innovative approach also creates value for the environment. Many of our customers already aim to increase the proportion of recycled materials in their products. We are currently working with customers to produce the first prototypes for customer products with chemically recycled material.

For more information on our ChemCycling project, see Raw Materials on page 92

In 2016, we consolidated marketing activities for our established binders for the woodworking industry – amino resins (such as Kaurit®) and isocyanates (such as Lupranat®). With **Kauranat® MS 1001**, a modified isocyanate, BASF has now developed a new product that enables the optimal combination of both binder types. When Kauranat® MS 1001 is used in a hybrid binder system together with an amino resin to produce chipboard, for example, the binder system starts to cure in the press at lower temperatures than usual. This increases production speed by up to 20%, saving process energy and significantly increasing total production capacity.

We constantly renew our specialty chemicals portfolio, also for the pharmaceutical industry. Based on its own technology, BASF has developed **optically active key components** that are used by our customers in advanced active ingredients. Optically active substances comprise mirror-image molecules with different physiological properties and thus different effects. Thanks to our expertise, we can selectively produce either the "left-handed" or "right-handed" forms of these molecules. By isolating these chemical building blocks for our customers, we help them to significantly improve the quality of life of people living with HIV, for example, with innovative medications that reduce the number of HIV viruses in the body and keep this at a low level.

Performance Products: Designers in the furniture industry now have access to innovative wood fiberboards based on BASF's new binder technology, **acForm®**. Unlike standard wood fiberboards, those novel panels can be 3D-molded and their surfaces can be structured on standard furniture molding equipment. This opens up new, cost-efficient design options for large-scale production. Since acForm® works without formaldehyde, this technology also enables the woodworking industry to set new standards in workplace health and safety.

Euperlan® OP White is a wax-based opacifier that gives personal care products such as shampoos or shower gels a creamy milky-white appearance. It is readily biodegradable and cold processable. These unique properties make Euperlan® OP White particularly suitable for eco-label conforming skin and hair cleansing formulations. As an alternative to conventional opacifiers, the product meets the growing demand for environmentally friendly ingredients.

BASF launched **Lucantin® NXT**, the next generation of carotenoid formulations, which are nature-identical color pigments used as feed additives. The new formulations provide markedly improved product stability to meet various requirements for feed production, along with excellent bioavailability, enabling the carotenoids to be efficiently absorbed by the animal. Extensive trials have shown that Lucantin® NXT delivers high homogeneity and a long shelf life while maintaining egg yolk and broiler skin coloring efficacy. The new formulations replace the previously used stabilizer ethoxyquin (EQ) with antioxidants such as propyl gallate, butylhydroxytoluene or tocopherol. Lucantin® NXT complies with the latest E.U. regulation, which requires the suspension of EQ as a feed additive.

The water that accumulates in aircraft fuel tanks leads to high costs for airlines, who have to regularly extract this water and address the potential dangers of ice formation and corrosion in wing tanks. The performance additive **Kerojet® Aquarius** disperses the water contained in jet fuel, removing it during the normal combustion process in the turbine. In this way, BASF's water scavenger makes a significant contribution to improving safety and maintenance parameters by reducing the frequency of cost-intensive water extraction measures and inhibiting ice formation in wing tanks.

Functional Materials & Solutions: O4-115 Quattro is a new sulfuric acid catalyst from BASF with a unique quattro-shaped geometry – a combination of four strands. It was developed digitally using fluid dynamics and strength simulations. The catalyst not only offers excellent mechanical properties, but also provides a 30% greater active surface area than previous catalysts based on its geometry. For sulfuric acid producers, this translates into increased capacity and improved performance in plants with limited catalyst volumes. SO_2 off-gas emissions are also reduced, resulting in a significant decrease in SO_2 emissions per metric ton of sulfuric acid produced and providing our customers with a comparative advantage in a very competitive market.

MasterTop TC 941 is a non-solvent-based, UV-stable topcoat with low emissions that offers exceptional cleanability and scratch resistance properties for resin floor systems. Targeted for use in retail and light industry spaces, MasterTop TC 941 has excellent aesthetic durability, which reduces cleaning and maintenance bills and leads to a lower cost of ownership for the customer over the life of the floor.

BASF created the **Auroom®** online platform to visualize automotive paints virtually. The colors available in the database can be mapped onto any 3D surface online, showing the characteristics and effects of the automotive coating in photographic quality. Painted samples are photographed from different angles and under different lighting, and processed using a special mathematical model. Digitalization speeds up the design process for original equipment manufacturers (OEMs), as they no longer have to wait for all samples to be painted and shipped. The effect of the color on the entire car body can be simulated in real time and projected onto manufacturers' own models.

BASF's Ultrasim® simulation tool has long been used to determine the direction of fibers in injection-molded plastics components after manufacturing (anisotropic mechanical behavior). The new **Ultrasim® thermomechanics module** also enables thermal deformation to be detected at an early stage of development of components like these. It takes into account the complex thermomechanical material behavior, the impact of the anisotropic fiber orientation as well as temperature distribution and temperature changes in the component. The tool can be used to simulate the typical temperature load from minus 40°C to 150°C for various applications. This saves our customers time and money in the development process as they are able to identify and avoid component faults at an early stage before going into serial production. This is crucial for electrical and electronic equipment used in the automotive industry.

Agricultural Solutions: We are working with farmers around the globe to improve the quality and yield of their agricultural production while taking societal expectations and requirements into consideration. To achieve this, we invest continually in developing our pipeline in order to expand our portfolio in conventional crop protection, seeds, traits and beyond – such as in biological solutions. In 2018, we invested €679 million in research and development in the Agricultural Solutions division, representing around 11% of sales for the segment.

Our well-stocked innovation pipeline comprises products with a launch date between 2018 and 2028. With a peak sales potential[1] of more than €6 billion, the pipeline includes innovations from all business areas. This positive development is the result of continual investment and early consideration of sustainability criteria as part of our research and development strategy. The first market launches of **Revysol®**, our new fungicide, are scheduled for the 2019 growing season following registration with the relevant authorities. **Luximo®** and **Tirexor®**, our new herbicides to manage a broad range of difficult-to-control grasses and broadleaf weeds, are expected to enter the market from 2020 onward. We launched the new insecticide **Inscalis®** in 2018. Another new insecticide, **Broflanilide**, to help farmers protect specialty and field crops from insects such as potato beetles and caterpillars, is planned to be on the market from 2020. In 2018, the Functional Crop Care business launched **Velondis®**, for example, a biological fungicide for seed treatment.

For seeds and traits, the acquired businesses open up new opportunities that contribute to our innovation pipeline. The market launch of the new herbicide-tolerant soybean seed with the **LibertyLink® GT27™** trait platform[2] is planned for 2020. This new soybean technology will be available to growers under the **Credenz®** brand as well as licensee's brands, and will allow farmers to apply **Liberty®** herbicide and two other herbicide active ingredients. Registration for one of these active ingredients is expected for the 2020 growing season. New cotton technology with herbicide tolerance will also be launched under our **Fibermax®** and **Stoneville®** brands with a new mode of action. We want to expand the acquired **InVigor®** canola seed business with yellow seed canola, which can be grown under more challenging conditions such as arid environments. Our vegetable seeds business, mainly marketed under the **Nunhems®** brand, develops vegetable and hybrid varieties adapted to different growing conditions and that meet the needs of consumers and the global food value chain for novel vegetable varieties.

Digital innovation will also contribute to the profitable growth of the Agricultural Solutions segment. The digital farming activities and associated pipeline developments under the **xarvio®** brand complement our existing portfolio with additional products and functionalities as well as access to the latest technologies. This additional expertise to optimize yields, including scientific data, predictive modeling for seasonal planning and needs-based recommendations on the application of crop inputs, will accelerate our digital plans and improve our overall digital offer. This enables us to offer our customers even better agronomic support and assistance in optimizing the cultivation of their crops.

1 Peak sales describes the highest sales value to be expected in one year. For more information, see the Glossary on page 288.
2 GT27™ traits are developed and marketed in cooperation with MS Technologies LLC, West Point, Iowa.

Integration of Sustainability

Business success tomorrow means creating value for the environment, society and business. This is why sustainability has been reinforced as a cornerstone of our updated corporate strategy. Using the various tools of our sustainability management, we carry out our company purpose: "We create chemistry for a sustainable future." We systematically incorporate sustainability into our business. We understand future sustainability trends and derive appropriate measures for our business to seize business opportunities and minimize risks along the value chain.

Strategy

- **Ensuring business success tomorrow by creating value for the environment, society and business**
- **Taking advantage of business opportunities and minimizing risks**

We achieve long-term business success by creating value for the economy, the environment and society. Sustainability is at the core of what we do, a driver for growth as well as an element of our risk management. That is why sustainability is firmly anchored into the organization, governance and our business models. We support our customers in being more sustainable and create new business opportunities that grow our customer relationships. Conducting our business in a responsible, safe, efficient and respectful way promotes societal acceptance of our business activities.

Our products, solutions and technologies contribute to achieving the United Nations' Sustainable Development Goals (SDGs), for example, on sustainable consumption and production, climate action or fighting hunger. In this way, we want to make a lasting contribution to a viable future.

We have defined sustainability focus areas in our corporate strategy to position ourselves in the market and at the same time, meet the growing challenges along the value chain:
– We source responsibly
– We produce safely for people and the environment
– We produce efficiently
– We value people and treat them with respect
– We drive sustainable products and solutions

Relevant topics resulting from these commitments – such as energy and climate protection, portfolio management, supply chain responsibility, employee engagement, resource efficiency, responsible production and water – form the focal points of our reporting. We integrate these topics into our long-term steering processes to increase societal acceptance and take advantage of business opportunities. Here, we consider three dimensions of materiality: The relevance of sustainability topics to our business, the impacts of our business activities along the value chain on sustainability topics, and how important these topics are to our stakeholders.

We identify relevant topics and trends as well as potential opportunities and risks along our value chain through dialog with stakeholders, supported by continuous, worldwide big data analysis. In 2018, we also co-published a study identifying long-term sustainability trends between now and 2030, based on an analysis of more than 900 studies from academia, think tanks and market analyses.

Business success tomorrow means creating value for the environment and society, not just making a profit. This is why, in addition to our new financial targets, we have also set ourselves new nonfinancial targets on climate protection, a sustainable product portfolio, responsible procurement and engaged employees to steer our business into a sustainable future.

The Corporate Sustainability Board is BASF's central steering committee for sustainable development. It is composed of the heads of our business, corporate and functional units, and regions. A member of the Board of Executive Directors serves as chair. We have also established an external, independent Stakeholder Advisory Council. Here, international experts from academia and society contribute their perspectives to discussions with BASF's Board of Executive Directors, helping us expand our strengths and identify potential for improvement.

Our sustainability management helps to minimize risks and opens up new opportunities to market more sustainable products. We reduce potential risks in the areas of environmental protection, safety and security, health protection, product stewardship, compliance, and labor and social standards by setting ourselves globally uniform requirements. These often go beyond local legal requirements. Internal monitoring systems and grievance mechanisms enable us to check compliance with these standards: they include, for example, global surveys, audits and compliance hotlines. All employees, managers and Board members are required to adhere to our global Code of Conduct, which defines a binding framework for our business activities.

We systematically evaluate sustainability criteria as an integral part of our assessment processes when deciding whether to acquire or invest in property, plant and equipment or financial assets. These assess the economic implications and potential impacts on areas such as the environment, human rights or local communities.

For more information on our financial and sustainability targets, see pages 23 to 24 and 26
For more information on our materiality analysis, see basf.com/materiality
For more information on our study on long-term sustainability trends, see basf.com/sustainability-trends
For more information on the organization of our sustainability management, see basf.com/sustainabilitymanagement

Measuring value added by sustainability and harnessing business opportunities

- **Value to Society: Method for assessing economic, environmental and social impact of business activities along the value chain**

We take advantage of business opportunities by offering our customers innovative products and solutions that contribute to sustainable development. We ensure that sustainability criteria are automatically integrated into our business units' development and implementation of strategies, research projects and innovation processes. For example, we analyze sustainability-related market trends in customer industries to systematically seize new business opportunities.

We want to measure the value proposition of our actions along the entire value chain, aware that our business activities are connected to both positive and negative impacts on the environment and society. We strive to increase our positive contribution to society and minimize the negative impacts of our business activities.

To achieve this, we need to even better understand how our actions impact society and the environment. We already have many years of experience of this from evaluating our products and processes using methods such as Eco-Efficiency Analysis, the Sustainable Solution Steering portfolio analysis, or BASF's corporate carbon footprint. We have completely revised our SEEbalance® method with respect to how social aspects are assessed. In a new, qualitative assessment, we analyze and evaluate relevant social issues along the value chain. Our assessment is guided by standards such as those issued by the World Business Council for Sustainable Development (WBCSD) or the Roundtable for Product Social Metrics.

BASF has also developed a method with external experts to perform a monetary assessment of the economic, ecological, and social impacts of its business activities along the value chain – the Value to Society approach. It enables a direct comparison between financial and nonfinancial effects of our business activities on society and illustrates interdependencies.

We also evaluate the usefulness of this method as a basis for strategic assessments and decisions in various projects, for example, by analyzing the impacts of alternative sites, business units, plants or forecasts. The results of these assessments are also helpful in our discussions with stakeholders.

We contribute our approach and expertise to current debates on the monetary value of the economic, environmental and social impact of business decisions. We share our experiences in networks and initiatives such as the Impact Valuation Roundtable or the Embankment Project for Inclusive Capitalism. As part of this project to promote sustainable governance, financial market participants, companies and other stakeholders developed metrics and methods to measure the long-term value created by companies more comprehensively. A reporting framework was published in late 2018. We are also involved in the corresponding standardization processes within the International Organization for Standardization (ISO).

For more information on this method and the results of Value to Society, see basf.com/en/value-to-society

For more information on our sustainability instruments, see basf.com/en/measurement-methods

Portfolio management based on sustainability performance

- **New goal to manage our product portfolio with the Sustainable Solution Steering method from 2019 onward**
- **As of 2018, Challenged products will be phased out within five years of initial classification**

A significant steering tool for our product portfolio, based on the sustainability performance of our products, is the Sustainable Solution Steering method (see box on page 38).

By the end of the 2018 business year, BASF had conducted sustainability assessments and ratings for 96.5% of its entire relevant portfolio[1] of more than 60,000 specific product applications – which account for €56.2 billion in sales. These consider the products' application in various markets and industries. Because of increasing sustainability requirements on the market, we regularly conduct reassessments of existing product categories as well as of the relevant portfolio.

Accelerator products make a substantial sustainability contribution in the value chain. This is why we will pursue a new, ambitious goal from 2019 onward: We aim to make sustainability an even greater part of our innovation power and achieve €22 billion in Accelerator sales by 2025.

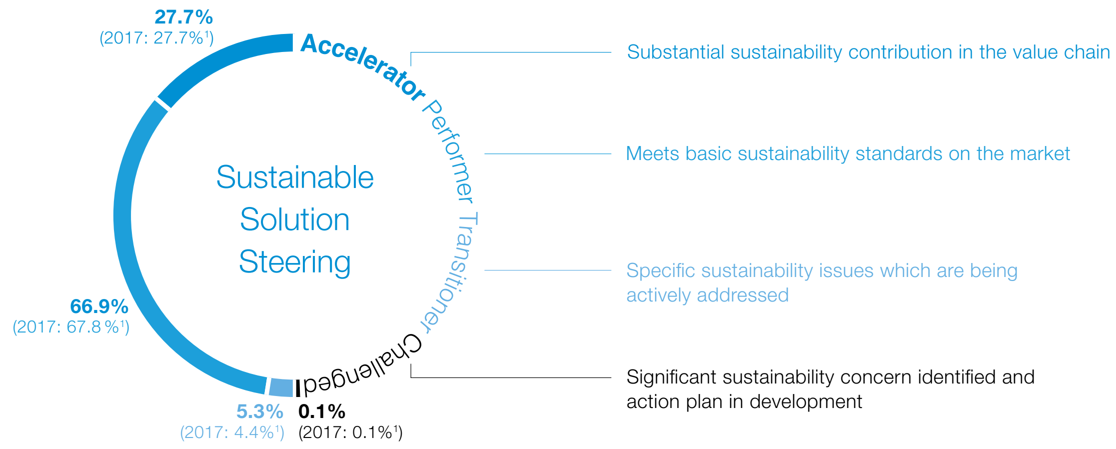
To achieve this goal, we will deeply integrate Sustainable Solution Steering into the research and development pipeline, in business strategies as well as in merger and acquisition projects.

We largely achieved our previous goal of increasing the proportion of sales from Accelerator products to 28% by 2020 at the end of 2018 (proportion of sales in 2018: 27.7%).

For more information on Sustainable Solution Steering, see basf.com/en/sustainable-solution-steering

1 Not included in the portfolio are primarily the sales reported under Other (see page 85 for more information on the composition of Other) or not allocated to the operating business (such as licenses).

Portfolio management: increase Accelerator sales and phase out Challenged products



Evaluating and transparently classifying our products enables us to systematically improve these in cooperation with our customers and at the same time, steer our product portfolio. Our aim is to increase sales from Accelerator products to €22 billion in 2025. We have identified substantial sustainability concerns for our Challenged products and are developing action plans. These action plans include research projects, reformulations or even replacing one product with an alternative product. At the end of 2018, action plans had been created for 100% of Challenged products. To systematically align our portfolio with contributions to sustainability, as of 2018 we will phase out all Challenged products within five years of initial classification as such at the latest. We strive to offer products that make a greater contribution to sustainability in their area of application to live up to our own commitments and meet our customers' demands.

Stakeholder dialog

- **Continuous dialog with our stakeholders**
- **Circular economy: chemical recycling of plastic waste**

Our stakeholders include customers, employees, suppliers and shareholders, as well as representatives from academia, industry, politics and society. Parts of our business activities, such as the use of new technologies, are often viewed by some stakeholders with a critical eye. In order to increase societal acceptance for our business activities, we address our stakeholders' questions, assess our business activities in terms of sustainability aspects, and communicate transparently. Such dialogs help us to even better understand what society expects of us and which measures we need to pursue in order to establish and maintain trust and build partnerships.

We use a custom model to identify key stakeholders and involve them more effectively. When selecting our stakeholders, we assess factors such as their topic-specific expertise and willingness to engage in constructive dialog, for instance. We draw on the competence of global initiatives and networks, and contribute our own expertise.

That is why we are active in worldwide initiatives with various stakeholder groups. We have been a member of the U.N. Global Compact since 2000. As a recognized LEAD company, we also support the implementation of the Agenda 2030 and its Sustainable Development Goals. We are involved in projects such as the U.N. Global Compact's Action Platforms on Decent Work in Global Supply Chains (SDG 8) and on Good Health and Well-being (SDG 3), and are a member of the U.N. Global Compact Expert Network. BASF is also active in 14 local Global Compact networks, including – for the first time – the United States and Tanzania since 2018.

1 Figures for 2017 have been restated due to the agreement between BASF and LetterOne to merge their oil and gas businesses.

Recognized in 2018 as an
SDG Pioneer
for innovative solutions and initiatives driving sustainable water and climate action

We once again met with the Stakeholder Advisory Council in 2018 to discuss important aspects of sustainability. The main topics were strengthening sustainability in the corporate strategy, such as the discussion on the new sustainability goals. We received and implemented recommendations for our thematic focus areas. For example, the Stakeholder Advisory Council encouraged us to push forward with the circular economy as a strategic focus, where BASF developed a chemical recycling method for plastic waste. As part of the ChemCycling pilot project, the first pyrolysis oil derived from plastic waste by our partners was fed into the BASF Verbund in 2018.

Our lobbying and political communications are conducted in accordance with transparent guidelines and our publicly stated positions. BASF does not financially support political parties. In the United States, employees at BASF Corporation have exercised their right to establish a Political Action Committee (PAC). The BASF Corporation Employee PAC is a voluntary, federally registered employee association founded in 1998. It collects donations for political purposes and independently decides how these are used, in accordance with U.S. law.

We have a particular responsibility toward our production sites' neighbors. With the established community advisory panels, we promote open exchange between citizens and our site management and strengthen trust in our activities. Our globally binding requirements for community advisory panels at our sites are based on the grievance mechanism standards in the United Nations' Guiding Principles on Business and Human Rights. We keep track of their implementation through the existing global databank of the Responsible Care Management System, which was further expanded in the regions in 2018.

For more information on stakeholder dialog, see basf.com/en/dialog

For more information on the Stakeholder Advisory Council, see basf.com/en/stakeholder-advisory-council

For more information on our guidelines for responsible lobbying, see basf.com/guidelines_political_communication

For more information on the ChemCycling project, see pages 34 and 92

Responsibility for human rights

■ Human rights criteria integrated into existing due diligence processes

BASF acknowledges its responsibility to respect human rights. We have embedded this into our Code of Conduct and our human rights position. In our own business activities, our aim is to prevent human rights abuses. As a participant in numerous global value chains, we are dependent on partners and demand that they likewise respect human rights and the associated standards. We offer to help our partners in their efforts to meet their human rights responsibilities.

Criteria for monitoring and complying with human rights standards are integrated into processes at our Group companies around the world: in supplier evaluation processes, in evaluating investment, acquisition and divestiture projects, in product assessments along the product lifecycle, in training for security personnel at our sites, for example, on response appropriateness, as well as in systems to monitor labor and social standards.

Employees and third parties can report potential violations of laws or company guidelines to our complaint hotlines. 231 human rights-related complaints were received by the hotline as well as by post and e-mail in 2018. All complaints received are reviewed and forwarded to the relevant departments for in-depth investigation. If justified, suitable measures are taken to address the issue.

BASF is part of the Global Business Initiative on Human Rights (GBI). This group of globally operating companies from various sectors aims to ensure implementation of the U.N. Guiding Principles on Business and Human Rights. In 2018, we again consulted with representatives of civil society at an international and national level on an ongoing basis, which provided valuable input for our measures.

BASF has been actively involved in the U.N. Global Compact's Action Platform on Decent Work in Global Supply Chains since 2018. This cross-industry working group aims to improve working conditions in global supply chains as these relate to labor and human rights. The companies involved have developed a voluntary commitment to more effectively implement the main international standards – the ILO core labor standards, the 10 principles of the U.N. Global Compact and the U.N. Guiding Principles on Business and Human Rights – in their respective supply chains through specific measures such as supplier training, collaboration with partners or greater transparency. BASF was one of the first companies worldwide to adopt this voluntary commitment in late 2018.

For more information on our fundamental principles, see our human rights position at basf.com/humanrights

For more information on labor and social standards, see page 115 onward

For more information on our production standards, see page 96 onward

For more information on standards in our supply chain, see page 90 onward

For more information on compliance, see page 140 onward

Social commitment

BASF as a responsible neighbor

We support the implementation of the United Nations' Sustainable Development Goals with our social commitment around the world.

We promote social, educational, cultural, academic and sports projects as part of our social engagement strategy. We focus on projects that will have a lasting impact on specific target groups and offer learning opportunities for participating cooperation partners and BASF. Projects are developed, and impact-related targets defined together with partners from civil society.

As a responsible neighbor, BASF strives to create a livable community for our sites' neighbors, employees and their families. In Germany, we support regional focus areas in Ludwigshafen and the Rhine-Neckar metropolitan region such as strengthening participation and integration among disadvantaged groups or promoting research and discovery. Examples include the *Gemeinsam Neues schaffen* program to foster cooperation between nonprofit organizations, a new approach to promoting cultural events called *Tor 4*, with which BASF aims to promote discourse on relevant social issues through cultural projects, or a pilot program to integrate people with immigrant or migrant backgrounds.

We also foster social integration, particularly of young low achievers and refugees. Programs in the Rhine-Neckar metropolitan region include *Start in den Beruf*, *Anlauf zur Ausbildung* and *Start Integration*. In 2018, 241 young people in the BASF Training Verbund participated in these programs in cooperation with partner companies. The goal is to prepare participants for a subsequent apprenticeship within one year, and ultimately secure the long-term supply of qualified employees for BASF and in the region as a whole. Since being launched at the end of 2015, BASF's *Start Integration* program has supported around 350 refugees with a high probability of being granted the right to remain in Germany, helping to integrate them into the labor market. We spent around €5.6 million on the BASF Training Verbund in 2018.

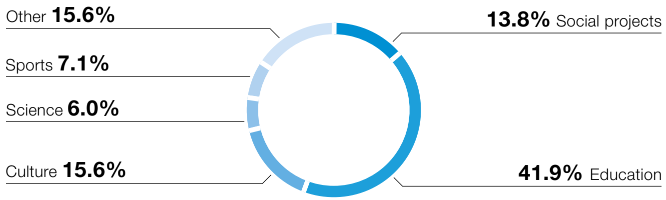
In North America, BASF supported various charitable organizations to provide relief for the damage caused by hurricanes Michael and Florence in states such as Florida, North Carolina and Virginia in the fall of 2018.

We also aim to create long-term value for BASF and society with new business models and cross-industry partnerships. Our company-wide Starting Ventures program helps people with precarious livelihoods to improve their income-earning opportunities and their quality of life. At the same time, the program provides access to new markets and strengthens our contribution to reaching the U.N. Sustainable Development Goals. One project in Egypt, for example, helps tomato smallholders to increase their tomato crop yields. A digital early warning system developed by BASF sends an alert via SMS or voice message to inform them of any outbreaks of plant diseases.

In the area of international development work, we support the BASF Stiftung, an independent nonprofit organization, through donations to its projects with various U.N. organizations. In 2018, BASF supported a project spearheaded by the U.N. Children's Fund (UNICEF) to promote inclusive education in Peru with its annual year-end donation campaign to the BASF Stiftung. BASF doubled all donations by employees of participating German and South American Group companies, bringing the total amount benefiting the children in Peru to €567,926.64.

The BASF Group spent a total of €38.4 million supporting projects in 2018; we donated 39% of this amount (2017: €56.0 million, of which 57% were donations).

BASF Group donations, sponsorship and own projects in 2018[1]



1 Figure relates to all consolidated companies with employees including joint operations, but excluding the vegetable seeds business acquired from Bayer (Nunhems®)

For more information on Starting Ventures, see basf.com/en/starting-ventures
For more information on social commitment at our sites, see ludwigshafen.basf.de/commitment

The BASF Group's Business Year

Material Investments and Portfolio Measures

In addition to innovations, investments make a decisive contribution toward achieving our ambitious growth goals. We use targeted acquisitions to supplement our organic growth.

By investing in our plants, we create the conditions for our desired growth while constantly improving the efficiency of our production processes. For the period from 2019 to 2023, we have planned capital expenditures (capex)[1] totaling €21.3 billion worldwide.

For more information on our investments from 2019 onward, see page 122

With a world market share of more than 40%, China is today the largest chemical market and drives the growth of global chemical production. We expect China's share to increase to around 50% by 2030. To continue to participate in this growth in Asia in the future, we are investigating the possibility of building an integrated Verbund site in Zhanjiang in the southern Chinese province of Guangdong and expanding the site we operate together with our partner Sinopec in Nanjing, China.

We will also refine our portfolio through acquisitions that promise above-average profitable growth as part of the BASF Verbund and help to reach a relevant market position. We also take into account whether they are innovation-driven or offer a technological differentiation, and make new, sustainable business models possible.

Investments and acquisitions alike are prepared by interdisciplinary teams and assessed using various criteria. In this way, we ensure that economic, environmental and social concerns are included in strategic decision-making.

Investments and acquisitions 2018

Million €

	Investments	Acquisitions	Total
Intangible assets	155	5,540	5,695
of which goodwill	–	1,261	1,261
Property, plant and equipment[2]	3,615	1,425	5,040
Total	**3,770**	**6,965**	**10,735**

Investments

We invested €3,615 million[3] in property, plant and equipment in 2018 (previous year: €4,020 million). Capex[1] accounted for €3,498 million of this amount (previous year: €3,735 million). Our investments in 2018 focused on the Chemicals, Functional Materials & Solutions and Performance Products segments.

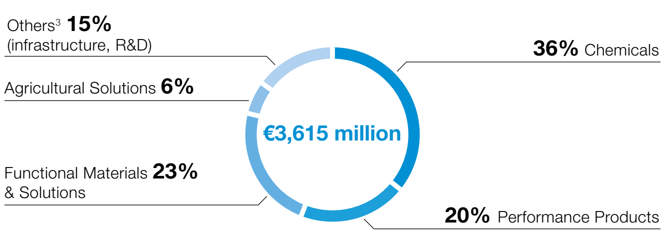
In Europe, we will strengthen the Verbund by replacing our acetylene plant in Ludwigshafen, Germany, which plays a central role for many products and value chains, with a modern, highly efficient plant by the end of 2019. We are also constructing another production plant for special zeolites in Ludwigshafen, Germany. Special zeolites are used to produce state-of-the-art exhaust catalysts for commercial vehicles and passenger cars with diesel engines. Production startup is scheduled for 2019. In the first quarter of 2018, we started construction of another production plant for vitamin A, which is scheduled for startup in 2020.

In North America, we constructed and started operation of an ammonia production plant in Freeport, Texas, together with Yara International ASA, headquartered in Oslo, Norway. We started construction of a new MDI synthesis unit in Geismar, Louisiana. Startup is scheduled for 2020.

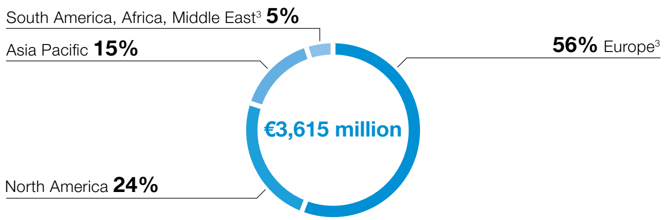
In Asia, we started production at the new aroma ingredients complex in 2018, which was built together with our partner PETRONAS Chemicals Group Berhad, Kuala Lumpur, Malaysia, and at the Ultraform® plant in Gimcheon, South Korea, build together with our partner Kolon Plastics Inc., headquartered in Gimcheon, South Korea. We are constructing a plant for plastic additives in Shanghai, China, with startup planned for 2019. These investments strengthen our presence in Asia.

For more information on investments within the segments, see page 58 onward

Additions to property, plant and equipment[2] by segment in 2018



Additions to property, plant and equipment[2] by region in 2018



1 Additions to property, plant and equipment excluding acquisitions, capitalized exploration, restoration obligations, IT investments and right-of-use assets arising from leases
2 Including capitalized exploration, restoration obligations and IT investments
3 Including investments in connection with our oil and gas activities until September 2018

Acquisitions

We added €1,425 million worth of property, plant and equipment through acquisitions in 2018. Additions to intangible assets including goodwill amounted to €5,540 million.

For more information on acquisitions, see the Notes to the Consolidated Financial Statements from page 205 onward

On March 7, 2018, we closed the agreement to form BASF Toda America LLC (BTA), Iselin, New Jersey, for battery materials. BTA is a cooperative venture between BASF and Toda; BASF holds a majority share in and control over BTA. With the acquisition of the Battle Creek site in Michigan and the site contributed by BASF in Elyria, Ohio, the new company took over production of high energy cathode active materials for e-mobility applications. The transaction strengthens the Catalysts division's battery materials business.

On August 1, 2018, we closed the acquisition of a range of businesses and assets from Bayer to complement our activities in crop protection, biotechnology and digital farming. At the same time, the transaction marked our entry into the seeds, non-selective herbicides and nematicide seed treatments businesses. The assets acquired included Bayer's global glufosinate-ammonium business, commercialized under the Liberty®, Basta® and Finale® trademarks, as well as its seed businesses for key field crops in selected markets. The transaction also covered Bayer's trait research and breeding capabilities for these crops. We also closed the acquisition of Bayer's global vegetable seeds business, which mainly operates under the trademark Nunhems®, on August 16, 2018. This strengthens the Agricultural Solutions division. The all-cash purchase price amounted to a total of €7.4 billion and may be subject to purchase price adjustments.

For more information on acquisitions, see page 81 onward

Divestitures

On January 31, 2018, our production site for styrene butadiene-based paper dispersions in Pischelsdorf, Austria, was sold to Synthomer Austria GmbH, a subsidiary of the British specialty chemicals manufacturer Synthomer plc. The styrene acrylic dispersions that were produced in Pischelsdorf were not included in the sale. They were bundled with the businesses in Ludwigshafen, Germany. The sale was made in connection with the concentration of paper dispersions production in Europe at the sites in Ludwigshafen, Germany, and Hamina, Finland, which is designed to strengthen the Dispersions & Pigments division.

Agreed transactions

On September 18, 2017, we signed an agreement with the Solvay group on the acquisition of Solvay's global polyamide business, subject to the approval of the relevant antitrust authorities. The E.U. Commission granted conditional clearance for BASF to acquire the polyamide business on January 18, 2019. They require divesting parts of the original transaction scope to a third-party buyer, namely manufacturing assets and innovation capabilities of Solvay for engineering plastics in Europe. The divestment process has started. By complementing the engineering plastics portfolio, enhancing the access to key growth markets in Asia and South America as well as strengthening the value chain through backward integration into key raw materials, BASF will still achieve its key strategic objectives. The review procedure in China is ongoing. Closing is expected in the second half of 2019, as soon as all remaining closing conditions have been fulfilled, including the sale of the businesses and assets to be divested to a third party. We plan to integrate the polyamide business into the Performance Materials and Monomers divisions. Before being adjusted to reflect the necessary antitrust-related changes to the scope of the transaction, the purchase price on a cash and debt-free basis and excluding other adjustments would have been €1.6 billion.

On May 3, 2018, BASF and Solenis announced that they had signed an agreement on the combination of BASF's paper and water chemicals business with Solenis. BASF and Solenis closed the transaction on January 31, 2019.

For more information, see Events after the reporting period on page 122

On September 27, 2018, we signed a definitive agreement with the LetterOne group to merge our respective oil and gas businesses. The merger aims to create the leading independent company in the European oil and gas sector. To effect the merger, LetterOne will contribute all its shares in DEA Deutsche Erdöl AG to Wintershall Holding GmbH against the issuance of new shares of the company to LetterOne. The company will then be renamed Wintershall DEA. BASF will initially hold 67% and LetterOne 33% of Wintershall DEA's ordinary shares, reflecting the value of the respective exploration and production businesses of Wintershall and DEA. To reflect the value of Wintershall's gas transportation business, BASF will receive additional preference shares. No later than 36 months after closing but in all cases before an IPO, these preference shares will be converted into ordinary shares of the company Wintershall DEA. This will increase BASF's share in Wintershall DEA. Closing of the transaction is expected in the first half of 2019, subject to the approvals of merger control and foreign investment authorities as well as mining authorities and the German Federal Network Agency. Until closing, Wintershall and DEA will continue to operate as independent companies.

For more information on this transaction, see Note 2.5 to the Consolidated Financial Statements from page 209 onward

Economic Environment

Overall, global economic growth in 2018 was as strong as we expected at the beginning of the year.[1] However, momentum slowed considerably over the course of the year. Economic output in the advanced economies rose at roughly the same rate as in 2017, while growth in the emerging markets softened slightly overall. Growth in the European Union (E.U.) declined significantly. By contrast, gross domestic product (GDP) in the United States increased faster than expected. The Chinese economy cooled in the second half of the year. Global GDP grew by 3.2% overall, only slightly slower than in 2017 (+3.3%). The global chemical industry (excluding pharmaceuticals) expanded by 2.7%, below the 2017 figure (+3.7%). The average price for a barrel of Brent blend crude oil rose to $71 per barrel (2017: $54 per barrel).

For the outlook on the economic environment in 2019, see page 117 onward

Trends in the global economy in 2018

The global economy continued its growth trajectory in 2018. However, economic momentum slowed significantly over the course of the year. Regional trends were also more disparate than in 2017 and growth in global trade weakened. The escalation of the trade conflict between the United States and China, as well as fears that the United States would introduce additional tariffs on automotive imports increasingly weighed on the economic climate. In addition, financing conditions for a number of emerging markets deteriorated following interest rate hikes by the Federal Reserve. This led to capital outflows into the dollar zone and corresponding currency devaluations. By contrast, monetary policy in the eurozone and in Japan remained expansionary.

Gross domestic product

Real change compared with previous year

World	**2018**	**3.2%**
	2017	3.3%
European Union	**2018**	**1.9%**
	2017	2.5%
United States	**2018**	**2.9%**
	2017	2.2%
Emerging markets of Asia	**2018**	**6.2%**
	2017	6.4%
Japan	**2018**	**0.7%**
	2017	1.9%
South America	**2018**	**1.0%**
	2017	1.6%

Economic trends by region

- **Weaker economic growth in the E.U.**
- **Acceleration of growth in the United States**
- **Economic cooldown in China**
- **Delayed recovery in South America**

As we had forecast, GDP growth in the **E.U.** slowed to just under 2% in 2018 (2017: +2.5%). Besides capacity bottlenecks, the decline in economic momentum was primarily attributable to weaker export demand. In addition, the rising oil price led to higher import values and energy prices drove up inflation, which dampened growth in consumer purchasing power. Growth in France (+1.5%), Italy (+0.8%), Spain (+2.5%) and the United Kingdom (+1.4%) was in line with our expectations, while Germany turned in a disappointing performance (+1.5%). This was attributable to a large extent to difficulties in the introduction of the new Worldwide Harmonized Light-Duty Vehicles Test Procedure (WLTP) emission standard in the automotive industry, which also affected its supplier industries and led to a slight overall decrease in GDP in the third quarter of 2018. At 4.2%, GDP growth in the eastern E.U. countries remained high but was lower than in the previous year (+4.6%). According to official estimates, Russian GDP rose faster than in the previous year, at 2.3% (2017: +1.6%). The economy was supported by the rising oil price and strong growth in the construction sector, while the weak ruble and sanctions imposed by the E.U. and the United States had an offsetting effect. Consumer confidence also declined significantly, among other factors due to higher inflation rates and the increase in the retirement age.

In the **United States**, the expansionary tax policy led to stronger-than-expected growth of 2.9% (2017: +2.2%). Rising employment figures and income tax cuts boosted private consumption; investment was stimulated by the corporate tax reform. By contrast, headwinds came from foreign trade in the second half of the year. Exports slowed as a result of China's new import tariffs, which were introduced in response to higher U.S. duties.

Average annual growth in the **emerging markets of Asia** declined only slightly (2018: +6.2%; 2017: +6.4%). However, economic momentum in **China** slowed significantly over the course of the year. Overall, China saw growth of 6.6% in 2018, slower than in 2017 (+6.8%). The trade conflict with the United States in particular unsettled consumers and investors. Growth in Chinese industrial production declined over the course of the year. Automotive production declined by 3.8% after tax incentives expired in the previous year. Momentum slowed somewhat in the electronics industry and weakened significantly in the textile industry. Growth picked up in the construction sector. Economic output in the remaining emerging markets of Asia rose at the same rate as in 2017 (+5.6%).

1 All information relating to past years in this section can deviate from the previous year's report due to statistic revisions. In addition, the baseline for calculating real growth rates for GDP, customer industry and chemical production figures has been adjusted from 2010 to 2015. This changes the market share of individual countries and slightly increases global growth rates overall.

In **Japan**, growth declined again in 2018 after the exceptionally strong increase in the previous year (2018: +0.7%; 2017: +1.9%). Although private sector investment in production facilities continued to grow dynamically as a result of low interest rates and high capacity utilization, private consumption only rose moderately and export growth declined significantly. The trade conflict between the United States and China also increasingly made itself felt. In addition, extreme weather conditions and a severe earthquake led to a decline in GDP in the third quarter of 2018.

South America continued the recovery that started in 2017, albeit only at a moderate pace (2018: +1.0%; 2017: +1.6%). The truck drivers' strikes and the political uncertainty ahead of the presidential elections in the fall prevented a stronger economic recovery in Brazil (2018: +1.3%; 2017: +1.0%). Argentina suffered a loss of confidence among external investors, succumbed to a severe currency crisis and fell back into recession (2018: –2.4%; 2017: +2.9%). The crisis in Venezuela further intensified (2018: –15.0%; 2017: –9.1%), while the other countries in the region saw stronger growth overall (2018: +3.0%; 2017: +2.0%).

Trends in key customer industries

- **Growth in global industrial production lower than in 2017**
- **Mixed trends in key customer sectors**

Global industrial production grew by 3.2% in 2018, roughly in line with our expectations at the beginning of 2018 but down from the previous year (2017: +3.4%). Growth slowed in both the advanced economies (2018: +2.1%; 2017: +2.4%) and the emerging markets (2018: +4.2%; 2017: +4.4%).

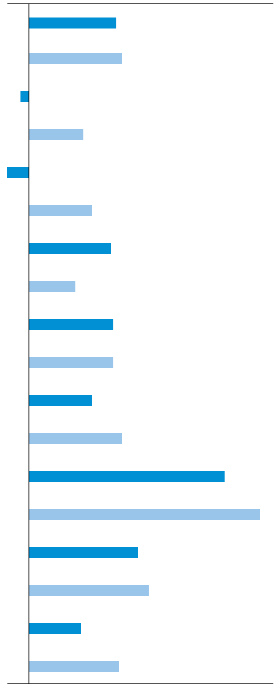
The downturn was most pronounced in the E.U. (2018: +1.4%; 2017: +3.1%) and in Japan (2018: +0.9%; 2017: +2.7%). In South America, too, industrial production again declined slightly (2018: –0.3%; 2017: –0.8%). In the emerging markets of Asia, growth in industrial production was roughly on a level with the previous year, at 5.5% (2017: +5.6%). By contrast, growth in North America accelerated again markedly (2018: +3.1%; 2017: +1.8%).

The chemical industry's key customer sectors saw very mixed trends: Global **automotive production** contracted by 0.8% in 2018, a much weaker performance than in the previous year (+2.3%). Production fell by 1.3% in the E.U. Difficulties in the introduction of the new WLTP emission standard contributed significantly here. Automotive production declined slightly in North America. In China and South Korea, it decreased by 3.8% and 2%, respectively, and was largely flat in Japan (–0.2%). Production growth in the remaining emerging markets of Asia was slightly stronger than in 2017. India was a particularly large contributor here, with growth of 6.6%. In South America and Russia, automotive production rose significantly from a low baseline, but not as strongly as in the previous year. At 3.1%, growth in the **construction industry** was at the prior-year level (+3.1%). The E.U. saw much slower growth in construction activity after the exceptionally strong prior year. Moderating effects came from residential and commercial construction, while the infrastructure segment saw stronger year-on-year growth. Growth in the U.S. construction industry remained modest. Only investment in infrastructure saw significant gains here. In Asia, by contrast, growth in the construction industry remained at a comparatively high level. **Agricultural** production expanded at a much slower pace in 2018 compared with the previous year (2018: +1.9%; 2017: 3.3%), as cereal and soybean yields in Europe, North and South America as well as in South Africa were negatively impacted by the unusually long dry period. Agricultural output was flat overall in western Europe and fell significantly in eastern Europe. Substantial losses were also recorded in North America. Alongside weather-related influences, the trade conflict with China also played a key role here, which negatively impacted U.S. soybean exports to China. There was a noticeable decline in production in South America as a whole, primarily as a result of heavy production losses in Argentina. By contrast, the strong upward trend in agricultural production continued in Asia, although here too, growth was lower than in the previous year.

Growth in key customer industries

Real change compared with previous year

Industry total	**2018**	**3.2%**
	2017	3.4%
Transportation	**2018**	**(0.3%)**
	2017	2.0%
of which: automotive industry	**2018**	**(0.8%)**
	2017	2.3%
Energy and resources	**2018**	**3.0%**
	2017	1.7%
Construction	**2018**	**3.1%**
	2017	3.1%
Consumer goods	**2018**	**2.3%**
	2017	3.4%
Electronics	**2018**	**7.2%**
	2017	8.5%
Health and nutrition	**2018**	**4.0%**
	2017	4.4%
Agriculture	**2018**	**1.9%**
	2017	3.3%



Trends in the chemical industry

- **Global growth weaker than in prior year and below expectations**

The global chemical industry (excluding pharmaceuticals) grew by 2.7%, below our expectations at the beginning of 2018 (+3.6%) and below 2017 (+3.7%). Chemical production in the E.U. declined slightly overall after the strong prior year (2018: –0.9%, 2017: +3.2%), but fell sharply at the end of 2018 in particular. Contributing factors included capacity bottlenecks, lower export demand and weaker demand from the automotive industry in the second half of the year. In Asia, growth slowed overall to 3.4% after 4.5% in the previous year. At 3.6%, growth in the world's largest chemical market, China, was lower than in the prior year (+4.0%) and significantly lower than forecast at the beginning of the year (+5.0%). Stagnant demand from the automotive industry and slower momentum in other customer industries had a dampening effect. In Japan, too, growth fell significantly to 0.9% (2017: +7.1%) due to softer export demand. By contrast, growth picked up in the United States on the back of the economic upturn there and new production capacity (2018: +3.7%; 2017: +2.6%).

Important raw material price developments

- **Higher prices for crude oil and naphtha**
- **Year-on-year increase in gas prices, but with wide regional variance**

Averaging around $71 per barrel in 2018, the **oil price** for Brent crude rose by about 30% compared with the previous year ($54 per barrel). The average monthly oil price fluctuated over the course of the year between $81 per barrel in October and $56 per barrel in December.

The average monthly price for the chemical raw material **naphtha** ranged over the course of 2018 between $463 per metric ton in December and $676 per metric ton in September. At $602 per metric ton, the annualized average price of naphtha in 2018 was higher than in 2017 ($485 per metric ton).

The average **price of gas** in the United States was $3.16 per mmBtu, above the level of the previous year ($2.97 per mmBtu). In Europe, the average price of gas at the Title Transfer Facility (TTF) was significantly higher than in 2017, at $7.90 per mmBtu (2017: $5.71 per mmBtu). Gas prices in China averaged around $6.38 per mmBtu nationally (2017: $6.24 per mmBtu), while the average price in the coastal provinces of Shanghai, Jiangsu, Zhejiang, Shandong and Guangdong was $7.59 per mmBtu (2017: $7.43 per mmBtu).

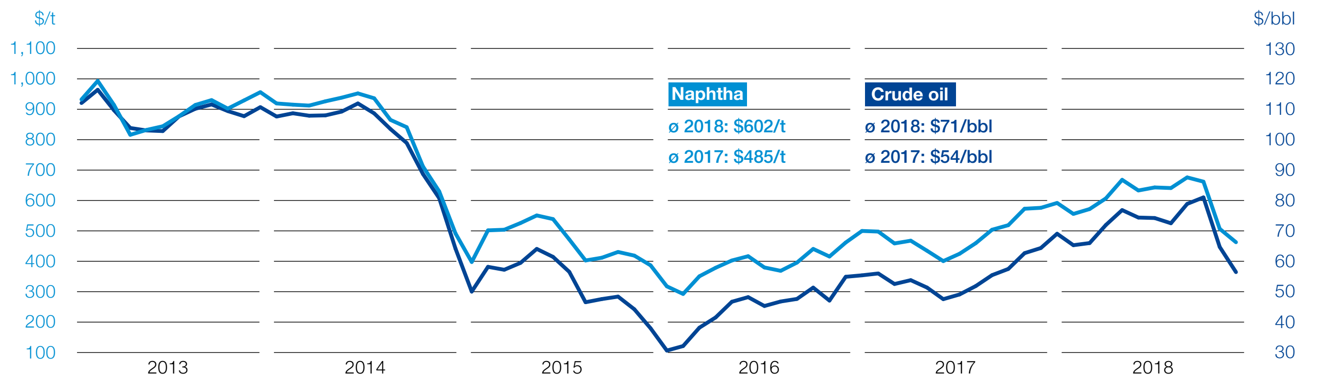
Chemical production (excluding pharmaceuticals)

Real change compared with previous year

World	**2018**	**2.7%**
	2017	3.7%
European Union	**2018**	**(0.9%)**
	2017	3.2%
United States	**2018**	**3.7%**
	2017	2.6%
Emerging markets of Asia	**2018**	**3.6%**
	2017	4.3%
Japan	**2018**	**0.9%**
	2017	7.1%
South America	**2018**	**(0.1%)**
	2017	0.0%

Price trends for crude oil (Brent blend) and naphtha

$/barrel, $/metric ton



Results of Operations

The world economy saw slightly weaker growth in 2018 than in 2017, with momentum increasingly slowing over the course of the year. Growth in global industrial production was also down slightly year on year, while the global chemical industry (excluding pharmaceuticals) saw a stronger decrease. In this market environment, BASF did not perform as well as we expected. Although we increased sales slightly, earnings declined considerably. All segments were affected by the earnings decrease. Earnings rose in the discontinued oil and gas business.

Business reviews by segment can be found from page 58 onward

Sales

- **Sales growth of 2% to €62,675 million**

Sales rose by €1,452 million to €62,675 million in 2018. This was primarily attributable to higher sales prices in all segments, particularly in the chemicals business.[1] Sales were also positively impacted by the acquisition of significant businesses and assets from Bayer in the Agricultural Solutions segment, which was closed in August 2018, and higher volumes, especially in the Functional Materials & Solutions segment. This was partly offset by negative currency effects in all segments.

Sales[2]

Million €	
2018	62,675
2017	61,223
2016	57,550
2015	70,449
2014	74,326

2 Sales for 2017 were reduced by the share attributable to oil and gas activities due to their presentation as discontinued operations. Figures for the years 2014 to 2016 have not been restated.

Factors influencing sales of the BASF Group

	Change in million €	Change in %
Volumes	442	1
Prices	2,715	4
Currencies	(2,183)	(4)
Acquisitions	629	1
Divestitures	(157)	0
Changes in scope of consolidation	6	0
Total change in sales	**1,452**	**2**

Income from operations

- **Considerable decline in EBIT before special items, EBIT and EBIT after cost of capital**
- **Significant premium on cost of capital again earned**

Income from operations (EBIT) before special items decreased by €1,292 million to €6,353 million as a result of lower contributions from all segments. The Chemicals segment in particular recorded considerably lower earnings, mainly due to lower margins for isocyanates and steam cracker products. The BASF Group's earnings were also negatively impacted by the low water levels on the Rhine River in the second half of 2018. BASF's business with the automotive industry also slowed in the second half of the year. In the Functional Materials & Solutions segment, EBIT before special items was considerably below the prior-year figure, primarily due to softer margins as a result of the increase in raw materials prices and higher fixed costs. The considerable decline in earnings in the Agricultural Solutions segment was attributable to negative currency effects in all regions as well as the strongly negative contribution from the businesses acquired from Bayer as a result of the late, intra-year timing of the transaction, the seasonality of the businesses and costs for integrating the businesses into the BASF Group. EBIT before special items declined slightly in the Performance Products segment, primarily due to lower sales volumes and negative currency effects.

For an explanation of the indicator EBIT before special items, see pages 29 to 30

EBIT before special items[3]

Million €	
2018	6,353
2017	7,645
2016	6,309
2015	6,739
2014	7,357

3 EBIT before special items for 2017 was reduced by the share attributable to oil and gas activities due to their presentation as discontinued operations. Figures for the years 2014 to 2016 have not been restated.

Special items in EBIT totaled minus €320 million in 2018, compared with minus €58 million in the previous year. Various restructuring measures led to special items of minus €102 million, after minus €131 million in 2017. At €174 million, integration costs in connection with business acquisitions were higher than the prior-year level (2017: €52 million), largely from the integration of the businesses acquired from Bayer in the Agricultural Solutions segment. Divestitures in 2018 accounted for an earnings contribution of minus €2 million. The prior-year figure included special income totaling €137 million, mainly in the Performance Products segment from the transfer of BASF's leather chemicals business to the Stahl group. The special items recognized in other charges and income amounted to minus €42 million in 2018, compared with minus €12 million in the previous year.

For the definition of special items, see pages 29 to 30

1 Our chemicals business comprises the Chemicals, Performance Products and Functional Materials & Solutions segments.

Special items

Million €

	2018	2017
Restructuring measures	(102)	(131)
Integration costs	(174)	(52)
Divestitures	(2)	137
Other charges and income	(42)	(12)
Total special items in EBIT	**(320)**	**(58)**

At €6,033 million, **EBIT** for the BASF Group in 2018 was considerably below the previous year's level (2017: €7,587 million). Included in this figure is income from companies accounted for using the equity method, which declined from €323 million to €269 million.

EBIT[1]

Million €

2018	6,033
2017	7,587
2016	6,275
2015	6,248
2014	7,626

1 EBIT for 2017 was reduced by the share attributable to oil and gas activities due to their presentation as discontinued operations. Figures for the years 2014 to 2016 have not been restated.

We once again earned a significant premium on our cost of capital in 2018. **EBIT after cost of capital** amounted to €825 million, compared with €2,902 million in the previous year. The cost of capital rose by €323 million year on year. This increase was mainly attributable to the assets acquired from Bayer in August 2018. By contrast, the classification of the oil and gas activities as discontinued operations meant that the related assets were retroactively no longer included in the cost of capital basis.

For an explanation of the indicator EBIT after cost of capital, see page 29

The calculation of EBIT as part of our statement of income is shown in the Consolidated Financial Statements on page 176

EBIT after cost of capital

Million €

	2018	2017
EBIT of BASF Group	6,033	7,587
– EBIT of Other	(491)	(691)
– Cost of capital[2]	5,699	5,376
EBIT after cost of capital	**825**	**2,902**

2 In 2017 and 2018, the cost of capital percentage was 10%.

EBIT after cost of capital[3]

Million €

2018	825
2017	2,902
2016	1,136
2015	194
2014	1,368

3 EBIT after cost of capital for 2017 was reduced by the share attributable to oil and gas activities due to their presentation as discontinued operations. Figures for the years 2014 to 2016 have not been restated.

Financial result and income after taxes

- **Financial result slightly, net income considerably below previous year**
- **Earnings per share decline from €6.62 to €5.12**

The **financial result** declined to minus €745 million in 2018, compared with minus €705 million in the previous year.

Net income from shareholdings decreased from minus €30 million in 2017 to minus €42 million, mainly as a result of higher expenses from loss transfer agreements.

The interest result declined from minus €315 million in 2017 to minus €366 million, mainly due to the increase in interest expenses from the higher level of financial indebtedness.

The other financial result amounted to minus €337 million, compared with minus €360 million in the previous year. This was largely attributable to the decrease in other financial expenses, primarily due to the lower net interest expense from pension plans.

Income before income taxes declined from €6,882 million in the previous year to €5,288 million in 2018. Income taxes decreased from €1,290 million in the previous year to €1,138 million in 2018. At 21.5%, the tax rate was above the prior-year level (18.7%), which included one-off deferred tax income in the total amount of €426 million from tax reforms, of which €379 million in the United States.

Income after taxes from continuing operations declined from €5,592 million to €4,150 million. **Income after taxes from discontinued operations** rose from €760 million to €829 million. This was mainly due to higher oil and gas prices as well as volumes growth in Norway and Russia. Overall, **income after taxes** declined from €6,352 million to €4,979 million.

At €272 million, noncontrolling interests were on a level with the previous year. **Net income** amounted to €4,707 million, considerably below the prior-year figure of €6,078 million. **Earnings per share** were €5.12, compared with €6.62 in 2017.

For information on the items in the statement of income, see the Notes to the Consolidated Financial Statements from page 218 onward

For information on the tax rate, see the Notes to the Consolidated Financial Statements from page 223 onward

For more information on the results of operations of discontinued operations, see page 86 onward

Additional indicators for results of operations

- **ROCE declines from 15.4% to 11.4%, adjusted earnings per share from €6.44 to €5.87**
- **EBITDA before special items and EBITDA considerably below previous year**

We also use alternative performance measures (APMs) to steer the BASF Group. Investors, analysts and rating agencies use them to assess our performance. These are not defined by IFRS. As such, the methods of calculation can differ from those used by other companies. Alternative performance measures for the results of operations are EBIT before special items, EBIT after cost of capital, EBITDA before special items, EBITDA, the EBITDA margin, ROCE[1] and adjusted earnings per share. Other APMs are net debt,[2] free cash flow[2] and capital expenditure (capex).[3]

We have used the indicator **return on capital employed (ROCE)** since the 2018 business year. It measures the profitability of the capital employed by the segments. ROCE was 11.4%, after 15.4% in the previous year.

For more information on the determination of ROCE, see page 29

ROCE

Million €

		2018	2017
EBIT of BASF Group		6,033	7,587
– EBIT of Other		(491)	(691)
EBIT of segments		6,524	8,278
Cost of capital basis of segments, average of month-end figures		**56,990**	**53,750**
ROCE	%	**11.4**	**15.4**

Capital employed

Million €

	2018	2017
Intangible assets	13,375	11,666
+ Property, plant and equipment	18,519	18,128
+ Investments accounted for using the equity method	1,800	1,685
+ Inventories	10,951	9,896
+ Accounts receivable, trade	10,320	10,660
+ Current and noncurrent other receivables and other assets[4]	1,749	1,715
+ Assets of disposal groups	276	–
Cost of capital basis of segments, average of month-end figures	**56,990**	**53,750**
+ Deviation from cost of capital basis at closing rates as of December 31	5,823	(625)
+ Assets not included in cost of capital	23,743	25,643
of which disposal group for the oil and gas business	14,088	–
Assets of the BASF Group as of December 31	**86,556**	**78,768**

4 Including customer/supplier financing and other adjustments

Income from operations before depreciation, amortization and special items (EBITDA before special items) and **income from operations before depreciation and amortization (EBITDA)** are indicators that describe operational performance independent of age-related depreciation and amortization of assets and extraordinary valuation allowances (impairments or reversals of impairments). Both figures are therefore particularly useful in cross-company comparisons. EBITDA before special items is also highly useful in making comparisons over time. The **EBITDA margin** is a relative indicator and is calculated as the ratio of EBITDA to sales revenue, enabling operational performance to be compared independent of the size of the underlying business.

EBITDA before special items declined by €1,257 million year on year to €9,481 million in 2018. At €9,166 million, EBITDA was down €1,599 million from the prior-year figure. The EBITDA margin was 14.6% in 2018, compared with 17.6% in the previous year.

EBITDA before special items

Million €

	2018	2017
EBIT	6,033	7,587
– Special items	(320)	(58)
EBIT before special items	**6,353**	**7.645**
+ Depreciation and amortization[5]	3,080	2,959
+ Valuation allowances on intangible assets and property, plant and equipment[5]	48	134
Depreciation, amortization and valuation allowances on intangible assets and property, plant and equipment	**3,128**	**3,093**
EBITDA before special items	**9,481**	**10,738**

5 Excluding depreciation, amortization and valuation allowances attributable to the discontinued oil and gas business

1 The financial return on assets reported in the previous year was the starting point for determining the return on assets, adjusted for special items from acquisitions and divestitures, which was used as a compensation parameter. The return on assets is no longer reported on, as this was replaced by ROCE as the compensation-relevant indicator from 2018 onward.
2 For more information on these indicators, see the Financial Position from page 53 onward
3 For more information on capex, see Value-Based Management on page 30 and Material Investments and Portfolio Measures on page 41

EBITDA

Million €		2018	2017
EBIT		6,033	7,587
+ Depreciation and amortization[1]		3,080	2,959
+ Valuation allowances on intangible assets and property, plant and equipment[1]		53	219
Depreciation, amortization and valuation allowances on intangible assets and property, plant and equipment		**3,133**	**3,178**
EBITDA		**9,166**	**10,765**
Sales revenue		62,675	61,223
EBITDA margin	%	**14.6**	**17.6**

1 Excluding depreciation, amortization and valuation allowances attributable to the discontinued oil and gas business

Compared with earnings per share, **adjusted earnings per share** has firstly been adjusted for special items. Secondly, amortization and valuation allowances (impairments and reversals of impairments) on intangible assets were eliminated. Amortization of intangible assets primarily results from the purchase price allocation following acquisitions and is therefore of a temporary nature. The effects of these adjustments on income taxes and on noncontrolling interests are also considered. This makes adjusted earnings per share a suitable measure for making comparisons over time and predicting future profitability.

In 2018, adjusted earnings per share amounted to €5.87 compared with €6.44 in the previous year.

For information on the earnings per share according to IFRS, see the Notes to the Consolidated Financial Statements on page 218

Adjusted earnings per share

Million €		2018	2017
Income after taxes		**4,979**	**6,352**
– Special items		(320)	(58)
+ Amortization and valuation allowances on intangible assets		563	539
– Amortization and valuation allowances on intangible assets contained in special items		1	32
– Adjustments to income taxes		231	537
– Adjustments to income after taxes from discontinued operations		(34)	188
Adjusted income after taxes		**5,664**	**6,192**
– Adjusted noncontrolling interests		273	277
Adjusted net income		**5,391**	**5,915**
Weighted average number of outstanding shares (in thousands)		918,479	918,479
Adjusted earnings per share	€	**5.87**	**6.44**

Sales and earnings

Million €

		2018	2017	+/–
Sales		62,675	61,223	2.4%
Income from operations before depreciation, amortization and special items		9,481	10,738	(11.7%)
Income from operations before depreciation and amortization (EBITDA)		9,166	10,765	(14.9%)
EBITDA margin	%	14.6	17.6	–
Depreciation and amortization[1]		3,133	3,178	(1.4%)
Income from operations (EBIT)		6,033	7,587	(20.5%)
Special items		(320)	(58)	.
EBIT before special items		6,353	7,645	(16.9%)
Financial result		(745)	(705)	(5.7%)
Income before income taxes		5,288	6,882	(23.2%)
Income after taxes from continuing operations		4,150	5,592	(25.8%)
Income after taxes from discontinued operations		829	760	9.1%
Net income		4,707	6,078	(22.6%)
Earnings per share	€	5.12	6.62	(22.7%)
Adjusted earnings per share	€	5.87	6.44	(8.9%)

Sales and earnings by quarter in 2018[2]

Million €

		Q1	Q2	Q3	Q4	Full year
Sales		15,700	15,783	15,606	15,586	62,675
Income from operations before depreciation, amortization and special items		3,013	2,709	2,263	1,496	9,481
Income from operations before depreciation and amortization (EBITDA)		2,995	2,645	2,190	1,336	9,166
Depreciation and amortization[1]		732	739	795	867	3,133
Income from operations (EBIT)		2,263	1,906	1,395	469	6,033
Special items		(18)	(66)	(75)	(161)	(320)
EBIT before special items		2,281	1,972	1,470	630	6,353
Financial result		(181)	(192)	(138)	(234)	(745)
Income before income taxes		2,082	1,714	1,257	235	5,288
Income after taxes from continuing operations		1,581	1,361	1,032	176	4,150
Income after taxes from discontinued operations		177	162	235	255	829
Net income		1,679	1,480	1,200	348	4,707
Earnings per share	€	1.83	1.61	1.31	0.37	5.12
Adjusted earnings per share	€	1.93	1.77	1.51	0.66	5.87

Sales and earnings by quarter in 2017[2]

Million €

		Q1	Q2	Q3	Q4	Full year
Sales		16,027	15,449	14,516	15,231	61,223
Income from operations before depreciation, amortization and special items		3,035	2,872	2,517	2,314	10,738
Income from operations before depreciation and amortization (EBITDA)		3,030	2,814	2,655	2,266	10,765
Depreciation and amortization[1]		738	764	831	845	3,178
Income from operations (EBIT)		2,292	2,050	1,824	1,421	7,587
Special items		(6)	(70)	122	(104)	(58)
EBIT before special items		2,298	2,120	1,702	1,525	7,645
Financial result		(149)	(162)	(184)	(210)	(705)
Income before income taxes		2,143	1,888	1,640	1,211	6,882
Income after taxes from continuing operations		1,626	1,433	1,260	1,273	5,592
Income after taxes from discontinued operations		146	131	149	334	760
Net income		1,709	1,496	1,336	1,537	6,078
Earnings per share	€	1.86	1.63	1.45	1.68	6.62
Adjusted earnings per share	€	1.97	1.78	1.40	1.29	6.44

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments) excluding depreciation and amortization attributable to the discontinued oil and gas business
2 Quarterly results not audited

Net Assets

Assets

	December 31, 2018		December 31, 2017	
	Million €	**%**	**Million €**	**%**
Intangible assets	16,554	19.1	13,594	17.3
Property, plant and equipment	20,780	24.0	25,258	32.0
Investments accounted for using the equity method	2,203	2.5	4,715	6.0
Other financial assets	570	0.7	606	0.8
Deferred tax assets	2,342	2.7	2,118	2.7
Other receivables and miscellaneous assets	886	1.0	1,332	1.7
Noncurrent assets	**43,335**	**50.0**	**47,623**	**60.5**
Inventories	12,166	14.1	10,303	13.1
Accounts receivable, trade[1]	10,665	12.3	10,801	13.7
Other receivables and miscellaneous assets[1]	3,139	3.6	3,494	4.4
Marketable securities	344	0.4	52	0.1
Cash and cash equivalents	2,300	2.7	6,495	8.2
Assets of disposal groups	14,607	16.9	–	–
Current assets	**43,221**	**50.0**	**31,145**	**39.5**
Total assets	**86,556**	**100.0**	**78,768**	**100.0**

Assets

- **Acquisition-driven increase in total assets**
- **Reclassification of material assets to current assets of disposal groups**

Total assets amounted to €86,556 million as of December 31, 2018, around 10% higher than the prior-year figure. This increase was largely driven by the acquisition of significant businesses and assets from Bayer.

Noncurrent assets decreased by €4,288 million to €43,335 million. This is primarily attributable to the reclassification of noncurrent assets to the disposal groups, mainly for the oil and gas business and to a minor extent for the paper and water chemicals business.

More information on the above transactions and disposal groups can be found on page 42 of this Management's Report and in Notes 2.4 and 2.5 to the Consolidated Financial Statements from page 205 onward

The €2,960 million increase in intangible assets was largely attributable to acquisition-related additions, which amounted to €5,540 million as of the year-end, including €1,261 million in goodwill. The main offsetting effects were reclassifications to the disposal groups and depreciation and amortization.[2]

Property, plant and equipment declined by around 18% to €20,780 million, mainly as a result of reclassifications totaling €6,651 million, primarily to the disposal groups. Depreciation and amortization[2] amounted to €3,155 million, lower than investments (€3,615 million). Additions from acquisitions amounted to €1,425 million.

1 As of January 1, 2018, receivables from bank acceptance drafts are no longer reported under trade accounts receivable, but under the item other receivables and miscellaneous assets. The 2017 figures have been restated accordingly. For more information, see Note 18 to the Consolidated Financial Statements from page 235 onward.
2 Including impairments and reversals of impairments

Investments accounted for using the equity method declined by €2,512 million to €2,203 million, largely due to the reclassification of oil and gas shareholdings to the disposal group.

At €570 million, other financial assets were down €36 million from the prior-year level. Deferred tax assets increased by €224 million to €2,342 million, primarily from higher provisions for pensions and similar obligations. Other receivables and miscellaneous assets declined by €446 million year on year to €886 million, mainly due to the reclassification of loan receivables to the disposal group for the oil and gas business.

Current assets rose by €12,076 million to €43,221 million. This was primarily attributable to reclassifications from noncurrent assets to the disposal groups. The assets of disposal groups totaled €14,607 million as of the year-end, of which €14,088 million was attributable to the discontinued oil and gas business.

Inventories increased by €1,863 million. Of this figure, €887 million resulted from the transaction with Bayer. By contrast, trade accounts receivable declined by €136 million and other receivables and miscellaneous assets by €355 million, mainly due to lower bank acceptance drafts in China and the reclassification to the disposal group for the discontinued oil and gas business. Marketable securities rose by €292 million to €344 million following an optimization of current cash deposits. By contrast, cash and cash equivalents decreased by €4,195 million to €2,300 million, largely as a result of the purchase price payment to Bayer.

For more information on the composition and development of individual asset items, see the Notes to the Consolidated Financial Statements from page 228 onward

Financial Position

Equity and liabilities

	December 31, 2018		December 31, 2017	
	Million €	**%**	**Million €**	**%**
Paid-in capital	4,294	5.0	4,293	5.4
Retained earnings	36,699	42.4	34,826	44.2
Other comprehensive income	(5,939)	(6.9)	(5,282)	(6.7)
Noncontrolling interests	1,055	1.2	919	1.2
Equity	**36,109**	**41.7**	**34,756**	**44.1**
Provisions for pensions and similar obligations	7,434	8.6	6,293	8.0
Other provisions	1,860	2.1	3,478	4.4
Deferred tax liabilities	1,787	2.1	2,731	3.5
Financial indebtedness	15,332	17.7	15,535	19.7
Other liabilities	705	0.8	1,095	1.4
Noncurrent liabilities	**27,118**	**31.3**	**29,132**	**37.0**
Accounts payable, trade	5,122	5.9	4,971	6.3
Provisions	3,252	3.8	3,229	4.1
Tax liabilities	695	0.8	1,119	1.4
Financial indebtedness	5,509	6.4	2,497	3.2
Other liabilities	2,998	3.5	3,064	3.9
Liabilities of disposal groups	5,753	6.6	–	–
Current liabilities	**23,329**	**27.0**	**14,880**	**18.9**
Total equity and liabilities	**86,556**	**100.0**	**78,768**	**100.0**

Equity and liabilities

- **Equity ratio at 41.7%, compared with 44.1% in previous year**
- **Net debt rises by €6,712 million**

Equity rose by €1,353 million year on year to €36,109 million. Retained earnings increased by €1,873 million to €36,699 million. Other comprehensive income declined by €657 million to minus €5,939 million. This was mainly due to actuarial losses on the plan assets for defined benefit plans due to the negative development of the capital markets. This contrasted with currency effects. The equity ratio decreased from 44.1% to 41.7%, mainly as a result of the increase in total assets.

Compared with the end of 2017, noncurrent liabilities decreased by €2,014 million to €27,118 million. This was primarily due to the intra-year reclassification of noncurrent liabilities to the disposal groups, almost exclusively for the oil and gas business. By contrast, the transaction with Bayer increased noncurrent liabilities by €636 million in 2018.

Provisions for pensions and similar obligations rose by €1,141 million. This was largely driven by the remeasurement of plan assets. The reclassification of provisions to the disposal groups had an offsetting effect.

The €203 million decline in noncurrent financial indebtedness was mainly attributable to lower liabilities to credit institutions, which accounted for €190 million of this decrease. The carrying amounts of bonds and other liabilities to the capital market were slightly below the prior-year level as of December 31, 2018. Two eurobonds with an aggregate carrying amount of €2,002 million were reclassified to current financial indebtedness in 2018. By contrast, bonds were issued in pounds sterling, euros, U.S. dollars, Australian dollars and Japanese yen with terms of between four and 30 years and an aggregate carrying amount of €1,866 million as of the year-end. The intrayear reclassification of liabilities to credit institutions with a carrying amount of €499 million to the disposal group for the oil and gas business was partly offset by long-term loans taken out from banks.

Noncurrent other provisions declined by €1,618 million, deferred tax liabilities by €944 million and noncurrent other liabilities by €390 million. In each case, this was mainly due to reclassifications to the disposal group for the oil and gas business.

Current liabilities rose by €8,449 million to €23,329 million, primarily as a result of reclassifications to the disposal groups. The liabilities of disposal groups amounted to €5,753 million as of December 31, 2018. Current liabilities assumed in connection with the transaction with Bayer during the year amounted to €282 million as of the year-end.

Higher current financial indebtedness (+€3,012 million) and trade accounts payable (+€151 million) also contributed to the increase in current liabilities.

The rise in current financial indebtedness was largely due to the issue of U.S. dollar commercial paper with a carrying amount of around €2,549 million as of December 31, 2018. The reclassification of bonds to current financial indebtedness mentioned above contrasted with the scheduled repayment of three eurobonds with an aggregate carrying amount of €1,773 million.

Current tax liabilities declined by €424 million and current other liabilities by €66 million, in both cases primarily as a result of the reclassification to the disposal group for the oil and gas business. Within current liabilities, the main offsetting effect came from higher advances on orders. At €3,252 million as of December 31, 2018, current provisions were slightly above the prior-year level.

Overall, financial indebtedness grew by €2,809 million to €20,841 million. Together with the decline in cash and cash equivalents, particularly in connection with the purchase price payment for the acquisition of significant businesses from Bayer, this increased net debt by €6,712 million compared with December 31, 2017, to €18,197 million. Net debt is calculated by subtracting marketable securities and cash and cash equivalents from current and noncurrent financial indebtedness. This balance-related indicator provides information on effective indebtedness.

For more information on the composition and development of individual equity and liability items, see the Notes to the Consolidated Financial Statements from page 238 onward

For more information on the development of the balance sheet, see the Ten-Year Summary on pages 282 to 283

Net debt

Million €

	December 31, 2018	December 31, 2017
Noncurrent financial indebtedness	15,332	15,535
+ Current financial indebtedness	5,509	2,497
Financial indebtedness	**20,841**	**18,032**
– Marketable securities	344	52
– Cash and cash equivalents	2,300	6,495
Net debt	**18,197**	**11,485**

Financing policy and credit ratings

- **Financing principles remain unchanged**
- **"A" ratings confirmed**

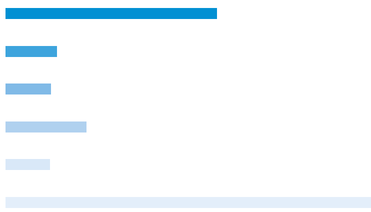
Our financing policy aims to ensure our solvency at all times, limiting the risks associated with financing and optimizing our cost of capital. We preferably meet our external financing needs on the international capital markets.

We strive to maintain a solid "A" rating, which ensures unrestricted access to financial and capital markets. Our financing measures are aligned with our operational business planning as well as the company's strategic direction and also ensure the financial flexibility to take advantage of strategic options.

Maturities of financial indebtedness

Million €

2019	5,509
2020	1,335
2021	1,178
2022	2,105
2023	1,155
2024 and beyond	9,559



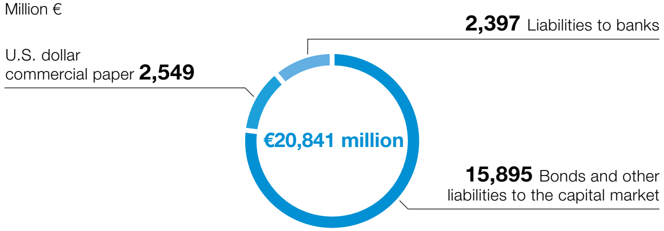
Rated "A1/P-1/outlook stable" by Moody's, "A/A-1/outlook stable" by Standard & Poor's and "A/S-1/outlook stable" by Scope Ratings, BASF enjoys good credit ratings, especially compared with competitors in the chemical industry. These ratings were most recently confirmed by Moody's on February 15, 2019, by Standard & Poor's on January 11, 2019, and by Scope Ratings on December 11, 2018.

We have solid financing. Corporate bonds form the basis of our medium to long-term debt financing. These are issued in euros and other currencies with different maturities as part of our €20 billion debt issuance program. The goal is to create a balanced maturity profile, diversify our investor base and optimize our debt capital financing conditions.

For short-term financing, we use BASF SE's U.S. dollar commercial paper program, which has an issuing volume of up to $12.5 billion. As of December 31, 2018, commercial paper in the amount of $2,919 million was outstanding under this program; we did not hold any commercial paper as of December 31, 2017. Firmly committed, syndicated credit lines of €6 billion serve to cover the repayment of outstanding commercial paper, and can also be used for general company purposes. These were refinanced in January 2019. The above credit lines were not used at any point in 2018. Our external financing is therefore largely independent of short-term fluctuations in the credit markets.

Financing instruments

Million €



Off-balance-sheet financing tools, such as leasing, are of minor importance to us. BASF Group's most important financial contracts contain no side agreements with regard to specific financial ratios (financial covenants) or compliance with a specific rating (rating trigger).

For more information on the financing tools used, see Note 24 from page 246 onward and Note 27 from page 251 onward in the Notes to the Consolidated Financial Statements

To minimize risks and leverage internal optimization potential within the Group, we bundle the financing, financial investments and foreign currency hedging of BASF SE's subsidiaries within the BASF Group where possible. Foreign currency risks are primarily hedged centrally by means of derivative financial instruments in the market.

Our interest risk management generally pursues the goal of reducing interest expenses for the BASF Group and limiting interest risks. Interest rate hedging transactions are therefore conducted with banks in order to turn selected liabilities to the capital market from fixed interest to variable rates or vice versa.

Statement of cash flows

- **Cash flows from operating activities and free cash flow lower year on year**

Cash flows from operating activities declined by €846 million compared with the previous year to €7,939 million in 2018. This was mainly due to the decrease in net income, despite lower amortization of intangible assets and depreciation of property, plant and equipment. The change in net working capital had an offsetting effect. This was primarily attributable to the decline in cash tied up for receivables and the higher level of cash released from operating liabilities. This was partly offset by the increase in cash tied up in inventories. The cash released in miscellaneous items in 2018 was largely the result of the increase in pension provisions as well as lower adjustments for non-cash-effective earnings contributions from equity-accounted investments compared with the previous year.

Cash flows from investing activities amounted to minus €11,804 million in 2018, compared with minus €3,958 million in 2017. Payments made for intangible assets and property, plant and equipment amounted to €3,894 million, €102 million below the prior-year figure and €144 million higher than amortization of intangible assets and depreciation of property, plant and equipment.

Acquisitions and divestitures in 2018 resulted in net payments made of €7,255 million. These mainly related to the purchase price payment to Bayer, which amounted to €7,208 million including liquid funds assumed. By contrast, net payments of €27 million were received in the previous year.

Cash tied up by changes in financial assets and miscellaneous items amounted to minus €655 million in 2018, after €11 million was released in 2017. The main contributing factors were higher additions from marketable securities and financial assets compared with the previous year, as well as the change in other financing-related receivables.

For more information on investments and acquisitions, see page 41 onward

Cash flows from financing activities amounted to minus €52 million in 2018, after €394 million in 2017. Changes in financial and similar liabilities resulted in a cash inflow of €3.0 billion in the reporting year, around €0.3 billion less than in the previous year. This was primarily due to the issue of U.S. dollar commercial paper by BASF SE with a carrying amount of around €2.5 billion and bonds with a carrying amount of around €1.9 billion. The main offsetting effect was the repayment of maturing bonds in the amount of €1.8 billion. In 2018, dividends of €2,847 million were paid to shareholders of BASF SE and €174 million to noncontrolling interests.

Cash and cash equivalents amounted to €2,519 million as of December 31, 2018. They declined by a cash-effective amount of €3,917 million in 2018, mainly as a result of the purchase price payment to Bayer.

Statement of cash flows

Million €

	2018	2017
Net income	4,707	6,078
Amortization of intangible assets and depreciation of property, plant and equipment	3,750	4,213
Changes in net working capital	(530)	(1,167)
Miscellaneous items	12	(339)
Cash flows from operating activities	**7,939**	**8,785**
Payments made for intangible assets and property, plant and equipment	(3,894)	(3,996)
Acquisitions/divestitures	(7,255)	27
Changes in financial assets and miscellaneous items	(655)	11
Cash flows from investing activities	**(11,804)**	**(3,958)**
Capital increases/repayments and other equity transactions	3	19
Changes in financial and similar liabilities	2,966	3,248
Dividends	(3,021)	(2,873)
Cash flows from financing activities	**(52)**	**394**
Changes in cash and cash equivalents affecting liquidity	(3,917)	5,221
Cash and cash equivalents at the beginning of the period and other changes	6,436	1,274
Cash and cash equivalents at the end of the year[1]	**2,519**	**6,495**

1 In 2018, cash and cash equivalents presented in the statement of cash flows deviate from the figure in the balance sheet, as cash and cash equivalents of the oil and gas business in the balance sheet have been reclassified to the disposal group.

Free cash flow, which remains after deducting payments made for intangible assets and property, plant and equipment from cash flows from operating activities, represents the financial resources remaining after investments. It declined to €4,045 million compared with €4,789 million in the previous year due to the decrease in cash flows from operating activities.

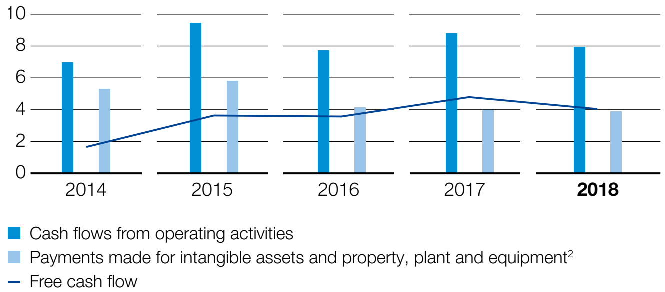
Free cash flow

Million €

	December 31, 2018	December 31, 2017
Cash flows from operating activities	7,939	8,785
– Payments made for intangible assets and property, plant and equipment	3,894	3,996
Free cash flow	**4,045**	**4,789**

Cash flow

Billion €



2 Including investments to the extent that they already had an effect on cash

Actual Development Compared with Outlook for 2018

Forecast/actual comparison[1]

	Sales		Income from operations (EBIT) before special items	
	2018 forecast	**2018 actual**	**2018 forecast**	**2018 actual**
Chemicals	slight decline	slight increase	considerable decline	considerable decline
Performance Products	slight increase	slight decline	considerable increase	slight decline
Functional Materials & Solutions	slight increase	slight increase	considerable increase	considerable decline
Agricultural Solutions	considerable increase	considerable increase	slight decline	considerable decline
Other	slight increase	considerable increase	slight increase	considerable increase
BASF Group	**slight increase**	**slight increase**	**slight increase**[2]	**considerable decline**

1 For sales, "slight" represents a change of 1–5%, while "considerable" applies to changes of 6% and higher. "At prior-year level" indicates no change (+/–0%). For earnings, "slight" means a change of 1–10%, while "considerable" is used for changes of 11% and higher. "At prior-year level" indicates no change (+/–0%).
2 We adjusted our forecast in September 2018 to a slight decline in EBIT before special items compared with the adjusted figure for 2017 as a result of the changed presentation of the Wintershall Group following the signing of the definitive agreement with LetterOne. We revised this forecast in December 2018 to a considerable decline in EBIT before special items.

BASF Group sales increased slightly in 2018, in line with our forecast. EBIT before special items declined considerably in 2018 and was thus lower than the slight increase forecast at the beginning of the year. On the one hand, we adjusted our forecast in September 2018 to a slight decline in EBIT before special items compared with the adjusted figure for 2017 as a result of the changed presentation of the oil and gas business following the signing of the definitive agreement with LetterOne. On the other, earnings development in the Functional Materials & Solutions and Performance Products segments in particular did not meet our expectations. As a result, EBIT also declined considerably in 2018 instead of slightly as we had anticipated. EBIT after cost of capital declined considerably, as expected.

We increased sales slightly in the **Chemicals** segment, after predicting a slight decline in sales at the beginning of 2018. The anticipated decrease in isocyanate prices as a result of additional capacities occurred later in the year than expected. EBIT before special items declined considerably as forecast.

Sales in the **Performance Products** segment declined slightly, contrary to our forecast of a slight increase. We were unable to increase sales volumes as expected due to the continued lower availability of citral-based products in the Nutrition & Health division and lower sales volumes in the Care Chemicals division, especially for oleochemical surfactants and fatty alcohols, as well as in the hygiene business. As a result, EBIT before special items did not increase considerably as anticipated, but declined slightly.

Sales in the **Functional Materials & Solutions** segment increased slightly in line with our forecast. Margins did not improve as expected due to the increase in raw materials prices, and so we recorded a considerable decline instead of a considerable increase in EBIT before special items.

We achieved a considerable increase in sales in the **Agricultural Solutions** segment, as forecast. The acquisition of significant businesses from Bayer, which was originally expected in the first half of 2018, was delayed until August 2018. The later-than-expected closing of the transaction and the seasonality of the businesses meant that earnings were more negatively impacted than anticipated. Earnings were also weighed down by currency effects in all regions. Consequently, EBIT before special items declined considerably instead of slightly. EBIT before special items excluding the acquired Bayer activities also declined considerably compared with the previous year, rather than the slight increase we forecast.

In **Other**, both sales and EBIT before special items increased considerably and were thus higher than our forecast of a slight increase. The stronger sales development was mainly attributable to higher sales volumes in raw materials trading. The improvement in earnings was primarily due to valuation effects for our long-term incentive program.

In 2018, we invested a total of €3.5 billion in capital expenditures (capex), excluding additions from acquisitions, capitalized exploration, IT investments, restoration obligations and right-of-use assets arising from leases. This includes **capex** of €383 million in the former Oil & Gas segment for the first three quarters of 2018. The figure forecast at the beginning of 2018 was approximately €4.0 billion and included investments of €0.7 billion in the former Oil & Gas segment. Capex in the Functional Materials & Solutions segment and Other in particular was below the planned values.

For information on our expectations for 2019, see page 120 onward
For information on investments, see page 41

Business Review by Segment

Segment overview

Million €

	Sales		Income from operations before depreciation and amortization (EBITDA)		Income from operations (EBIT) before special items	
	2018	**2017**	**2018**	**2017**	**2018**	**2017**
Chemicals	16,501	16,331	4,432	5,374	3,386	4,233
Performance Products	15,812	16,217	2,205	2,427	1,376	1,416
Functional Materials & Solutions	21,435	20,745	1,917	2,251	1,307	1,617
Agricultural Solutions	6,156	5,696	985	1,282	734	1,033
Other	2,771	2,234	(373)	(569)	(450)	(654)
BASF Group	**62,675**	**61,223**	**9,166**	**10,765**	**6,353**	**7,645**

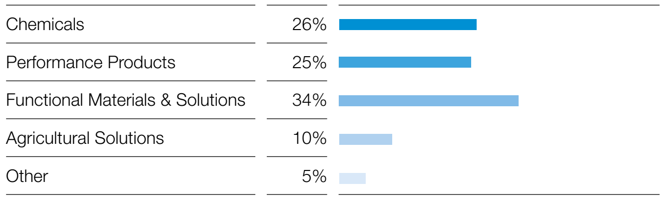
Segment overview

Million €

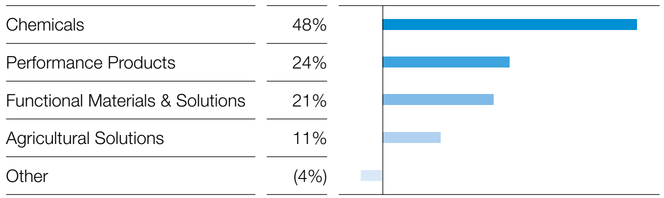
	Income from operations (EBIT)		Assets		Investments including acquisitions[1]	
	2018	**2017**	**2018**	**2017**	**2018**	**2017**
Chemicals	3,360	4,208	13,264	13,233	1,325	1,149
Performance Products	1,338	1,510	14,903	14,432	765	800
Functional Materials & Solutions	1,235	1,545	17,654	17,364	872	1,056
Agricultural Solutions	591	1,015	16,992	8,096	7,110	185
Other	(491)	(691)	23,743	25,643	663	1,174
BASF Group	**6,033**	**7,587**	**86,556**	**78,768**	**10,735**	**4,364**

1 Additions to property, plant and equipment (of which from acquisitions: €1,425 million in 2018 and €8 million in 2017) and intangible assets (of which from acquisitions: €5,540 million in 2018 and €235 million in 2017)

Contributions to total sales by segment



Contributions to EBITDA by segment



Sales[1]

Million €

	Q1		Q2		Q3		Q4	
	2018	2017	2018	2017	2018	2017	2018	2017
Chemicals	4,286	4,105	4,132	4,045	4,309	4,023	3,774	4,158
Performance Products	3,991	4,260	3,949	4,142	3,989	3,983	3,883	3,832
Functional Materials & Solutions	5,139	5,198	5,540	5,261	5,238	4,975	5,518	5,311
Agricultural Solutions	1,728	1,855	1,501	1,526	1,243	987	1,684	1,328
Other	556	609	661	475	827	548	727	602
BASF Group	**15,700**	**16,027**	**15,783**	**15,449**	**15,606**	**14,516**	**15,586**	**15,231**

Income from operations (EBIT) before special items[1]

Million €

	Q1		Q2		Q3		Q4	
	2018	2017	2018	2017	2018	2017	2018	2017
Chemicals	1,134	958	1,074	1,120	851	1,102	327	1,053
Performance Products	470	515	409	405	360	385	137	111
Functional Materials & Solutions	333	531	338	422	347	397	289	267
Agricultural Solutions	423	533	278	272	(5)	21	38	207
Other	(79)	(239)	(127)	(99)	(83)	(203)	(161)	(113)
BASF Group	**2,281**	**2,298**	**1,972**	**2,120**	**1,470**	**1,702**	**630**	**1,525**

Income from operations (EBIT)[1]

Million €

	Q1		Q2		Q3		Q4	
	2018	2017	2018	2017	2018	2017	2018	2017
Chemicals	1,126	974	1,064	1,119	846	1,089	324	1,026
Performance Products	482	499	402	363	348	567	106	81
Functional Materials & Solutions	325	521	326	427	337	357	247	240
Agricultural Solutions	417	531	259	270	(39)	20	(46)	194
Other	(87)	(233)	(145)	(129)	(97)	(209)	(162)	(120)
BASF Group	**2,263**	**2,292**	**1,906**	**2,050**	**1,395**	**1,824**	**469**	**1,421**

1 Quarterly results not audited

Contributions to EBIT before special items by segment

Chemicals	53%
Performance Products	22%
Functional Materials & Solutions	21%
Agricultural Solutions	11%
Other	(7%)

Contributions to EBIT by segment

Chemicals	56%
Performance Products	22%
Functional Materials & Solutions	20%
Agricultural Solutions	10%
Other	(8%)

Chemicals

The Chemicals segment consists of the Petrochemicals, Monomers and Intermediates divisions. In our integrated production facilities – our Verbund – we produce a broad range of basic chemicals and intermediates in Europe, Asia, North America and South America for our customers as well as for internal supply into the BASF Verbund.

Divisions

Petrochemicals

Broad range of basic products for sectors such as the chemical and plastics industries

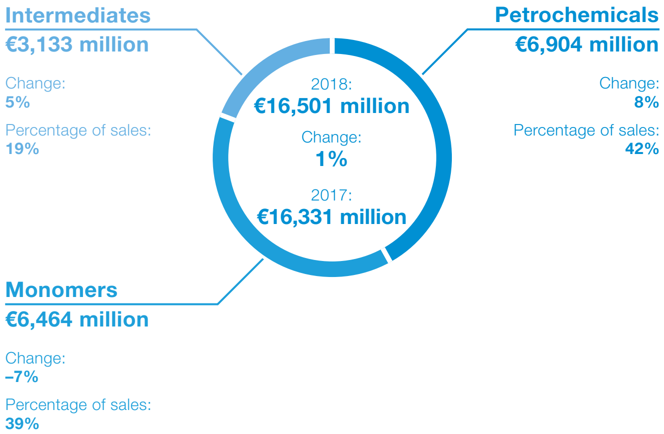
Monomers

Isocyanates and polyamides as well as inorganic basic products and specialties for various sectors, such as the plastics, automotive and construction industries

Intermediates

Most comprehensive intermediates portfolio in the world, including precursors for coatings, plastics, textile fibers and crop protection products

Sales



Factors influencing sales

Volumes	(1%)
Prices	4%
Portfolio	0%
Currencies	(2%)
Sales	**1%**

Income from operations before special items

Million €	
2018	**3,386**
2017	4,233

Change: **–€847 million**

How we create value – an example

Biomass balance approach for methanol

Fossil resource-saving process expanded

Value for BASF

Annual volume of relevant market in Europe

20.5 million metric tons

Value for the environment

≥50% lower greenhouse gas emissions

Since 2013, BASF has used the biomass balance approach to promote the use of sustainably produced renewable raw materials in the integrated Production Verbund by replacing fossil feedstock with biogas or bio-naphtha at the very beginning of the value chain. BASF has produced methanol according to the biomass balance approach since 2018. This methanol is certified according to the EU-RedCert standard. Methanol is an important raw material for many products in different value chains. Potential applications are biofuels and fuel additives. The European market for methyl-tert-butylether (MTBE), a fuel additive manufactured from methanol, has an annual volume of 20.5 million metric tons.

Biomass balance products actively contribute to saving fossil raw materials and in this way, help reduce greenhouse gas emissions. For instance, using renewable feedstock in the methanol production process reduces climate-damaging greenhouse gas emissions by at least 50% compared with conventionally produced methanol. For the methanol certified according to the EU-RedCert standard, BASF completely replaces fossil methane with biomethane made from waste and residual materials.

Strategy

- **Integrated production facilities form core of Verbund**
- **Technology and cost leadership provide most important competitive edge**

With its production facilities, the Chemicals segment is at the heart of the Verbund and supplies BASF's segments with basic chemicals for the production of downstream products. We add value with innovations in processes and production and invest in future markets. As a reliable supplier, we provide chemicals of consistent quality and market them to customers in downstream industries. We continuously improve our value chains and are expanding our market position – particularly outside Europe – with new processes and technologies, as well as through investments and collaborations in future markets.

We invest in research and development to develop new technologies and to make our existing technologies even more efficient. Cost leadership and a clear orientation along individual value chains are among our most important competitive advantages. We concentrate on the critical success factors of the classic chemicals business: leveraging economies of scale and the advantages of our Verbund, high capacity utilization, continuous optimization of access to raw materials, lean and energy efficient processes – including reducing greenhouse gas emissions – and reliable, cost-effective logistics. Furthermore, we are constantly improving our global production structures and aligning these with regional market requirements.

We plan to build an integrated Verbund chemical production site in Zhanjiang in the southern Chinese province of Guangdong. A non-binding Memorandum of Understanding was signed in July 2018. At the new site, we intend to implement a comprehensive smart manufacturing concept based on implementing cutting-edge digital technologies within the plants.

BASF and Sinopec, Beijing, signed a Memorandum of Understanding in October to further strengthen their partnership in chemical production in China. The partners intend to build an additional steam cracker and to further expand their existing 50:50 joint venture, BASF-YPC Company Limited, at our Verbund site in Nanjing.

To support the growing demand for acrylic monomers in Asia Pacific, BASF PETRONAS Chemicals is looking into expanding the production capacity of its acrylic acid plant and butyl acrylate plants at our Verbund site in Kuantan, Malaysia.

At our Verbund site in Antwerp, Belgium, we are planning a significant capacity expansion of the integrated ethylene oxide complex. The project also includes several downstream derivatives, such as surfactants.

In Ludwigshafen, Germany, we will strengthen our Verbund by replacing our acetylene plant with a modern highly efficient plant by the end of 2019.

The new MDI synthesis unit in Geismar, Louisiana, is a major milestone toward increasing MDI production capacity in North America. This investment supports the growth of our MDI customers in the North American market.

On September 18, 2017, we signed an agreement with Solvay on the acquisition of Solvay's integrated polyamide business.

For more information on the current status of the agreement with Solvay, see page 42

Products, customers and applications

Division	Products	Customer industries and applications
Petrochemicals	Ethylene, propylene, butadiene, benzene, alcohols, solvents, plasticizers, alkylene oxides, glycols and acrylic monomers	Use in the BASF Verbund Chemical and plastics industry, detergent, hygiene, automotive, packaging and textile industries; production of paints, coatings, and cosmetics as well as oilfield, construction and paper chemicals
Monomers	Isocyanates (MDI, TDI), ammonia, caprolactam, adipic acid, chlorine, urea, glues and impregnating resins, caustic soda, polyamides 6 and 6.6, standard alcoholates, sulfuric and nitric acid	Use in the BASF Verbund Industries such as plastics, woodworking, furniture, packaging, textile, construction and automotive
Intermediates	Basic products: butanediol and derivatives, alkylamines and alkanolamines, neopentyl glycol, formic and propionic acid Specialties: specialty amines such as tertiary butylamine and polyetheramine, gas treatment chemicals, vinyl monomers, acid chlorides, chloroformates, chiral intermediates	Use in the BASF Verbund Plastics, coatings and pharmaceutical industries, production of detergents and cleaners as well as crop protection products and textile fibers

Investments

Location	Project	Additional annual capacity through expansion (metric tons)	Total annual capacity (metric tons)	Startup
Freeport, Texas	Construction: ammonia plant[1]		750,000	2018
Geismar, Louisiana	Construction: MDI synthesis unit	n/a	300,000	2020
Ludwigshafen, Germany	Replacement: acetylene plant	n/a	90,000	2019
Nanjing, China	Construction: specialty amines plant	21,000	n/a	2019
	Expansion: propionic acid plant[2]	30,000	69,000	2019

1 Operated by an associated company with Yara International ASA
2 Operated by a joint venture with Sinopec

Production capacities of significant products[1]

	Sites				
Product	Europe	North America	Asia Pacific	South America, Africa, Middle East	Annual capacity (metric tons)
Acrylic acid	■	■	■	■	1,510,000
Alkylamines	■	■	■		250,000
Formic acid	■	■	■		305,000
Ammonia	■				1,525,000
Benzene	■	■	■		910,000
Butadiene	■	■	■		680,000
Butanediol equivalents	■	■	■		670,000
Chlorine	■				385,000
Ethanolamines and derivatives	■		■		430,000
Ethylene	■	■	■		3,480,000
Ethylene oxide	■	■	■		1,445,000
Urea	■				545,000
Isocyanates	■	■	■		2,610,000
Caustic soda	■				360,000
Neopentyl glycol	■	■	■		205,000
Oxo-C4 alcohols (calculated as butyraldehyde)	■	■	■		1,625,000
Polyamide 6 and 6.6	■	■	■		820,000
Polyamide precursors	■	■			910,000
PolyTHF®	■	■	■		350,000
Propionic acid	■		■		150,000
Propylene	■	■	■		2,610,000
Propylene oxide	■				675,000
Sulfuric acid	■				920,000
Plasticizers	■	■			595,000

1 All capacities are included at 100%, including plants belonging to joint operations and joint ventures.

Segment data – Chemicals

Million €

		2018	2017	+/–
Sales to third parties		16,501	16,331	1%
of which Petrochemicals		6,904	6,389	8%
Monomers		6,464	6,963	(7%)
Intermediates		3,133	2,979	5%
Intersegment transfers		6,105	6,063	1%
Sales including intersegment transfers		22,606	22,394	1%
Income from operations before depreciation and amortization (EBITDA)		4,432	5,374	(18%)
EBITDA margin	%	26.9	32.9	–
Depreciation and amortization[1]		1,072	1,166	(8%)
Income from operations (EBIT)		3,360	4,208	(20%)
Special items		(26)	(25)	(4%)
EBIT before special items		3,386	4,233	(20%)
EBIT after cost of capital		2,030	2,895	(30%)
Assets		13,264	13,233	0%
Investments including acquisitions[2]		1,325	1,149	15%
Research and development expenses		129	128	1%

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
2 Additions to intangible assets and property, plant and equipment

Chemicals segment

- **Sales growth of 1% to €16,501 million due to higher prices**
- **EBIT before special items declines 20% to €3,386 million primarily as a result of lower margins, impacted by low water level of Rhine River**

At €16,501 million, sales to third parties in the Chemicals segment in 2018 were €170 million above the prior-year figure (volumes –1%, prices 4%, portfolio 0%, currencies –2%). This was due to higher prices overall in all divisions, especially in Petrochemicals. By contrast, the Monomers division saw a decrease in isocyanate prices. Currency effects had a negative impact on sales. Sales volumes were also slightly below the prior-year level. We increased volumes overall in the Petrochemicals and Intermediates divisions despite the low water levels on the Rhine River, while sales volumes declined considerably in the Monomers division.

Income from operations (EBIT) before special items declined by €847 million to €3,386 million. This was mainly attributable to lower margins for isocyanates in the Monomers division and steam cracker products in the Petrochemicals division. Stronger margins in the Intermediates division were unable to compensate for this. Plant shutdowns and the low water levels on the Rhine River in the second half of 2018 also contributed to the decline in earnings. EBIT declined by €848 million to €3,360 million. Overall, special items did not have a substantial impact.

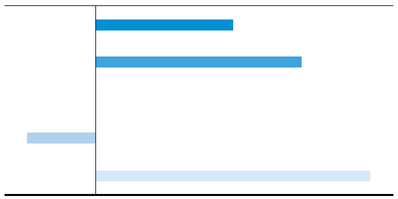
Petrochemicals

- **Sales rise 8% to €6,904 million due to higher prices and volumes**
- **Considerable decline in EBIT before special items attributable to lower margins, higher fixed costs and low water level of Rhine River**

The Petrochemicals division increased sales to third parties by €515 million to €6,904 million in 2018. This was mainly due to significantly higher sales prices. These rose in all regions and business areas, largely following the higher raw materials prices for naphtha and butane, our most important feedstock. We also increased volumes. In Europe, sales volumes were slightly higher than in the previous year, as the supply of raw materials through the North Harbor and thus production in Ludwigshafen, Germany, was severely restricted in 2017. However, the low water levels on the Rhine River in the third and fourth quarters of 2018 led to significant production limitations. Volumes rose in North America, mainly as a result of higher capacity utilization of the condensate splitter in Port Arthur, Texas. Sales were dampened by currency effects.

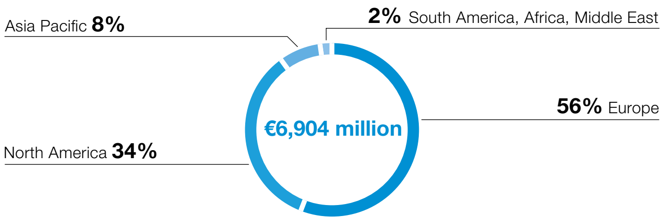
Petrochemicals – Factors influencing sales

Volumes	4%
Prices	6%
Portfolio	0%
Currencies	(2%)
Sales	**8%**



Petrochemicals – Sales by region

Location of customer



EBIT before special items declined considerably. Compared with the very strong prior-year level, margins decreased significantly over the course of the year, especially for steam cracker products. This was due to higher market supply as a result of new capacities in the market, particularly in North America. Fixed costs increased. In the previous year, we received significantly higher insurance refunds; in addition, maintenance expenses were up from the 2017 figure. The low water levels on the Rhine River was a significant contributor to the decline in earnings.

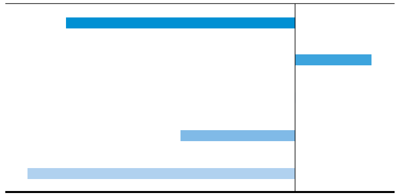
Monomers

- **Sales down 7% to €6,464 million as a result of lower volumes and negative currency effects**
- **Considerable decline in EBIT before special items largely from lower margins and volumes in the isocyanates business**

Sales to third parties in the Monomers division decreased by €499 million to €6,464 million in 2018 due to lower volumes and negative currency effects. Sales volumes declined year on year as a result of higher market supply and the low water levels on the Rhine River. Overall, prices were above the prior-year level. Higher prices for polyamides in particular compensated for the price decrease in the isocyanates business on the back of higher market supply.

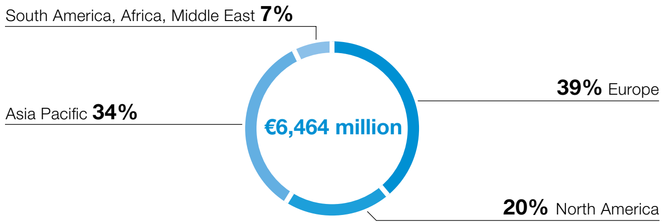
Monomers – Factors influencing sales

Volumes	(6%)
Prices	2%
Portfolio	0%
Currencies	(3%)
Sales	**(7%)**



Monomers – Sales by region

Location of customer



The considerable year-on-year decline in EBIT before special items in the Monomers division was primarily attributable to the lower margins and volumes in the isocyanates business. Earnings development in the fourth quarter of 2018 was also negatively impacted by the low water levels on the Rhine River. The restructuring of our caprolactam production in Europe and reduced fixed costs, mainly owing to lower impairments, had a positive effect on earnings.

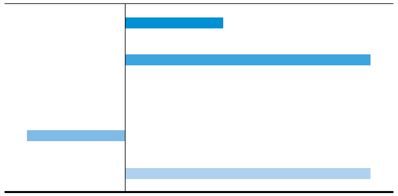
Intermediates

- **Sales increase of 5% to €3,133 million largely driven by higher prices**
- **EBIT before special items slightly above the prior-year level due to margin and volumes growth**

The Intermediates division increased sales to third parties by €154 million year on year to €3,133 million, primarily due to higher prices. We were able to increase prices, particularly in the acids and polyalcohols business in all regions. Prices for butanediol and derivatives rose as well, especially in Europe and North America. We also increased sales volumes in 2018 – across the entire portfolio in Asia and above all in the amines and butanediol and derivatives businesses in North America. Currency effects had a negative impact on sales.

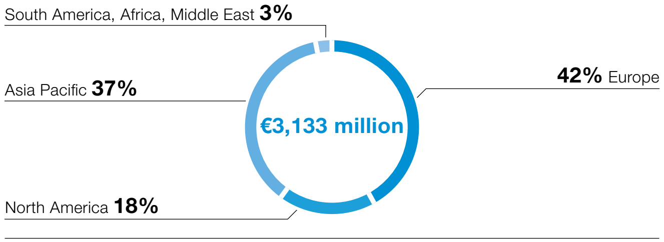
Intermediates – Factors influencing sales

Volumes	2%
Prices	5%
Portfolio	0%
Currencies	(2%)
Sales	**5%**



Intermediates – Sales by region

Location of customer



EBIT before special items rose slightly compared with the previous year as a result of improved margins and volumes growth. This was partly offset by higher fixed costs, mostly from plant shutdowns.

The construction of the new acetylene plant in Ludwigshafen, Germany, is progressing according to schedule, with startup planned by the end of 2019.

Performance Products

The Performance Products segment consists of the Dispersions & Pigments, Care Chemicals, Nutrition & Health and Performance Chemicals divisions. Our offerings enhance the performance of industrial and consumer products worldwide. With our tailor-made solutions, our customers can make their production processes more efficient and give their products improved application properties.

Divisions

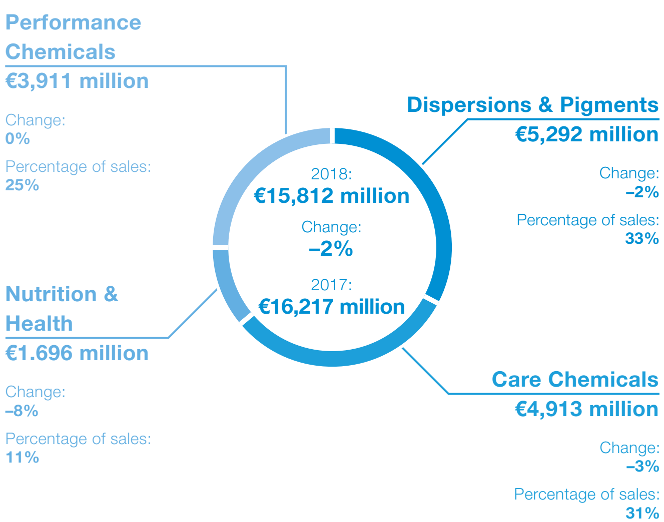
Dispersions & Pigments
Raw materials used to formulate products in the coating, construction, paper, adhesives, printing and packaging, plastics and electronic industries

Care Chemicals
Ingredients for the cosmetics, detergent and cleaner industries, agrochemical and technical applications and the hygiene industry

Nutrition & Health
Products for the food and feed industries, the flavor and fragrance industry, the pharmaceutical industry and the ethanol industry

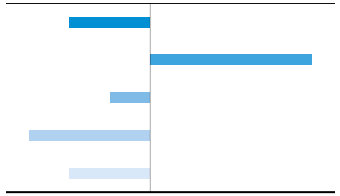
Performance Chemicals
Customized products for many sectors, from mining and the fuel industry to plastics processing

Sales



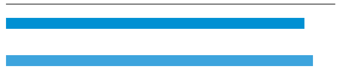
Factors influencing sales

Volumes	(2%)
Prices	4%
Portfolio	(1%)
Currencies	(3%)
Sales	**(2%)**



Income from operations before special items

Million €	
2018	**1,376**
2017	1,416



Change: **–€40 million**

Strategy

- **Tailor-made products and solutions improve our customers' applications and processes**
- **Global presence ensures reliable supply to customers in all regions**

We take on the challenges posed by important future issues, especially population growth: scarce resources, environmental and climatic stressors, greater demand for food and the desire for better quality of life. In doing so, we focus on research and development and maintain close relationships to leading companies in our customer industries. We position ourselves globally in order to reliably supply customers in all regions. We invest in the development of innovations that enable our products and processes – as well as our customers' applications and processes – to make a contribution to sustainability: for example, by allowing resources to be used more efficiently.

Our products create additional value for our customers, providing a competitive advantage. We develop new solutions together with our customers and strive for long-term partnerships that create profitable growth opportunities for both sides.

A different business model is pursued for standard products such as vitamins or dispersions for paper coatings. Here, efficient production setups, backward integration in our Production Verbund's value chains, capacity management, and technology and cost leadership are all essential.

We support our customers by serving as a reliable supplier with consistently high product quality, good value for money and lean processes. Our in-depth knowledge of the areas of application and technological innovations strengthen our customer relationships in key industries.

How we create value – an example

Hepaxa™

First-to-the-world dietary management product for patients with non-alcoholic fatty liver disease

Value for BASF

Annual sales potential of

around **€45 million**

Value for customers

Reduction of fat in the liver of

up to **44%**

Hepaxa™ is a breakthrough in the nutritional support of non-alcoholic fatty liver disease (NAFLD), one of the most common forms of chronic liver disease worldwide and can help tens of millions of patients manage NAFLD. Providing highly concentrated and pure eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), Hepaxa™, which was launched in the United States, is the first product in the world specifically designed to address a build-up of fat in the liver, known as steatosis, in NAFLD patients. We expect an annual sales potential with Hepaxa™ of around €45 million over the medium term.

NAFLD has become a disease of public health significance affecting both adults and children. It has been shown that patients with NAFLD have reduced levels of EPA and DHA. Hepaxa™ helps address a patient's distinct nutritional requirement for such omega-3 long chain polyunsaturated fatty acids. A BASF product-specific clinical trial has shown that Hepaxa™ is safe and effective in the dietary management of steatosis in patients with NAFLD. Patients in the trial showed reductions of fat of up to 44% in the liver after placebo correction.

We plan to increase global production capacities for the antioxidant Irganox® 1010 by 40% at our sites in Jurong, Singapore, and Kaisten, Switzerland. Once the projects are complete – in 2019 in Kaisten and early 2021 in Jurong – BASF wants to even better meet the growing demand from customers in Asia and Europe, the Middle East and Africa at its regional distribution centers. We are expanding our existing ibuprofen production capacities in Bishop, Texas, and started construction of a new world-scale ibuprofen plant in Ludwigshafen, Germany, which is scheduled for startup in 2022. To reliably meet the growing demand for high quality dispersions solutions in the ASEAN countries, Australia and New Zealand, we plan to double the production capacity for acrylics dispersions in Pasir Gudang, Malaysia. The additional capacities are planned to be operational in 2020.

On May 3, 2018, BASF and Solenis announced that they had signed an agreement on the combination of BASF's paper and water chemicals business with Solenis. BASF and Solenis closed the transaction on January 31, 2019.

For more information, see Events after the reporting period on page 122

Products, customers and applications

Division	Products	Customer industries and applications
Dispersions & Pigments	Polymer dispersions, pigments, resins, formulation additives, electronic materials	Coating, construction, paper, adhesives, printing and packaging, plastics and electronic industries
Care Chemicals	Ingredients for skin and hair cleansing and care products, such as emollients, cosmetic active ingredients, polymers and UV filters Ingredients for detergents and cleaners in household, institution or industry, such as surfactants, enzymes, chelating agents, polymers, biocides and products for optical effects Excipients for crop protection product formulations, products for concrete additives and chemical processes such as emulsion polymerization, metal surface treatments or textile processing, as well as products for biofuels and other industrial applications Superabsorbents for baby diapers, incontinence products and feminine hygiene articles	Cosmetics industry, detergent and cleaner industry, agrochemical industry, technical applications for various industries, hygiene industry
Nutrition & Health	Additives for the food and feed industries, such as vitamins, carotenoids, sterols, enzymes, emulsifiers and omega-3 fatty acids Industrial enzymes for ethanol production Flavors and fragrances, such as citral, geraniol, citronellol, L-menthol and linalool Excipients for the pharmaceutical industry and selected, high-volume active pharmaceutical ingredients, such as ibuprofen and omega-3 fatty acids	Food and feed industries, flavor and fragrance industry, pharmaceutical industry and ethanol industry
Performance Chemicals	Antioxidants, light stabilizers and flame retardants for plastic applications Fuel and refinery additives, polyisobutene, brake fluids and engine coolants, lubricant additives and basestocks, components for metalworking fluids and compounded lubricants Process chemicals for the extraction of oil, gas, metals and minerals, chemicals for enhanced oil recovery Functional chemicals and process chemicals for the production of paper and cardboard, water treatment chemicals, membrane technologies, kaolin minerals	Plastics processing industry, automotive industry, fuel and lubricant industry, oil and gas industry, mining industry, municipal and industrial water treatment as well as paper and packaging industry

Production capacities of significant products[1]

	Sites				
Product	Europe	North America	Asia Pacific	South America, Africa, Middle East	Annual capacity (metric tons)
Anionic surfactants	■	■	■	■	600,000
Citral	■		■		78,000
Chelating agents	■	■		■	170,000
Methane sulfonic acid	■				30,000
Nonionic surfactants	■	■	■		635,000
Polyisobutene	■		■		265,000
Superabsorbents	■	■	■	■	590,000

1 All capacities are included at 100%, including plants belonging to joint operations and joint ventures.

Investments

Location	Project	Startup
Antwerp, Belgium	Gradual capacity expansion: alkoxylates	2018–2021
Bishop, Texas	Capacity expansion: production plant for ibuprofen	2019
Düsseldorf, Germany	Gradual upgrade of production plants in accordance with the Good Manufacturing Practice Standard issued by the European Federation for Cosmetic Ingredients (EFfCI)	2022
Jiaxing, China	Construction: production plant for electronic-grade sulfuric acid	2018
Jurong, Singapore	Capacity expansion: antioxidants (Irganox®)	2021
Kaisten, Switzerland	Capacity expansion: antioxidants (Irganox®)	2019
Kuantan, Malaysia	Construction: aroma ingredients complex	2017/2018
Ludwigshafen, Germany	Expansion: production plant for dispersions	2018
	Construction: production plant for vitamin A	2020
	Construction: production plant for ibuprofen	2022
Nanjing, China	Capacity expansion: polyacrylamide plant	2018
Pasir Gudang, Malaysia	Capacity expansion: production plant for acrylics dispersions	2020
Shanghai, China	Construction: production plant for plastic additives	2019

Segment data – Performance Products

Million €

		2018	2017	+/–
Sales to third parties		15,812	16,217	(2%)
of which Dispersions & Pigments		5,292	5,398	(2%)
Care Chemicals		4,913	5,079	(3%)
Nutrition & Health		1,696	1,844	(8%)
Performance Chemicals		3,911	3,896	0%
Intersegment transfers		498	506	(2%)
Sales including intersegment transfers		16,310	16,723	(2%)
Income from operations before depreciation and amortization (EBITDA)		2,205	2,427	(9%)
EBITDA margin	%	13.9	15.0	–
Depreciation and amortization[1]		867	917	(5%)
Income from operations (EBIT)		1,338	1,510	(11%)
Special items		(38)	94	.
EBIT before special items		1,376	1,416	(3%)
EBIT after cost of capital		(131)	26	.
Assets		14,903	14,432	3%
Investments including acquisitions[2]		765	800	(4%)
Research and development expenses		394	395	(0%)

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
2 Additions to intangible assets and property, plant and equipment

Performance Products segment

- **Sales 2% lower at €15,812 million, mainly as a result of currency effects and lower volumes**
- **EBIT before special items down 3% to €1,376 million, primarily due to lower sales volumes and negative currency effects**

At €15,812 million, sales to third parties in the Performance Products segment in 2018 were €405 million below the prior-year figure (volumes –2%, prices 4%, portfolio –1%, currencies –3%). This is mainly attributable to negative currency effects in all divisions. Sales were also negatively impacted by lower volumes in the Nutrition & Health and Care Chemicals divisions as well as portfolio effects. Higher sales prices in all divisions had an offsetting effect.

Despite an overall improvement in margins, income from operations (EBIT) before special items declined by €40 million year on year to €1,376 million. This was largely due to lower sales volumes and negative currency effects. Excluding the negative currency effects, EBIT before special items was flat year on year. Compared with 2017, EBIT declined by €172 million to €1,338 million. In the previous year, we generated special income from the transfer of BASF's leather chemicals business to the Stahl group; in 2018, special charges arose from various individual items.

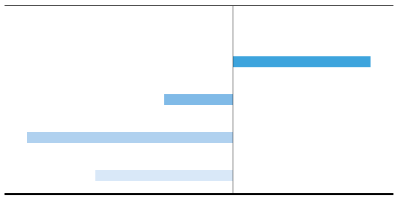
Dispersions & Pigments

- **Sales 2% below the prior-year figure at €5,292 million, largely from negative currency effects**
- **Considerable decline in EBIT before special items, primarily as a result of lower margins and higher fixed costs**

Sales to third parties in the Dispersions & Pigments division amounted to €5,292 million, €106 million below the prior-year level. This was mainly due to negative currency effects in almost all regions. Sales were also reduced by the divestiture of the production site for styrene butadiene-based paper dispersions in Pischelsdorf, Austria. The slight increase in prices, especially in the dispersions and resins businesses, was unable to compensate for this. Volumes were on a level with the prior year. Higher sales volumes in the dispersions business in Europe and North America as well as in the electronic materials business were offset by lower volumes in the additives and pigments businesses as a result of stronger competition and in the resins business due to raw materials shortages.

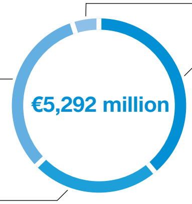
Dispersions & Pigments – Factors influencing sales

Volumes	0%
Prices	2%
Portfolio	(1%)
Currencies	(3%)
Sales	**(2%)**



Dispersions & Pigments – Sales by region

Location of customer



EBIT before special items declined considerably compared with 2017. This was mainly due to lower margins as a result of the increase in raw materials prices, negative currency effects and higher fixed costs. In 2017, fixed costs were partly offset by an insurance refund; in 2018, additional fixed costs arose in connection with new production facilities in Ludwigshafen, Germany, and a new electronic materials plant in Yeosu, South Korea.

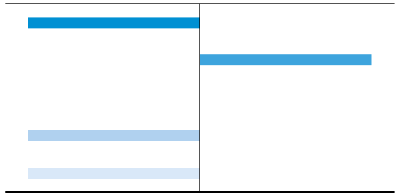
Care Chemicals

- **Sales decline 3% to €4,913 million due to lower volumes and currency effects**
- **Considerable increase in EBIT before special items, primarily from higher margins**

In the Care Chemicals division, sales to third parties declined by €166 million to €4,913 million in 2018. This was attributable to lower sales volumes, especially for oleochemical surfactants and fatty alcohols and in the hygiene business, as well as negative currency effects. By contrast, sales were positively impacted by higher prices in almost all business areas.

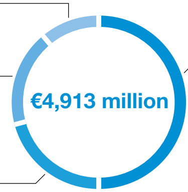
Care Chemicals – Factors influencing sales

Volumes	(3%)
Prices	3%
Portfolio	0%
Currencies	(3%)
Sales	**(3%)**



Care Chemicals – Sales by region

Location of customer



EBIT before special items increased considerably compared with 2017. This was mainly due to higher margins for products for the cosmetics industry, especially for oleochemical surfactants and fatty alcohols. Fixed costs declined slightly as a result of currency effects, insurance refunds and successful restructuring measures, especially in North America.

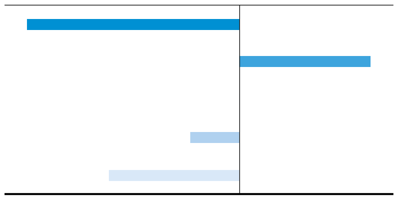
Nutrition & Health

- **Sales down 8% year on year at €1,696 million, largely as a result of lower product availability**
- **EBIT before special items considerably above the 2017 figure due to lower fixed costs and higher margins**

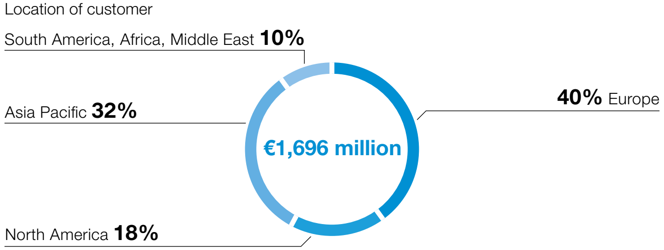
In the Nutrition & Health division, sales to third parties declined by €148 million to €1,696 million in 2018. This was mainly attributable to lower volumes from the reduced availability of citral-based products. In October 2017, a fire occurred during startup of the citral plant in Ludwigshafen, Germany. As a result, we had to declare Force Majeure for all citral and isoprenol-based aroma ingredients, and consequently for vitamin A, vitamin E and several carotenoid products as well. We were able to gradually lift Force Majeure for almost all affected products in 2018. Sales were weighed down by negative currency effects. Higher sales prices had an offsetting effect.

Nutrition & Health – Factors influencing sales

Volumes	(13%)
Prices	8%
Portfolio	0%
Currencies	(3%)
Sales	**(8%)**



Nutrition & Health – Sales by region



EBIT before special items increased considerably compared with 2017. Insurance refunds for production outages in 2017 and 2018 led to lower fixed costs. Despite higher raw materials prices, we achieved higher margins in the animal nutrition business in particular.

The citral plant in Ludwigshafen, Germany, was restarted in April 2018. We started production of citral, citronellol and menthol at our new aroma ingredients complex in Kuantan, Malaysia.

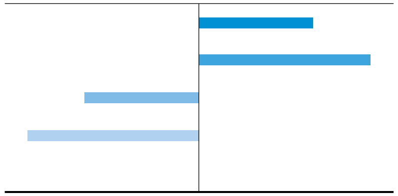
Performance Chemicals

- **Sales of €3,911 million at prior-year level**
- **EBIT before special items slightly below previous year, mainly due to lower margins**

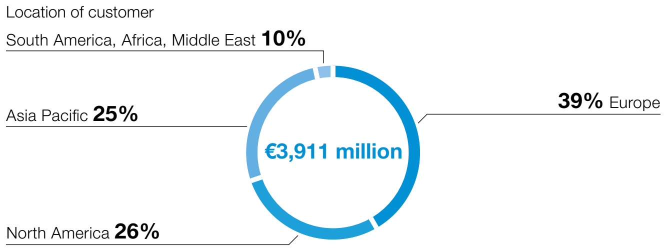
At €3,911 million, sales to third parties in the Performance Chemicals division were on a level with the previous year. Sales were positively impacted by higher sales prices in all regions and almost all business areas, as well as higher volumes in the oilfield and mining chemicals and lubricant and plastic additives businesses. Negative currency effects, mainly from the U.S. dollar, and the transfer of BASF's leather chemicals business to the Stahl group dampened sales development.

Performance Chemicals – Factors influencing sales

Volumes	2%
Prices	3%
Portfolio	(2%)
Currencies	(3%)
Sales	**0%**



Performance Chemicals – Sales by region



EBIT before special items declined slightly compared with the previous year. This was mainly attributable to lower margins, in particular as a result of negative currency effects. Fixed costs were at the prior-year level.

Functional Materials & Solutions

The Functional Materials & Solutions segment comprises the Catalysts, Construction Chemicals, Coatings, and Performance Materials divisions. They develop and market system solutions, services and innovative products for specific sectors and customers, particularly for the automotive, electronics, chemical and construction industries as well as for household applications, sports and leisure.

Divisions

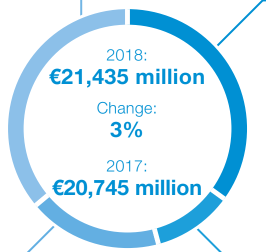
Catalysts
Automotive and process catalysts, battery materials, precious metal trading

Construction Chemicals
Solutions for building structure and envelopes, interior construction and infrastructure

Coatings
Coatings solutions, surface treatments, decorative paints

Performance Materials
Polyurethanes, thermoplastics and foams

Sales



Performance Materials
€7,654 million
Change: **–1%**
Percentage of sales: **36%**

Catalysts
€7,469 million
Change: **12%**
Percentage of sales: **35%**

Coatings
€3,856 million
Change: **–3%**
Percentage of sales: **18%**

Construction Chemicals
€2,456 million
Change: **2%**
Percentage of sales: **11%**

Factors influencing sales

Volumes	2%
Prices	5%
Portfolio	0%
Currencies	(4%)
Sales	**3%**

Income from operations before special items

Million €	
2018	**1,307**
2017	1,617

Change: **–€310 million**

Strategy

- **Development of innovative products and technologies in close collaboration with our customers**
- **Focus on specialties and system solutions that allow our customers to stand out from the competition**

We develop innovative products and technologies in close cooperation with our customers. Our aim is to find the best solution in terms of cost and functionality, helping our customers to drive forward innovation in their industries and contribute to sustainable development. For instance, the transformation of mobility is a key trend in the automotive industry. To address this, we are developing solutions in the areas of battery materials, emission control, lightweight engineering concepts and coatings together with our customers. Our specialties and system solutions enable customers to stand out from the competition.

We aim to continuously optimize our product and services portfolio and our structures according to different regional market requirements as well as trends in our customer industries.

The focus is on securing our leading market position in Europe, profitably expanding our position in the North American market and purposefully extending our activities in the growth regions of Asia, South America, eastern Europe and the Middle East. New business fields such as battery materials play a particularly important role here. On October 22, 2018, we announced that Harjavalta, Finland, will be the location of our first site to produce battery materials for the European automotive market. The plant will be constructed adjacent to the nickel and cobalt refinery owned by Norilsk Nickel (Nornickel). BASF and Nornickel have signed a long-term, market-based supply agreement for nickel and cobalt from Nornickel's metal refinery. With the investment, BASF will be present in all major regions with local production and increased customer proximity.

How we create value – an example

Novel diesel oxidation catalyst (DOC)

Efficient design for removing hydrocarbons and carbon monoxide with lower consumption of precious metals

Value for BASF

Enabled business wins since first introduction in 2015 with a value of

>€700 million

Value for our customers and the environment

Meets the latest emission regulations while reducing precious metal consumption by

≥25%

Diesel oxidation catalysts (DOC) reduce the emissions of heavy duty diesel engines by removing hydrocarbons and carbon monoxide from the exhaust. Furthermore, they provide the functionality to facilitate the removal of soot and nitrogen oxides by the downstream soot filter and the selective catalytic reduction catalyst. BASF has developed a novel DOC design to better utilize the precious metals of such catalysts, while significantly improving the catalysts' performance. Since its first introduction in 2015, the technology has been continuously further developed and has enabled business wins of more than €700 million.

The novel DOC design is used on-road in all major markets and thus provides a significant benefit for air quality and fuel economy. With our DOC catalyst in the front of the emission control system, it is possible to meet the most stringent of current emission control regulations such as US HDD 2010 (United States), EUVI (Europe), NSVI (China) and BSVI (India). The technology not only reduces precious metal consumption by at least 25%, but also significantly broadens the temperature region to implement removal of soot and prevent build-up of back pressure on the engine, thereby reducing fuel consumption.

On September 18, 2017, we signed an agreement with Solvay on the acquisition of Solvay's integrated polyamide business.

For more information on the current status of the agreement with Solvay, see page 42

We are also evaluating strategic options for our construction chemicals business to ensure the successful and profitable development of the business area in the long term, and to take advantage of opportunities in the market. The outcome of this review is open. We are considering the possibility of merging with a strong partner as well as the option of a divestiture. We strive to sign an agreement in 2019.

Products, customers and applications

Division	Products	Customer industries and applications
Catalysts	Automotive catalysts, process catalysts and technologies Battery materials Precious and base metal services	Automotive and chemical industries, refineries, battery manufacturers, solutions for the protection of air quality as well as the production of fuels, chemicals, plastics and battery materials
Construction Chemicals	Concrete admixtures, cement additives, underground construction solutions, flooring systems, sealants, solutions for the protection and repair of concrete, high-performance mortars and grouts, tile-laying systems, exterior insulation and finishing systems, expansion joints, wood protection	Cement and concrete producers, construction companies, craftspeople, builders' merchants, solutions for new building construction, maintenance, repair and renovation of commercial and residential buildings as well as infrastructure
Coatings	Coatings solutions for automotive applications, technology and system solutions for surface treatments, decorative paints	Automotive industry, body shops, steel industry, aviation, aluminum applications in the architecture and construction industries, household appliances, painting businesses and private consumers
Performance Materials	Engineering plastics, biodegradable plastics, standard foams, foam specialties, polyurethanes	Automotive manufacture, electrical engineering, packaging, games, sports and leisure, household, mechanical engineering, construction, medical technology, sanitation and water industry, solar thermal energy and photovoltaics

Investments

Location	Project	Startup
Brighton, Colorado	Capacity expansion: plant for sealants	2019
Dahej, India	Capacity expansion: for Cellasto®	2019
Gimcheon, South Korea	Construction: plant for Ultraform®	2018
Greenville, Ohio	Capacity expansion: resin plant	2019
Hamm, Germany	Capacity expansion: logistics for floor installation systems	2019
Harjavalta, Finland	Construction: battery materials plant for the automotive market	2018
Langelsheim, Germany	Capacity expansion: for Naftoseal® aircraft sealants	2019
Ludwigshafen, Germany	Construction: specialty zeolites plant for emissions catalysts	2019
Münster, Germany	Construction: modular laboratory for automotive OEM coatings	2018
	Construction: plant for functional film coatings	2019
	Construction: laboratory building for automotive coatings	2020
Pinghu, China	New surface treatment site	2021
Rayong, Thailand	Construction: plant for automotive emissions catalysts	2018
Shanghai, China	Construction: technical competence center for automotive coatings	2018
	Construction: plant for mobile emissions catalysts	2019
Środa Śląska, Poland	Capacity expansion: plant for emissions catalysts	2020
Tultitlán, Mexico	Capacity expansion: automotive coatings plant	2019

Segment data – Functional Materials & Solutions

Million €

		2018	2017	+/–
Sales to third parties		21,435	20,745	3%
of which Catalysts		7,469	6,658	12%
Construction Chemicals		2,456	2,412	2%
Coatings		3,856	3,969	(3%)
Performance Materials		7,654	7,706	(1%)
Intersegment transfers		837	805	4%
Sales including intersegment transfers		22,272	21,550	3%
Income from operations before depreciation and amortization (EBITDA)		1,917	2,251	(15%)
EBITDA margin	%	8.9	10.9	–
Depreciation and amortization[1]		682	706	(3%)
Income from operations (EBIT)		1,235	1,545	(20%)
Special items		(72)	(72)	–
EBIT before special items		1,307	1,617	(19%)
EBIT after cost of capital		(512)	(190)	.
Assets		17,654	17,364	2%
Investments including acquisitions[2]		872	1,056	(17%)
Research and development expenses		412	431	(4%)

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
2 Additions to intangible assets and property, plant and equipment

Functional Materials & Solutions segment

- **Sales growth of 3% to €21,435 million from higher prices and volumes**
- **EBIT before special items declines 19% to €1,307 million, primarily due to lower margins and increase in fixed costs**

Sales to third parties in the Functional Materials & Solutions segment grew by €690 million to €21,435 million, especially in Catalysts. This was mainly attributable to higher prices in all divisions. Volumes also increased. Sales were reduced by currency effects (volumes 2%, prices 5%, portfolio 0%, currencies –4%).

Income from operations (EBIT) before special items was €1,307 million, down €310 million from the 2017 figure. This was mainly driven by lower margins as a result of the increase in raw materials prices and higher fixed costs. EBIT declined by €310 million to €1,235 million in 2018. Overall, special items did not have a substantial impact.

Catalysts

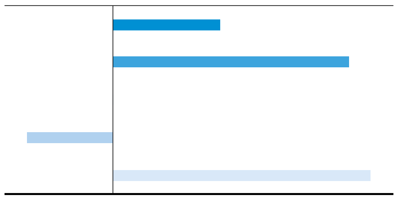
- **Sales increase of 12% to €7,469 million mainly driven by higher prices**
- **EBIT before special items slightly higher, largely as a result of volumes growth**

The Catalysts division increased sales to third parties by €811 million to €7,469 million in 2018. This was largely attributable to higher sales prices on the back of an increase in precious metal prices. Our sales volumes also increased. This was dampened by currency effects.

We recorded considerable volumes growth in the chemical catalysts, battery materials and refining catalysts businesses. By contrast, sales volumes declined for automotive catalysts, especially in Europe. In precious metal trading, sales rose considerably by €672 million to €3,190 million, primarily due to higher prices and volumes.

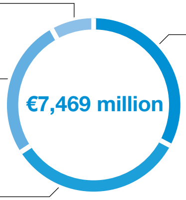
Catalysts – Factors influencing sales

Volumes	5%
Prices	11%
Portfolio	0%
Currencies	(4%)
Sales	**12%**



Catalysts – Sales by region

Location of customer



EBIT before special items was slightly above the prior-year figure, mainly owing to higher sales volumes. Fixed costs increased due among other factors to the startup of new plants in the chemical catalysts, automotive catalysts and battery materials businesses.

Construction Chemicals

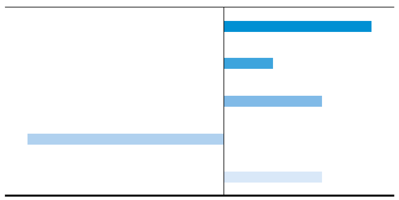
- **Sales 2% above previous year at €2,456 million, primarily due to higher volumes**
- **EBIT before special items slightly lower, mainly from softer margins**

In the Construction Chemicals division, we increased sales to third parties by €44 million compared with the previous year to €2,456 million. This was largely driven by higher sales volumes. The acquisition of Grupo Thermotek, Monterrey, Mexico, in September 2017 and higher prices also contributed to the increase in sales. By contrast, currency effects had a negative impact in all regions.

Higher volumes and prices led to sales growth in Europe, while in North America, the increase was attributable to the Thermotek acquisition and higher sales volumes. In Asia, higher volumes and prices were unable to completely offset the negative currency effects. Despite volumes growth, negative currency effects pushed down sales in the region South America, Africa, Middle East.

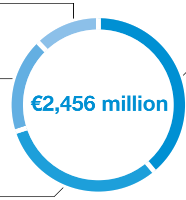
Construction Chemicals – Factors influencing sales

Volumes	3%
Prices	1%
Portfolio	2%
Currencies	(4%)
Sales	**2%**



Construction Chemicals – Sales by region

Location of customer



Although sales volumes rose and fixed costs declined, mainly as a result of currency effects, EBIT before special items was slightly below the 2017 figure. This was primarily attributable to lower margins.

Coatings

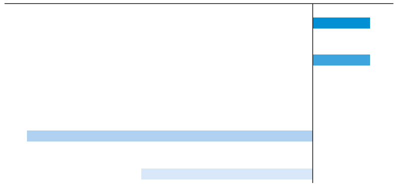
- **Sales decline 3% to €3,856 million as a result of negative currency effects**
- **EBIT before special items considerably below prior-year figure, mainly due to higher fixed costs and lower margins**

Sales to third parties in the Coatings division declined by €113 million to €3,856 million in 2018. This was attributable to negative currency effects in all regions, especially in South America. Sales were positively impacted by higher volumes and prices.

Despite slightly higher volumes, particularly in Asia and North America, sales of automotive OEM coatings declined due to negative currency effects in all regions. We recorded sales growth in the automotive refinish coatings business as negative currency effects were more than offset by higher sales volumes in Asia, North America and Europe, and higher prices. Sales in the decorative paints business in Brazil were considerably below the prior-year figure, with significantly higher sales prices unable to compensate for strongly negative currency effects and slightly weaker demand. We increased sales in the surface treatments business. Higher sales volumes in all regions compensated for negative currency effects.

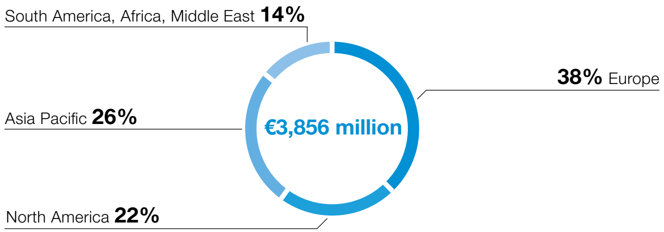
Coatings – Factors influencing sales

Volumes	1%
Prices	1%
Portfolio	0%
Currencies	(5%)
Sales	**(3%)**



Coatings – Sales by region

Location of customer



EBIT before special items declined considerably. This was mainly due to higher fixed costs, largely as a result of higher personnel costs and integration costs for the Chemetall business, as well as lower margins from the increase in raw materials prices.

In September 2018, we opened a new laboratory for automotive OEM coatings in Münster, Germany, with a focus on optimized, digital and transparent processes as well as using resources efficiently.

Performance Materials

- **Sales of €7,654 million, down 1% from the previous year due to currency effects and lower volumes**
- **Considerable year-on-year decrease in EBIT before special items, mainly as a result of lower margins**

At €7,654 million, sales to third parties in the Performance Materials division in 2018 were €52 million below the prior-year level. Price increases due to significantly higher raw materials prices, particularly in the first half of 2018, were unable to completely offset the negative currency effects in all regions and business areas, as well as slightly lower volumes. Sales volumes declined, primarily as a result of weaker demand from the construction and consumer goods industries.

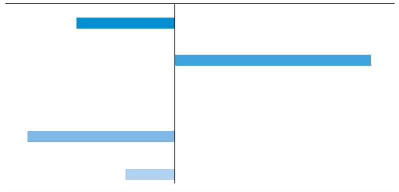
Sales to the automotive industry rose slightly due to higher prices, in particular for engineering plastics in Asia and Europe. Volumes declined slightly overall. While higher volumes contributed to sales growth in South America, demand in Europe, Asia and North America remained below the prior-year level, especially for polyurethane systems.

Sales in the consumer goods industry decreased slightly. As well as currency effects, this was mainly attributable to lower demand for polyurethane systems, particularly in Europe. This could not be completely offset by higher volumes in our engineering plastics and specialty businesses and higher prices.

Sales to the construction industry declined slightly due to lower volumes and currency effects. Although we achieved higher sales prices overall in the polyurethane systems business, demand was down from the prior-year level, especially in Europe. Scheduled plant turnarounds in the first half of 2018 also reduced sales volumes in the styrene foams business.

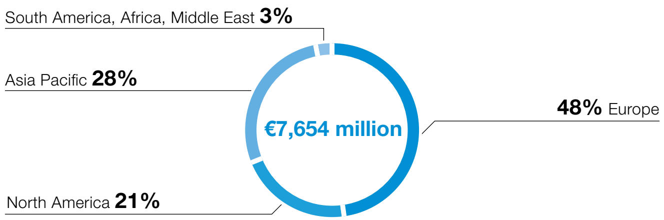
Performance Materials – Factors influencing sales

Volumes	(2%)
Prices	4%
Portfolio	0%
Currencies	(3%)
Sales	**(1%)**



Performance Materials – Sales by region

Location of customer



EBIT before special items was considerably below the prior-year level. This was mainly attributable to lower margins. The increase in raw materials prices could only be partly offset by higher sales prices. Fixed costs rose slightly. Higher expenses, especially from the startup of new plants for thermoplastic polyurethanes, Ultraform® and Ultrason®, were partly offset by insurance refunds, mainly for production outages.

Agricultural Solutions

The Agricultural Solutions segment consists of the division of the same name. We develop and produce innovative solutions to improve crop health and yields, and market them worldwide.

Indications and sectors

Fungicides
Protecting crops against harmful fungal diseases

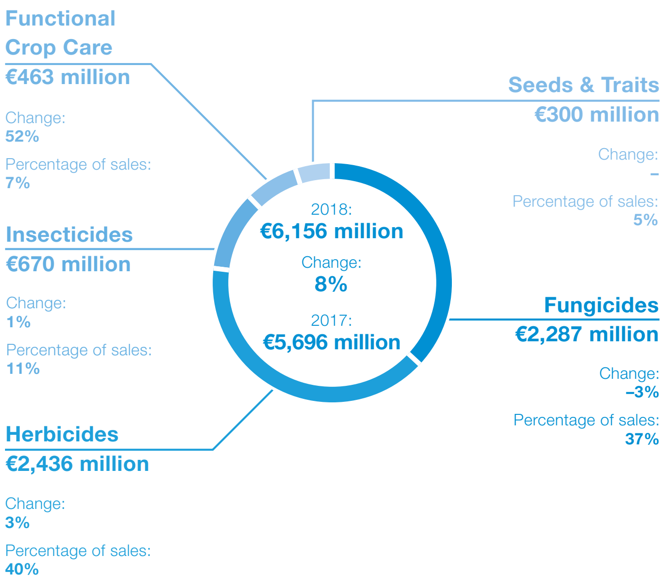
Herbicides
Reducing competition from weeds for water and nutrients

Insecticides
Combating insect pests in agriculture and beyond

Functional Crop Care
Biological crop protection, seed treatment, polymers and colorants

Seeds & Traits
Optimization and development of seeds and new traits

Sales



Factors influencing sales

Volumes	1%
Prices	4%
Portfolio	10%
Currencies	(7%)
Sales	**8%**

Income from operations before special items

Million €	
2018	**734**
2017	1,033

Change: **–€299 million**

Strategy

- **Integrated provider of crop protection and biotechnology products, seeds for selected field crops and vegetables, and digital farming**
- **Long-term innovation strategy ensures future growth**
- **Development of solutions that go beyond conventional crop protection**

Natural resources such as land and arable area are limited, while the world's population and its demand for food continue to grow. This means that farmers around the world face the challenge of increasing their crop yields. We offer our customers innovative solutions combined with practical, down-to-earth advice to support them in the efficient and safe production of high-quality crops over the long term.

In August 2018, we closed the acquisition of a range of businesses and assets from Bayer to be able to provide farmers with an even wider range of solutions in the future, and to better meet the growing demand for high-quality seeds as well as chemical and biological crop protection. The acquisition is a strategic complement to our crop protection, biotechnology and digital farming activities. At the same time, it marks our entry into the seed business for key field crops and vegetables, as well as non-selective herbicides and nematicide seed treatments. With the transaction, our portfolio now also includes the global glufosinate-ammonium non-selective herbicide business, which is marketed under the Liberty®, Basta® and Finale® brands. The seed businesses comprise traits, research and breeding capabilities as well as the corresponding brands for key field crops in selected markets. These include canola hybrids in North America under the InVigor® brand with LibertyLink® trait technology, as well as the oilseed rape business mainly in European markets, cotton in the Americas and Europe, and soybean in the Americas. We also acquired the R&D platform for hybrid wheat,[1] a range of seed treatment products, certain glyphosate-based herbicides in Europe used predominantly for industrial applications, xarvio® digital farming solutions and other non-selective herbicide and nematicide research projects. We are committed to ensuring the responsible use of our products and the preservation of a healthy environment. We also invest continuously in our development pipeline to provide our customers an increasingly wide range of integrated offers. The combination of our existing activities and the acquired businesses increases our innovation potential and strengthens our market position and competitiveness in the long term.

For more information on our R&D activities, see Research and development on page 82

The success of our customers depends on many factors such as weather, plant health, soil conditions and prices for agricultural produce. Modern farmers have to analyze more and more data of

1 Reported under Other

How we create value – an example

InVigor®

Patented pod shatter reduction technology for canola/oilseed rape seed pods enabling innovative yield protection and greater harvesting flexibility for growers

Value for BASF

Market share of InVigor® seed portfolio in main markets of North America

>55%

Value for customers

Yield improvement for growers of

>5%

InVigor® hybrids with pod shatter reduction (PSR) technology are an innovative solution for minimizing lost yield due to seed pods splitting open and seeds prematurely falling out. The first canola hybrids with patented PSR technology from the newly acquired seed business were launched on the Canadian market in 2014. By 2019, more than half of BASF's InVigor® product line-up in the United States, Canada and Australia will contain the PSR feature. The market share of the InVigor® seed portfolio in its main markets of North America is greater than 55% and popularity in Australia is increasing rapidly.

The patented PSR technology in InVigor® hybrid canola continues to revolutionize the way canola growers approach their season. The PSR feature naturally strengthens the pod seam and connective tissue, reducing premature seed losses prior to harvest. It offers the flexibility to harvest canola by straight cutting, therefore allowing the pod to fill for a longer period of time and providing a yield increase of over 5%.

increasing complexity to make the right cultivation decisions. BASF's innovative digital applications help our customers to use this data to their advantage, supporting better decision-making and ensuring more efficient and sustainable resource allocation. The acquisition of xarvio® digital farming solutions complements our digital offering with novel products with additional functionalities and access to new technologies.

Investments

Capital expenditures (capex) amounted to €157 million in 2018. Major projects included the startup of new production capacities for our fungicide Revysol® in Hannibal, Missouri, and our insecticide Inscalis® in Elbeuf, France, as well as modernization measures at plants in North America and Europe. A state-of-the-art global breeding station for the vegetable seeds business was opened at the Nunhem site in the Netherlands. We also invested in plant infrastructure in North America and research and development in Limburgerhof, Germany. To meet the continuing high demand for our innovative solutions in the future, we will invest around €1,270 million in developing and expanding our infrastructure and in our production and formulation capacities for active ingredients between 2019 and 2023. This increase in investment is driven by the expansion of production capacities for the planned market launches of a large number of products from our crop protection pipeline, as well as for the acquired businesses.

Research and development

In 2018, we invested €679 million in research and development in the Agricultural Solutions division, representing around 11% of sales for the segment. Our well-stocked innovation pipeline comprises products with a launch date between 2018 and 2028. With a peak sales potential[1] of more than €6 billion, the pipeline includes innovations from all business areas. The expanded research and development activities in the Agricultural Solutions division range from seeds, including traits, research and breeding capacities, and solutions to protect plants against fungal diseases, insect pests and weeds, to improved soil management and plant health.

With the acquisition of the Bayer businesses in 2018, our team grew by approximately 1,600 research and development employees at 17 locations worldwide. We expanded our biotechnology activities and our research and development capabilities considerably – from advanced breeding techniques, analytics, technology platforms and trait validation to specific discovery expertise. These are closely aligned with further activities in the field of biotechnology, which remain part of BASF's Bioscience Research unit. Research and development expenses, sales, earnings and all other data for BASF's Bioscience Research unit are not reported in the Agricultural Solutions segment; they continue to be reported under Other.

Our combined, complementary seeds and traits research and development activities across field crops and vegetables ensure even better innovation capabilities and scale while positioning us to seize future market opportunities and increase our competitiveness. With our expanded network of research sites, new seed breeding and production facilities, we help farmers meet the growing demand for increased agricultural productivity and better nutrition. With a pioneering platform for gene identification, we have specialized in the development of plant characteristics, such as higher yield, herbicide tolerance, disease resistance, drought tolerance and quality traits. Our goal is to optimize crops so that farmers can achieve greater and more secure yields. In this way, we make an important contribution to securing a better food supply for a growing world population. We also contribute to sustainable agriculture, as the cultivation of these plants significantly reduces the amount of land, water and energy required for food production.

Products, customers and applications

Indications and sectors	Applications	Example products
Fungicides	Protecting crops from harmful fungal diseases; improving plant health	AgCelence® (umbrella brand), boscalid, dimethomorph, F 500®, Initium®, metiram, metrafenone, Xemium®
Herbicides	Reducing competition from weeds for water and nutrients	Basta®, Clearfield®, dimethenamid-P, Engenia®, Finale®, imazamox, Kixor®, Liberty®, pendimethalin, topramezone
Insecticides	Combating insect pests in agriculture and beyond, such as in the fields of public health, professional pest control and landscape maintenance	Alpha-cypermethrin, chlorfenapyr, fipronil, Inscalis®, Interceptor®, Nealta®, teflubenzuron, Termidor®
Functional Crop Care	Products for plant health and increased yield potential that go beyond traditional crop protection, such as biological crop protection, seed treatments, polymers and colorants	COPeO®, Flo Rite®, ILeVO®, Integral®, Limus®, Nodulator® PRO, PONCHO®, Serifel®, Systiva®, Vault® HP, Velondis®, Vizura®, VOTiVO®
Seeds & Traits	Seeds and traits for key field crops such as canola (oilseed rape), cotton, soybean and wheat, as well as vegetable seeds	Credenz®, FiberMax®, InVigor®, LibertyLink®, Nunhems®, Stoneville®

1 Peak sales describes the highest sales value to be expected in one year. For more information, see the Glossary on page 288

Segment data – Agricultural Solutions

Million €

		2018	2017	+/–
Sales to third parties		6,156	5,696	8%
Intersegment transfers		58	36	61%
Sales including intersegment transfers		6,214	5,732	8%
Income from operations before depreciation and amortization (EBITDA)		985	1,282	(23%)
EBITDA margin	%	16.0	22.5	–
Depreciation and amortization[1]		394	267	48%
Income from operations (EBIT)		591	1,015	(42%)
Special items		(143)	(18)	.
EBIT before special items		734	1,033	(29%)
EBIT after cost of capital		(562)	171	.
Assets		16,992	8,096	110%
Investments including acquisitions[2]		7,110	185	.
Research and development expenses		679	507	34%

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
2 Additions to intangible assets and property, plant and equipment

Agricultural Solutions segment

- **Sales improve by 8% to €6,156 million due to portfolio effects, higher prices and increased volumes**
- **EBIT before special items down 29% year on year at €734 million as a result of negative currency effects and the negative contribution from the acquired businesses**

The Agricultural Solutions segment increased sales to third parties by €460 million to €6,156 million in 2018. The addition of the businesses and assets acquired from Bayer in August 2018 made a significant contribution. A higher price level and growth in sales volumes also contributed to the positive year-on-year sales development. In a continuing difficult market environment, strongly negative currency effects dampened sales in all regions.

Sales in **Europe** were €39 million higher than in the previous year, at €2,022 million. This was attributable to the acquired businesses and higher sales volumes in almost all indications, despite the extreme weather conditions and long dry period. Sales development was dampened by negative currency effects, particularly in eastern Europe and Turkey.

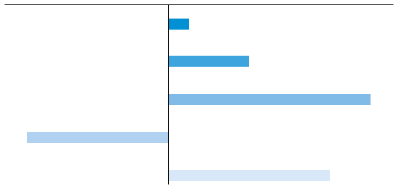
We increased sales in **North America** by €163 million to €2,166 million. The acquired businesses and a higher price level more than compensated for the negative currency effects. Lower volumes, especially for fungicides in Canada and the United States, also had an offsetting effect.

At €645 million, sales in **Asia** exceeded the prior-year figure by €63 million. We achieved volumes growth in all indications, particularly fungicides. The acquired businesses and a higher price level also contributed to the sales increase. Negative currency effects reduced sales development considerably.

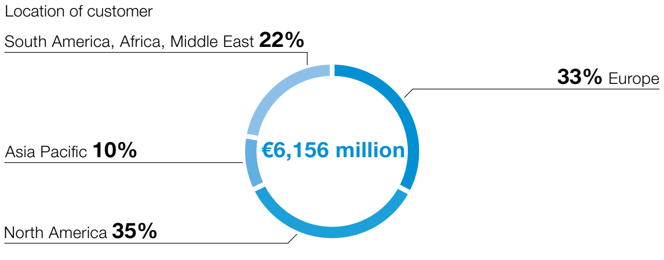
In the region **South America, Africa, Middle East**, sales rose by €195 million to €1,323 million. The increase was largely driven by a higher price level and the contribution of the acquired businesses. Especially for fungicides in Brazil, sales volumes increased considerably. Negative currency effects had an offsetting impact.

Agricultural Solutions – Factors influencing sales

Volumes	1%
Prices	4%
Portfolio	10%
Currencies	(7%)
Sales	**8%**



Agricultural Solutions – Sales by region



Income from operations (EBIT) before special items was €734 million, down €299 million from the prior-year figure. This was attributable to negative currency effects in all regions, as well as the strongly negative contribution from the acquired businesses due to the late, intrayear timing of the transaction, the seasonality of the business as well as costs for integrating the businesses into the BASF Group. EBIT decreased by €424 million to €591 million. Special items primarily arose from the acquisition.

Other

Financial data – Other[1]

Million €	2018	2017	+/–
Sales	2,771	2,234	24%
Income from operations before depreciation and amortization (EBITDA)	(373)	(569)	34%
Depreciation and amortization[2]	118	122	(3%)
Income from operations (EBIT)	(491)	(691)	29%
Special items	(41)	(37)	(11%)
EBIT before special items	(450)	(654)	31%
of which Costs for cross-divisional corporate research	(414)	(379)	(9%)
Costs of corporate headquarters	(249)	(224)	(11%)
Other businesses	43	60	(28%)
Foreign currency results, hedging and other measurement effects	327	88	267%
Miscellaneous income and expenses	(157)	(199)	22%
Assets[3]	23,743	25,643	(7%)
Investments including acquisitions[4]	663	1,174	(44%)
Research and development expenses	414	382	8%

1 Information on the composition of Other can be found in the Notes to the Consolidated Financial Statements from page 212 onward.
2 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
3 Contains assets of businesses recognized under Other as well as reconciliation to assets of the BASF Group including the disposal group for the oil and gas business.
4 Additions to intangible assets and property, plant and equipment

Sales in Other rose by €537 million compared with 2017 to €2,771 million, mainly as a result of higher sales volumes in the raw materials trading business.

At minus €450 million, income from operations before special items in Other was up €204 million from the prior-year figure. This was largely attributable to valuation effects for our long-term incentive program.

Discontinued Oil and Gas Business

Financial data[1]

Million €

	2018	2017	+/–
Sales to third parties	4,094	3,252	26%
Income from operations before depreciation and amortization (EBITDA)	2,350	1,959	20%
Income from operations (EBIT)[2]	1,733	935	85%
Special items	(12)	252	.
EBIT before special items[2]	1,745	683	155%
Financial result	(19)	(17)	(12%)
Income taxes	(885)	(158)	.
Income after taxes from discontinued operations	829	760	9%
Assets	14,088	11,967	18%
Investments including acquisitions[3]	1,062	988	7%

1 For more information, see Note 2.5 to the Consolidated Financial Statements from page 209 onward and Supplementary Information on the Oil and Gas Business from page 269 onward
2 2018 figure only includes depreciation and amortization for the first three quarters
3 Additions to intangible assets and property, plant and equipment and to the corresponding positions in the disposal group

Agreement with LetterOne

On September 27, 2018, BASF and LetterOne signed a definitive agreement to merge their oil and gas businesses in a joint venture, which will operate under the name Wintershall DEA. In 2017, the combined business of Wintershall and DEA had pro forma sales of €4.7 billion, income from operations before depreciation and amortization (EBITDA) of €2.8 billion and net income of €740 million. Closing of the transaction is expected in the first half of 2019, subject to the approvals of merger control and foreign investment authorities as well as mining authorities and the German Federal Network Agency. Until closing, Wintershall and DEA will continue to operate as independent companies.

The signing of the agreement has an immediate effect on the reporting of BASF Group: The sales and EBIT of the oil and gas business are no longer included in the respective figures for the BASF Group – retroactively as of January 1, 2018, and with the prior-year figures restated. Until closing, the Wintershall Group's income after taxes will be presented in the income after taxes of the BASF Group as a separate item (income after taxes from discontinued operations). The assets and liabilities of the oil and gas business were reclassified to a disposal group as of the end of the third quarter of 2018, and have since been presented under Other. Depreciation and amortization of its assets and accounting according to the equity method were suspended from the signing date onward.

The gain from the change from full consolidation to the equity method will be shown in income after taxes from discontinued operations on closing. From closing, BASF will account for its share in the joint venture Wintershall DEA using the equity method and include its share of Wintershall DEA's net income in EBIT before special items and EBIT for the BASF Group (reported under Other).

Significant developments

BASF's oil and gas activities are bundled in the Wintershall Group. We focus on exploration and production in oil and gas-rich regions in Europe, North Africa, Russia, South America and the Middle East – core regions in which Wintershall has a high level of regional and technological expertise. We are also active in the transportation of natural gas in Europe with our Russian partner Gazprom.

Europe: In March 2018, we started operation of the first development project operated by Wintershall in Norway at the Maria oilfield in the Norwegian Sea. In addition, the Norwegian Ministry of Petroleum and Energy approved the development and operation plan for the Nova field (previously: Skarfjell) operated by Wintershall, which is scheduled to start production in 2021. Production at the Aasta Hansteen gas field in the Norwegian Sea, which is operated by Equinor, started in 2018. A Wintershall exploration well discovered another gas field near Aasta Hansteen and we are now investigating the possibilities of developing this find. In Germany, we successfully completed a 3D seismic survey at the Emlichheim concession in 2018 with the aim of maintaining the crude oil production plateau at the site, which has been in operation for over 70 years.

Russia: Achimgaz, a joint venture of Wintershall and Gazprom, celebrated its 15th anniversary in 2018 and achieved a new milestone, with total production reaching 30 billion cubic meters of natural gas. We are drawing on the experience gained with Achimgaz to drive forward the development of Blocks 4A and 5A of the Achimov formation in the Urengoy field in western Siberia in a joint venture, Achim Development.

Middle East: Wintershall will invest in oil and gas production in Abu Dhabi. An agreement to this effect was signed by Wintershall and the Abu Dhabi National Oil Company (ADNOC) in November 2018. Wintershall's 10% interest in ADNOC's Ghasha concession marks its entry into natural gas and condensate production in Abu Dhabi. According to ADNOC's planning, the project will start producing around the middle of the next decade, with initial daily production volumes expected to exceed 40 million cubic meters of natural gas.

South America: Wintershall was awarded seven offshore exploration licenses in Brazil's 15th oil and gas licensing round. The company will hold the operatorship for four of these licenses. Initial exploration activities in the allocated blocks will start in 2019. In Argentina, Wintershall Energía celebrated its 40th anniversary in 2018 with total production of around 26 million barrels of oil equivalent (BOE) per year. Shares in the Aguada Pichana Este concession in Argentina were sold on January 23, 2018.

Natural gas transportation: Pipe-laying work for the Nord Stream 2 pipeline project, which Wintershall is co-financing, started in 2018 and is progressing as planned. The European gas pipeline link (EUGAL) project – the connecting pipeline for Nord Stream 2 – is being implemented by GASCADE Gastransport GmbH as the lead developer. All of the necessary planning approvals have been issued and construction is on schedule.

Business development

Sales to third parties from our oil and gas activities were increased by €842 million year on year to €4,094 million in 2018. This was mainly due to higher prices. We also increased volumes, while currency effects had an offsetting effect.

The price of a barrel of Brent crude oil averaged $71 in 2018 (previous year: $54). Gas prices on the European spot markets rose by 32% compared with the previous year.

Income from operations (EBIT) before special items increased by €1,062 million to €1,745 million. In addition to higher oil and gas prices, we recorded volumes growth in Norway and Russia. EBIT rose by €798 million to €1,733 million. Depreciation and amortization of assets was suspended as of the end of the third quarter of 2018.

The tax expense rose following the improvement in income from operations. At €829 million, income after taxes from discontinued operations was €69 million above the prior-year figure.

For more information on the earnings contribution from the discontinued oil and gas business, see Note 2.5 to the Consolidated Financial Statements from page 209 onward

Regional Results

Regions

Million €

	Sales by location of company			Sales by location of customer			Income from operations by location of company		
	2018	**2017**	**+/–**	**2018**	**2017**	**+/–**	**2018**	**2017**	**+/–**
Europe	28,502	28,045	2%	26,546	26,507	0%	3,210	4,090	(22%)
of which Germany	18,113	18,663	(3%)	6,965	7,159	(3%)	1,140	1,838	(38%)
North America	16,659	15,937	5%	16,143	15,357	5%	802	1,236	(35%)
Asia Pacific	13,886	13,658	2%	14,646	14,343	2%	1,820	2,209	(18%)
South America, Africa, Middle East	3,628	3,583	1%	5,340	5,016	6%	201	52	287%
BASF Group	**62,675**	**61,223**	**2%**	**62,675**	**61,223**	**2%**	**6,033**	**7,587**	**(20%)**

Europe

- **Sales up 2% compared with 2017 at €28,502 million**
- **Investments strengthen businesses in growth industries and markets**

Sales at companies located in Europe rose by 2% year on year to €28,502 million. Higher prices more than compensated for the negative currency effects and lower volumes.

Higher prices led to slight sales growth in the Chemicals segment. Sales also rose slightly in the Agricultural Solutions segment as a result of portfolio effects and volumes growth. In the Functional Materials & Solutions segment, sales matched the prior-year level. Slight price improvements were offset by lower volumes and negative currency effects. By contrast, sales declined slightly in the Performance Products segment. Lower volumes and negative portfolio and currency effects could not be completely offset by higher prices.

Income from operations (EBIT) decreased by 22% compared with the previous year to €3,210 million due to considerably lower contributions from all segments, but especially from the Chemicals segment. The main drivers for the lower earnings in the Chemicals segment were higher raw materials prices, temporary plant shutdowns as well as the low water levels on the Rhine River. The lower contribution from the Agricultural Solutions segment was mainly attributable to the higher fixed costs from the acquisition of the Bayer businesses. Earnings were also negatively impacted by the long dry period. Softer margins had a significant influence on earnings development in the Functional Materials & Solutions and Performance Products segments.

We aim to strengthen our position in the European market though investments, for example in a production plant for battery materials in Harjavalta, Finland. This investment supports the European Commission's goal of establishing a European value chain for battery production.

North America

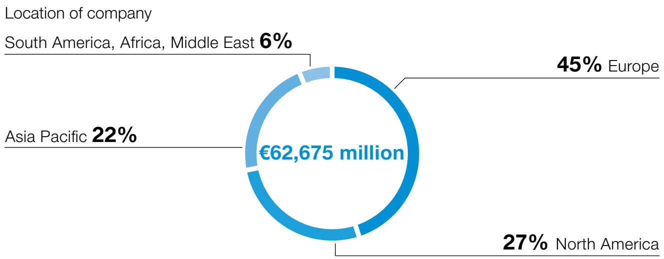
- **Sales growth of 5% year on year to €16,659 million**
- **Ongoing investments in production plants**

Sales at companies located in North America rose by 5% compared with 2017 to €16,659 million. In local currency terms, sales grew by 9%. This was largely due to higher sales prices in all segments. Sales were also positively impacted by portfolio effects, mainly from the acquisition of significant businesses from Bayer, and higher volumes, especially in the Functional Materials & Solutions segment. Currency effects dampened sales in all segments.

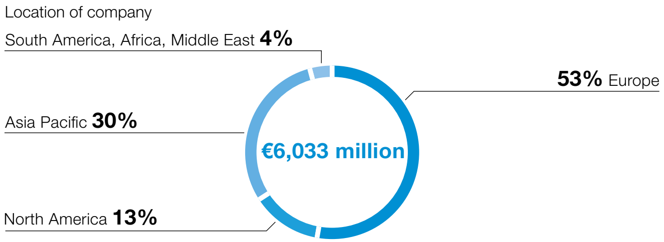
EBIT was down 35% from the 2017 figure, at €802 million. Earnings declined in the Agricultural Solutions segment in particular.

We further strengthened our position in the region with the acquisition of significant businesses from Bayer in the areas of seeds and non-selective herbicides. We aim to invest continuously in our production facilities. For example, we started up a new ammonia plant in Freeport, Texas, together with Yara International ASA, Oslo, Norway; are expanding production for ibuprofen in Bishop, Texas; and started construction of a new MDI synthesis unit in Geismar, Louisiana. We strengthened our global battery materials business with the formation of BASF Toda America LLC (BTA), a cooperation between BASF and Toda Kogyo Corp., Hiroshima, Japan. BTA produces state-of-the-art high energy cathode active materials close to our North American customers.

Sales by region



Income from operations by region



Asia Pacific

- **Sales 2% above prior-year level at €13,886 million**
- **Local production footprint expanded with new plants, including in South Korea and Malaysia**

Sales at companies headquartered in the Asia Pacific region rose by 2% to €13,886 million in 2018. In local currency terms, sales rose by 5% year on year. The positive development was mainly driven by the Functional Materials & Solutions segment. We also increased sales in the Agricultural Solutions segment.

All segments increased volumes; Functional Materials & Solutions and Performance Products also achieved higher prices. By contrast, sales were consistently weighed down by currency effects. Portfolio measures had no effect on sales development in 2018. The trade conflict between the United States and China dampened economic sentiment across Asia, leading to lower prices and volumes year on year in the fourth quarter of 2018.

EBIT in the region decreased by 18% year on year to €1,820 million. This was primarily due to the lower contribution from the Chemicals segment as a result of narrower margins in the isocyanates business, as well as for steam cracker products at our joint venture. Lower fixed costs were unable to compensate for these effects.

As part of our regional strategy, we aim to further increase the proportion of sales from local production in Asia Pacific. We once again made progress toward this goal: For instance, we started commercial production of polyoxymethylene (POM) in Gimcheon, South Korea, in October 2018. We started production of citral, citronellol and menthol at our new aroma ingredients complex in Kuantan, Malaysia.

Our investments in production facilities as well as in research and development serve to bring products to market for our local and global customers in this fast-growing region. We therefore plan to build an integrated Verbund site in Zhanjiang in the southern Chinese province of Guangdong and expand our existing joint venture with Sinopec in Nanjing, China.

South America, Africa, Middle East

- **Sales growth of 1% to €3,628 million**
- **Successful integration of acquired businesses in Agricultural Solutions segment**

Sales at companies located in the region South America, Africa, Middle East increased by 1% compared with 2017 to €3,628 million. In local currency terms, sales exceeded the prior-year figure by 17%.

In South America, the year was characterized by a slight economic recovery amid political uncertainty ahead of the presidential elections in Brazil. Weaker local currencies in Brazil and Argentina led to strongly negative currency effects. Against this background, our sales nevertheless rose as a result of higher prices, positive portfolio effects from the acquisition of significant businesses from Bayer and volumes growth. The Agricultural Solutions segment in particular increased volumes thanks to stronger demand. Sales volumes also rose in the Functional Materials & Solutions segment on the back of the recovery in the automotive industry. Volumes in the Performance Products segment were on a level with the prior year. By contrast, we recorded lower sales volumes in the Chemicals segment due to product shortages.

Companies in Africa and in the Middle East posted a considerable sales decrease. Lower volumes and negative currency effects were responsible for this development.

At €201 million, EBIT in the region South America, Africa, Middle East exceeded the prior-year figure by 287%. This was driven by improved earnings in the Agricultural Solutions segment as a result of higher demand, especially in Brazil, as well as the contribution from the acquired businesses.

Following the two-year recession in South America, which lasted until the end of 2016, our focus in 2018 was on increasing sales volumes and integrating the acquired businesses and assets in the Agricultural Solutions segment. We also continued the expansion of our sales channels to capture new customer segments, including with investments in digital platforms.

Responsible Conduct Along the Value Chain

Supplier Management

SUPPLIERS | BASF | CUSTOMERS

Our objective is to secure competitive advantages for BASF through professional procurement structures. Our suppliers are an important part of our value chain. Together with them, we aim to create value and minimize risks.

Strategy

- **Sustainability-oriented supply chain management**
- **New goal for sustainability evaluations of relevant spend**

Our partnerships with suppliers are based on mutual value creation, as well as a reliable supply of raw materials, technical goods and services at competitive prices. We work together in an open and transparent way to generate long-term benefits for both sides. In doing so, we create added value that goes above and beyond procurement alone, for example, by developing solutions to target market-specific customer requirements together with our suppliers. Our sustainability-oriented supply chain management contributes to risk management by clarifying our expectations and standards for our suppliers, and by supporting them in carrying out our requirements. We count on reliable supply relationships and want to make our suppliers' contribution to sustainable development transparent to us. That is why we have set ourselves the goal of evaluating the sustainability performance of 70% of the BASF Group's relevant suppliers[1] and developing action plans for any necessary improvements by 2020. The proportion of relevant suppliers evaluated by the end of 2018 was 60%. Due to the size and scale of our supplier portfolio, our suppliers are evaluated based on risk, including both country and industry-specific risks.

As part of the updated corporate strategy, we resolved in 2018 to step up our efforts to improve our sustainability performance along the supply chain in the future. To this end, we have expanded our sustainability evaluations of relevant suppliers and integrated these into a new goal to improve our sustainability performance in procurement: By 2025, we aim to have conducted sustainability evaluations for 90% of the BASF Group's relevant spend[2] and will develop action plans where improvement is necessary. We will work towards having 80% of suppliers improve their sustainability performance upon re-evaluation.

Worldwide procurement

Our more than 70,000 Tier 1 suppliers play a significant role in value creation at our company. We work in long-term partnership with companies from different industries around the world. They supply us with important raw materials, chemicals, investment goods and consumables, perform a range of services and are innovation partners. BASF acquired raw materials, goods and services for our own production totaling approximately €38.5 billion in value in 2018. There were no substantial changes to our supplier structure in 2018.

What we expect from our suppliers

- **Global Supplier Code of Conduct**

New suppliers are selected and existing suppliers are evaluated not only on the basis of economic criteria, but also environmental, social and corporate governance standards. Our Supplier Code of Conduct is founded on internationally recognized guidelines, such as the principles of the United Nations' Global Compact, the U.N. Guiding Principles on Business and Human Rights, the International Labor Organization (ILO) conventions and the topic areas of the Responsible Care initiative. The Code of Conduct covers compliance with human rights, labor and social standards, and antidiscrimination and anticorruption policies in addition to protecting the environment. We updated our Supplier Code of Conduct in 2018 in response to stricter requirements and new developments relating to the U.N. Guiding Principles on Business and Human Rights and the ILO. Issues such as modern slavery and human trafficking were incorporated, as well as our requirement that suppliers implement grievance mechanisms for their employees and stakeholders. We also added a reference to our own grievance mechanism – our compliance hotline, which suppliers and their employees can contact if they have questions or complaints. We are informing our existing suppliers of the updated Code of Conduct.

In 2018, we started the step-by-step rollout of a new registration portal for suppliers, in which our Code of Conduct is already integrated. This requires suppliers to commit to these values on registration. 4,866 suppliers did this and registered via the portal in 2018. A country-based risk analysis forms the basis of our selection process for new suppliers. Based on the country-related risks identified, we specifically asked suppliers in South America and Asia in particular to commit to the values of our Supplier Code of Conduct in 2018. Only those companies that have committed to our Code of Conduct actually became new suppliers.

Training and partnerships

In 2018, we continued our collaborations in relevant procurement markets such as China to instruct suppliers on sustainability standards. 116 suppliers received training in 2018 as part of a local partnership with the East China University of Science and Technology in Shanghai, for example. In addition, we instructed 962 BASF employees on sustainability-oriented supplier management and responsible procurement. These are ways in which poten-

1 We define relevant suppliers as Tier 1 suppliers showing an elevated sustainability risk potential as identified by our risk matrices and our purchasers' assessments. We also use further sources of information to identify relevant suppliers such as evaluations from Together for Sustainability (TfS), a joint initiative of chemical companies for sustainable supply chains.
2 We understand relevant spend as procurement volumes with relevant suppliers as defined above.

tial supply chain risks can be identified and minimized together with our suppliers.

BASF is one of 11 founding members of the German Business Initiative for Sustainable Value Chains established by the German sustainability network econsense and the Wittenberg Center for Global Ethics (WCGE). As part of this initiative, we help suppliers to improve their sustainability performance, for example, through training. The first supplier training events of the initiative were held in 2018 in China and Mexico.

In Brazil, we work together with the nongovernmental organization Integrare, which promotes diversity in supply chains. Integrare supports small and medium-sized businesses run by people with disabilities or socially disadvantaged minorities, for example, by offering special training and actively encouraging partnerships with larger companies.

For more information on decent work in global supply chains, see page 39

Evaluating our suppliers

- **Together for Sustainability initiative aims to harmonize and standardize supplier assessments and audits**

BASF is a founding member of the Together for Sustainability (TfS) initiative of leading chemical companies for the global standardization of supplier evaluations and auditing. With the help of TfS, we promote sustainability in the supply chain. The initiative aims to develop and implement a global program for the responsible supply of goods and services and improve suppliers' environmental and social standards. The evaluation process is simplified for both suppliers and TfS member companies by a globally uniform questionnaire. The 22 members of the initiative conducted a total of 3,767 sustainability assessments – including both initial and follow-up assessments – and 358 audits in 2018. In 2018, over 200 suppliers attended sustainability training in Shanghai as part of the TfS initiative. The initiative was named the "Best Third-Sector/Non-for-Profit Procurement Project" by the global Chartered Institute of Procurement Supply (CIPS) in September 2018.

Using TfS evaluations, we pursue a risk-oriented approach with clearly defined, BASF-specific follow-up processes. A total of 100 raw material supplier sites were audited on sustainability standards in 2018. We also received sustainability assessments for 546 suppliers from an external service provider. If we identify potential for improvement, we support suppliers in developing measures to fulfill our standards. We conduct another review according to a defined timeframe based on the sustainability risk measured. If the weak points discovered were particularly severe and we are unable to confirm any improvement, we reserve the right to terminate the business relationship. This did not occur in any case in 2018. We use this approach to evaluate suppliers with an elevated sustainability risk at least every five years. The approach itself is regularly reviewed to identify possibilities for optimization.

For more information on Together for Sustainability, see basf.com/en/together-for-sustainability

Audit results

The audits conducted over the past few years have identified some deviations with respect to environmental, social and corporate governance standards, for example in waste and wastewater management and relating to occupational safety, working hours and minimum wage. In the follow-up audits conducted in 2018, we found improvements in all areas. None of our 2018 audits identified instances of child labor. For the suppliers we reviewed, persons under 18 were excluded from overtime and dangerous work. We did not find any incidents of forced labor in 2018.

BASF undertook a thorough examination of the issues raised at platinum supplier Lonmin Plc, London, U.K., in connection with the events in Marikana, South Africa.[1] In 2018, we continued our regular dialog with both Lonmin and with local stakeholders, such as leading industry and human rights representatives. Topics discussed with Lonmin included the results of the follow-up audit, which we commissioned an internationally recognized audit firm to perform in 2017. This audit identified positive developments in several areas such as working standards, as well as a number of gaps, for example, not implementing a local, anonymous grievance mechanism. Lonmin introduced this in 2018. We will continue to monitor the audit process and maintain our dialog with Lonmin. In 2018, BASF played an active role in the establishment of a sector initiative by several precious metal processing companies. The initiative aims to improve the long-term situation in South Africa's platinum mining belt and tackle challenges together.

For more information on suppliers, see basf.com/suppliers

1 In 2012, an extended strike at a mine operated by Lonmin Plc, London, UK, in Marikana, South Africa, culminated in a violent confrontation between mine workers and armed South African police. Employees of the platinum supplier Lonmin were among the fatalities. For more information on the supplier relationship with Lonmin, see basf.com/audits-lonmin.

Raw Materials

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Responsible resource management is an integral part of our strategy. It is applied within the company through our Verbund concept, our innovative products and the use of renewable raw materials. In the search for alternative raw materials, we employ solutions that contribute to sustainability.

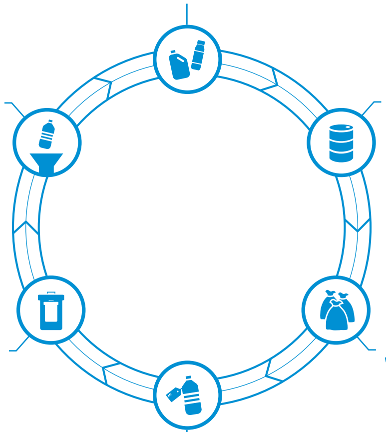
Strategy

The Verbund system is an important component of our resource efficiency concept: The by-products of one plant often serve as feedstock elsewhere, helping us to use raw materials more efficiently. The value created by our Verbund is also part of our contribution to a circular economy. One example is our ChemCycling project (see box on the right).

In 2018, BASF purchased a total of around 30,000 different raw materials from more than 6,000 suppliers. Important raw materials include naphtha, natural gas, methanol, ammonia and benzene. In addition to fossil resources, we also employ renewable raw materials where appropriate. We use these to manufacture products that either cannot be made with fossil resources, or only at significantly greater effort, for example. Depending on the application, either fossil or renewable raw materials could be the better solution. Renewable raw materials are not sustainable per se, but can contribute to sustainability by, for example, reducing greenhouse gas emissions.

Chemical recycling

Recycling is becoming increasingly important due to the growing awareness of sustainability in the markets and regulatory developments. In 2018, BASF launched a project to manufacture products from chemically recycled plastic waste on an industrial scale.



In the ChemCycling project, our partners use thermochemical processes such as gasification or pyrolysis to transform plastic waste into syngas or pyrolysis oil. The first pyrolysis oil derived from plastic waste by our partners was fed into the BASF Verbund in 2018. The resulting products are of equal quality to products manufactured from fossil feedstock. Introducing this recycled feedstock back into the beginning of the value chain also means that we can calculate the percentage of recycled materials in certain products manufactured in the Verbund and offer our customers certified products.

The project's long-term goal is to make plastics recyclable that cannot yet be recycled, such as mixed plastics or plastics with residues. In the future, chemical recycling can make a significant contribution to reducing the amount of plastic waste that is disposed of in landfill or incinerated, while saving fossil resources. We are conducting Eco-Efficiency Analyses to ensure that this approach is sustainable compared with thermal recovery.

For more information, see basf.com/en/chemcycling

Renewable raw materials

- **Numerous projects and cooperative ventures to improve sustainability along the value chain**

In 2018, around 5.3% of the raw materials we purchased worldwide were from renewable resources. To make the use of these materials more competitive, we work on product innovations based on renewable raw materials as well as on enhancing production processes. We also further established our biomass balance approach on the market in 2018. The goal here is to replace natural gas and naphtha at the beginning of the value chain with biogas and bio-naphtha from certified sustainable production. Should a customer select a biomass balanced product, the proportion of renewable feedstock to be used is calculated based on the formulation. The calculation model is certified by an independent third party (TÜV Süd). Our Verbund production ensures that the characteristics and quality of all end products remain unchanged and that our customers can use them as usual. This method has already been applied for more than 60 BASF products – for example, for superabsorbents, dispersions, plastics such as polyamides and polyurethanes, and for intermediates available on the market as "drop-in products." These can be used in place of previously employed products in the production process without having to change the process itself.

Palm oil, palm kernel oil, and their derivatives are some of our most important renewable raw materials. We aim to ensure that these raw materials come from sustainable, certified sources, and actively support the Roundtable on Sustainable Palm Oil (RSPO). In 2018, we published our second progress report – the BASF Palm Progress Report – for greater transparency in the value chain. Based on our voluntary commitment to sustainably source palm oil products, we purchased 127,000 metric tons of certified palm kernel oil in 2018. This represents around 70% of our total volume.

Demand for certified products increased significantly again. As a result, in 2018 we increased sales volumes of certified palm oil and palm kernel oil-based products for the cosmetics and detergent and cleaner industries by more than 50% compared with the previous year. We are expanding our offering of certified sustainable products in accordance with the RSPO's Mass Balance supply chain model. This helps our customers to meet their obligations to customers, consumers and stakeholders. BASF also continues to drive forward the RSPO supply chain certification of our sites for cosmetic ingredients. In 2018, 22 production sites worldwide were RSPO certified. Our goal is to only source RSPO certified palm oil and palm kernel oil by 2020, provided it is available on the market. By 2025, this voluntary commitment will be expanded to include the most important intermediate products based on palm oil and palm kernel oil; these include fractions and primary oleochemical derivatives as well as edible oil esters.

In addition, our BASF Palm Sourcing Policy addresses the requirements for protecting and preserving forests and peatland, as well as the involvement of local communities. At the same time, we will step up our efforts to improve transparency and traceability in the supply chain. We were most recently able to trace 79% of our overall oil palm exposure.

BASF and Henkel have cooperated with the development organization Solidaridad since 2016 to better involve smallholder farmers in Indonesia and improve their living conditions. Smallholders complete farming and environmental training as part of the Farmer Field School initiative, with a focus on efficient and sustainable growing practices and health and safety standards. Since 2016, more than 1,800 smallholders have completed a training program as part of the Farmer Field School initiative.

BASF continues to promote the establishment of a certified and transparent supply chain for coconut oil in the Philippines and Indonesia in a joint project with Cargill, Proctor & Gamble and the German governmental agency for international cooperation (Gesellschaft für Internationale Zusammenarbeit, or GIZ), supported by the Rainforest Alliance and the Philippine Coconut Authority. Thanks to the initiative, the first certified sustainable coconut oil was produced in the Philippines in 2018. The project is partly financed by the develoPPP.de program of the German Federal Ministry for Economic Cooperation and Development (BMZ). It is expected to improve income and living standards for around 3,300 smallholders.

The Sustainable Castor Initiative – Pragati, a joint initiative established by BASF together with Arkema, Jayant Agro and Solidaridad, made further progress in 2018. With the initiative, the project members aim to improve the economic situation of castor oil farmers and their workers in India. Smallholders are trained and audited based on a newly developed sustainability code. The goal is to optimize their yields, reduce the impact on the environment and be able to offer certified sustainable castor oil on the global market. Since the project was initiated, more than 2,700 smallholders and over 2,000 hectares of land have been certified for sustainable castor oil cultivation. The smallholders certified under the program have been able to increase their yields by 55% compared with the 2016 baseline. In 2018, the project was extended for another three years, from 2019 to 2022.

For more information on renewable resources, see basf.com/renewables
For more information on our voluntary commitment to palm oil products, see basf.com/en/palm-dialog

Mineral raw materials

Sourcing mineral raw materials responsibly is important to BASF. We procure a number of mineral raw materials, such as precious metals, which we use to produce mobile and process emissions catalysts, as well as various minerals for the production of battery materials.

In suspicious cases, we track the origins of minerals as defined in the Dodd-Frank Act – including tin, tantalum, tungsten, their ores and gold – to see if they come from mines in conflict regions. We reserve the right to have suppliers audited and, if necessary, terminate our business relationship. The suppliers addressed have confirmed to us that they do not source minerals matching this definition of conflict minerals from the Democratic Republic of Congo or its neighboring countries.

We intend to implement the E.U. Conflict Minerals Regulation published in 2017 by the 2021 deadline. The regulation defines supply chain due diligence obligations that must be met by importers and processors of certain mineral raw materials originating from conflict regions and high-risk areas.

In addition to responsible procurement of conflict minerals, BASF is committed to a responsible and sustainable global supply chain for cobalt and mica.

For instance, BASF is a founding member of the Responsible Cobalt Initiative and the World Economic Forum's Global Battery Alliance. These initiatives were created by companies in collaboration with international organizations such as the OECD and UNICEF to address fundamental challenges in the supply chain of battery materials. The most effective way of addressing these challenges is in cooperation with partners along the value chain. One example of this is our involvement in a joint pilot project launched in 2018 with BMW, Samsung SDI, Samsung Electronics and the German governmental agency for international cooperation (Gesellschaft für Internationale Zusammenarbeit, or GIZ). The companies tasked GIZ with setting up a three-year pilot mining project to identify how to improve working conditions in artisanal mines, as well as living conditions in the surrounding communities in the Democratic Republic of Congo. Although BASF does not procure cobalt from artisanal mines in the Democratic Republic of Congo and our suppliers confirm that they do not either, we support the cross-industry project as it contributes to the goals of the Global Battery Alliance.

BASF mainly uses the mineral raw material mica and mica-based effect pigments in the production of coatings. Our demand is largely met with mica from our own mine in Hartwell, Georgia. We require our mica suppliers to comply with internationally recognized standards, including the prohibition of child labor. As a member of the Responsible Mica Initiative, BASF is actively working to eradicate child labor and unacceptable working conditions in the mica supply chain in India.

Environmental Protection, Health and Safety

Responsible Care Management System

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The protection of people and the environment is our top priority. Our core business – the development, production, processing and transportation of chemicals – demands a responsible approach. We systematically address risks with a comprehensive Responsible Care Management System, which is continually being further developed. We expect our employees and contractors to know the risks of working with our products, substances and plants and handle these responsibly.

Responsible Care Management System

- **Global directives and standards for safety, security, health and environmental protection**
- **Regular audits to monitor performance and progress**

BASF's Responsible Care Management System comprises the global directives, standards and procedures for safety, security, health and environmental protection for the various stations along our value chain. Our regulations cover the transportation of raw materials, activities at our sites and warehouses, and distribution of our products as well as our customers' application of the products. Specifications for implementing these measures are laid out in binding directives that are introduced in consultation with employee representatives. These describe the relevant responsibilities, requirements and assessment methods. Our policies and requirements are constantly updated. We also maintain a dialog with government institutions, associations and other international organizations.

We set ourselves ambitious goals for safety and security, and health and environmental protection. We regularly conduct audits to monitor our performance and progress. We assess the potential risks and weak points of all our activities – from research to production and logistics – and the effects of these on the safety and security of our employees, the environment or our surroundings. In our databases, we document accidents, near misses and safety-related incidents at our sites as well as along our transportation routes to learn from these; appropriate measures are derived according to specific cause analyses.

For more information on Responsible Care®, see basf.com/en/responsible-care

Audits

- **148 safety, security, health and environmental protection audits performed**

Regular audits help ensure that standards are met for safety, security, health and environmental protection. We conduct audits at BASF sites and at companies in which BASF is a majority shareholder. Sites and companies acquired as part of acquisitions are audited in a timely manner to bring these into line with our standards and directives as necessary. We have defined our regulations for Responsible Care audits in a global Group requirement. During our audits, we create a safety and environmental profile that shows if we are properly addressing the existing hazard potential. If this is not the case, we agree on measures and monitor their implementation, for example, with follow-up audits.

Our Responsible Care audit system complies with the ISO 19011 standard and is certified according to ISO 9001. Worldwide, 181 BASF production sites are certified in accordance with ISO 14001 and EMAS (Eco-Management and Audit Scheme) (2017: 178). In addition, 53 sites worldwide are certified in accordance with OHSAS 18001.

In the BASF Group in 2018, 126 environmental and safety audits were conducted at 84 sites (2017: 109 audits at 83 sites). The focus was on auditing sites based on the level of risk. For production plants with a medium and high hazard potential, we conducted an additional 44 short-notice audits at 38 sites (2017: 63 audits at 47 sites). We audited 22 sites with respect to occupational medicine and health protection in 2018 (2017: 13). In addition, 34 health performance control visits were conducted at sites with low to medium health risks (2017: 31).

For more information on occupational safety and health protection, see page 96 onward

Costs and provisions for environmental protection in the BASF Group[1]

Million €	2018	2017
Operating costs for environmental protection	1,077	1,024
Investments in new and improved environmental protection plants and facilities[2]	277	234
Provisions for environmental protection measures and remediation[3]	639	600

1 Including provisions and environmental protection expenses from the discontinued oil and gas business.
2 Investments comprise end-of-pipe measures as well as integrated environmental protection measures.
3 Values shown refer to December 31 of the respective year.

For more information, see the Notes to the Consolidated Financial Statements on pages 220 and 245

Safety in production

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For occupational and process safety as well as health and environmental protection and corporate security, we rely on comprehensive preventive measures and expect the cooperation of all employees and contractors. Our global safety and security concepts serve to protect our employees, contractors and neighbors as well as to prevent property and environmental damage and protect information and company assets.

Strategy

- **Global safety standards**
- **Strengthening risk awareness**
- **Comprehensive incident analyses and global experience and information exchange**

The safety of our employees, contractors, neighbors and protecting the environment is our top priority. This is why we have set ourselves ambitious goals for occupational and process safety as well as health protection.

We stipulate globally mandatory standards for safety, security, and environmental and health protection. A worldwide network of experts supports us in their implementation. As part of our continuous improvement process, we regularly monitor progress toward our goals.

We promote risk awareness for every individual with measures such as systematic hazard assessments, specific and ongoing qualification measures and global safety initiatives.

We analyze accidents, incidents and their causes in detail at a global level to learn from these. Hazard analyses and the risk minimization measures derived from them are an important prevention tool. We also promote regular dialog across different sites to strengthen risk awareness among our employees and contractors, to learn from examples of good practice and in this way, continually develop the safety culture.

By 2022, we will introduce digital solutions and applications at more than 350 of our plants to further increase the safety, security, planning capability and availability of our plants. For example, augmented reality solutions will support daily operations by providing direct, fast access to the required information with mobile end devices and apps. Other digital solutions will enable us to perform predictive maintenance or efficiently simulate maintenance and production processes in digital plant models.

Based on our corporate values, leaders serve as safety role models for our employees. Since July 2018, individual dialogs with experts on environmental protection, health, safety and security have been conducted with newly appointed senior executives to discuss function-specific issues and challenges.

Global safety initiative

- **Focus of Global Safety Days: "Understand risk, take action!"**

Our global safety initiative was established in 2008 and plays a key role in the ongoing development of the safety culture. With over 800 activities at 325 sites, the focus of our Global Safety Days was "Understand risk, take action!" in 2018. The aim was to increase risk awareness to identify and eliminate threats before they become a danger – whether at work, on the road or at home. Around 12,000 employees and contractors registered to participate at the Ludwigshafen site alone. This involvement and lively discussion make a major contribution to our safety culture.

For more information on the global safety initiative, see basf.com/global-safety-initiative

Occupational safety

- **New tools and global dialog to prevent work-related accidents**
- **Employees and contractors worldwide instructed on safe behavior**

We have adapted our incident reporting and goals to the recommendations of the International Council of Chemical Associations (ICCA), the European Chemical Industry Council (CEFIC) and the German Chemicals Industry Association (VCI). Our aim is to reduce the worldwide lost-time injury rate to no more than 0.1 per 200,000 working hours by 2025.[1]

2025 target

Reduction of worldwide lost-time injury rate per 200,000 working hours

≤0.1

To prevent work-related accidents, we encourage and promote risk-conscious behavior and safe working practices for every individual, learning from incidents and regular exchange of experiences (see box on page 97). We are constantly refining and enhancing our requirements.

1 Hours worked by BASF employees, temporary employees and contractors. Our previous goal was to reduce the worldwide lost-time injury rate per one million working hours (BASF and temporary employees) to 0.5 at most by 2025.

Global dialog improves risk awareness

A new global tool was launched in mid-2018 to help employees detect threats faster and better assess the risks involved. Our new, global requirement on key safety-related workflows emphasizes risk-conscious, safe working practices. A standardized risk matrix was adopted in 2018 to be able to determine and assess the hazard potential of incidents consistently across the company. We introduced new indicators such as checking work permits on-site to identify trends at an early stage. Around the world, employees and experts regularly share their insights and learnings, including – since 2018 – in short keynote talks.

In addition to the legally required briefings, we also held training courses on safe procedures in 2018 to strengthen risk awareness among our employees and contractors and prevent work-related accidents.

Furthermore, our training center at the Ludwigshafen site in Germany has offered continuous further education on diverse safety and security topics for employees and contractors since 2010. Some 18,000 participants received training there in 2018.

In 2018, 0.3 work-related accidents per 200,000 working hours[1] occurred at BASF sites worldwide. The proportion of chemical-related accidents rose slightly to 6% (2017: 5%). Unfortunately, there were three fatal work-related accidents in 2018 (2017: 2). BASF is working together with the authorities to analyze the incidents in depth and is using the findings to derive appropriate measures.

In February 2018, one employee died from injuries sustained in falling from a tank container at the Antwerp site in Belgium. Measures to prevent such accidents were taken following the incident. For example, existing training was updated to make working at heights an even greater focus. One employee of a contractor died during loading work at the Flotzgrün landfill site near Ludwigshafen, Germany, in February 2018. He became trapped during work with a construction vehicle. In November, one employee of a contractor died from injuries sustained after being struck by a falling sliding door at the Jacareí site in Brazil. In all cases, BASF is supporting the relevant authorities in their investigations into the circumstances and causes of the accidents. We use the findings of investigations into accidents to take appropriate measures to prevent these from happening again.

For more information on occupational safety, see basf.com/occupational_safety

Process safety

- **Regular review of plant protection plans and performance of safety inspections and safety-related measures**
- **Global initiatives to reduce process safety incidents**
- **Network of experts and global training methods foster dialog**

Process safety is a core part of safe, effective and thus future-proof production. We meet high safety standards in the planning, construction and operation of our plants around the world. These meet and, in some cases, go beyond local legal requirements.

Our global process safety standards provide the framework for the safe construction and operation of our plants as well as the protection of people and the environment. Our experts have developed a protection plan with the appropriate safety inspections for every plant that considers the key aspects of safety, health and environmental protection – from conception to startup – and stipulates specific protection measures.

In order to maintain the highest level of safety at our plants across their entire life cycle, we review the implementation of our protection plans in all facilities at regular intervals and depending on risk potential, as well as the on-time performance of the required safety inspections and any resulting safety-related measures. We regularly update our plants' safety and security concepts in line with changing technologies and as necessary.

2025 target

Reduction of worldwide process safety incidents per 200,000 working hours **≤0.1**

In 2018, we adapted our reporting on accidents and process safety incidents to the recommendations of the International Council of Chemical Associations (ICCA), the European Chemical Industry Council (CEFIC) and the German Chemicals Industry Association (VCI). We now apply stricter reporting thresholds and use the number of process safety incidents per 200,000 working hours as a key performance indicator. We have set ourselves the goal of reducing process safety incidents to a rate of no more than 0.1 per 200,000 working hours by 2025. In 2018, we recorded 0.3 process safety incidents per 200,000 working hours[2] worldwide. We pursue continual improvement by investigating every incident in detail, analyzing root causes and using the findings to derive suitable measures.

Effectively reducing process safety incidents starts with knowing the potential risks. Around the world, we promote initiatives to discuss incidents and their causes, as well as to sensitize others to potential safety risks. In North America, for example, a key priority in 2018 was detecting all leaks. At the Ludwigshafen site in Germany and at other European sites, the focus was on sharing measures to improve

1 Hours worked by BASF employees, temporary employees and contractors. We previously reported on the number of lost-time injuries per one million working hours worldwide (BASF and temporary employees). In 2017, 1.4 work-related accidents per one million working hours occurred at BASF sites worldwide. The rate of work-related accidents for contractors was 1.4 per one million working hours in 2017. The 2017 figure has been adjusted due to updated data. Under the updated indicator definition, the rate of work-related accidents for 2017 would have been 0.3 per 200,000 working hours.
2 Hours worked by BASF employees, temporary employees and contractors. Our previous goal of reducing process safety incidents to a rate of no more than 0.5 per one million working hours (BASF and temporary employees) by 2025 largely followed the definition set by the European Chemical Industry Council (CEFIC). In 2017, the process safety incident rate per one million working hours was 2.0.

operational safety. In addition, our training methods are constantly refined and enhanced to increase risk awareness.

We are working on increasing the availability of our plants and determining the optimum point in time for maintenance measures and revamping/refurbishment. The aim is to further reduce unscheduled shutdowns. To achieve this, we launched a digitalization project in 2017, which was implemented at a number of plants in Ludwigshafen, Germany in 2018. In 2019, we plan to expand this to further plants in Ludwigshafen and at our sites in Schwarzheide, Germany, and Antwerp, Belgium. We want to roll the project out worldwide in 2020.

We play an active role in improving process safety around the world in a global network of experts, through our involvement in organizations such as the International Council of Chemical Associations (ICCA), and by fostering dialog with government institutions.

For more information on process safety, see basf.com/process_safety

Health protection

- **Global standards for corporate health management**
- **2018 Global Health Campaign "Life. Saving. Heroes." focuses on cardiopulmonary resuscitation (CPR)**

Our global corporate health management serves to promote and maintain the health and productivity of our employees. Our worldwide standards for occupational health are specified in a directive that is implemented by a global network of experts. This was once again supported by numerous emergency drills and health promotion measures in 2018.

We measure our performance in health protection using the Health Performance Index (HPI). The HPI comprises five components: recognized occupational diseases, medical emergency preparedness, first aid, preventive medicine and health promotion. Each component contributes a maximum of 0.2 to the total score. The highest possible score is 1.0. Our goal is to reach a value of more than 0.9 every year. With an HPI of 0.96, we once again reached the ambitious goal of exceeding 0.9 each year in 2018 (2017: 0.97).[1]

Annual target[1]

Health protection
Health Performance Index
Maximum score 1.0

>0.9

Our 2018 Global Health Campaign "Life. Saving. Heroes." focused on cardiopulmonary resuscitation (CPR). We sensitized our employees about the issue with the ultimate aim of increasing the rate of CPR initiated by laypersons. This significantly increases a person's chances of survival if they suffer cardiac arrest in private life or at work. Over 480 sites worldwide took part in the health campaign and offered CPR training.

We raise employee awareness of health topics through offers tailored toward specific target groups. The BASF health checks form the foundation of our global health promotion program and are offered to employees at regular intervals.

For more information on occupational medicine, health campaigns and the HPI, see basf.com/health

Emergency response, corporate security and cybersecurity

- **Regular review of emergency systems and crisis management structures**
- **Comprehensive protection measures against third-party interference**

We are well prepared for crisis situations thanks to our global crisis management system. In the event of a crisis, our global, regional or local emergency response plans and crisis management structures are engaged, depending on the impact scope. We involve situation-related partners and suppliers as well as cities, communities and neighboring companies.

We regularly check our emergency systems, crisis management structures and drill procedures with employees, contractors, local authorities and emergency rescue workers. For example, in 2018 we conducted 224 drills and simulations in Ludwigshafen, Germany, to instruct participants on our emergency response measures.

We analyze the potential safety and security risks associated with investment projects and strategic plans, and define appropriate safety and security concepts. Our guiding principle is to identify risks for the company at an early stage, assess them properly and derive appropriate safeguards.

We protect our employees, sites, plants and company know-how against third-party interference. This includes, for example, potential terrorist risks in the communities surrounding our production sites

1 Our updated corporate strategy realigns our goals from 2019 onward; as a result, we will convert the Health Performance Index goal into a reporting indicator. For more information on our strategy and goals, see page 25 onward.

and addressing in depth the issue of cybersecurity. BASF has a comprehensive program in place to continually improve its ability to prevent, detect and react to cybersecurity incidents. By establishing a global Cyber Security Defense Center, BASF significantly expanded the availability of its cybersecurity experts to ensure around-the-clock protection. We cooperate closely with a global network of experts and partners to ensure that we can protect ourselves against cyberattacks as far as possible. In 2018, we therefore expanded our IT security certification according to ISO 27001, which was introduced in 2008.

Around the world, we work to sensitize all employees about protecting information and know-how. For example, we further strengthened our employees' awareness of risks in 2018 with training, case studies and interactive offerings. We have defined mandatory information protection requirements to ensure compliance with our processes for protecting sensitive information and perform audits to monitor this.

Our worldwide network of information protection officers comprises more than 600 employees. They support the implementation of our uniform requirements and hold events and seminars on secure behaviors. We provided information protection instruction to more than 33,000 participants in 2018. Our standardized Group-wide recommendations for the protection of information and knowledge were expanded to include additional guidance for employees and updated in line with current developments.

We inform business travelers and transferees about appropriate protection measures prior to and during travel in countries with elevated security risks. After any major incident such as a terrorist attack or a natural catastrophe, we can use a standardized global travel tracking system to locate and contact employees in the affected regions.

Aspects of human rights related to site security are a component of the global qualification requirements of our security personnel. Respect for human rights is a mandatory element of any contract with service providers of the BASF Group who are active in this area.

For more information on emergency response, see basf.com/emergency_response
For more information on security, see basf.com/corporate-security

Product stewardship

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We review the safety of our products from research and development through production and all the way to our customers' application. We continuously work to ensure that our products pose no risk to people or the environment when they are used responsibly and in the manner intended.

Strategy

- **Global directives with uniformly high standards for product stewardship**

We are committed to continuously minimizing the negative effects of our products on the environment, health and safety along the value chain – from development to disposal. This commitment to product stewardship is enshrined in our Responsible Care® charter and the initiatives of the International Council of Chemical Associations (ICCA). We also ensure uniformly high standards for product stewardship worldwide. In some cases, we have committed to voluntary initiatives, which go beyond the local legal requirements.

We provide extensive information on all our chemical sales products to our customers with safety data sheets in around 40 languages. This is achieved with the help of a global data base in which we maintain and evaluate continuously updated environmental, health and safety data for our substances and products. Our global emergency hotline network provides information around the clock. We train and support our customers in fulfilling their industry or application-specific product requirements. In associations and together with other manufacturers, BASF is pushing for the establishment of voluntary global commitments to prevent the misuse of chemicals.

Our risk assessment goals support the implementation of initiatives such as the Global Product Strategy (GPS) of the ICCA. GPS is establishing worldwide standards and best practices to improve the safety management of chemical substances. In addition, we are also involved in initiatives such as workshops and training seminars in developing countries and emerging markets, including in China and the Philippines in 2018. In order to facilitate public access to information, we are involved in the ICCA online portal that provides more than 4,500 GPS safety summaries.

For more information on GPS, see basf.com/en/gps

Global target

By 2020, we will conduct risk assessments for more than 99% of the substances and mixtures sold by BASF worldwide in quantities of more than one metric ton per year. We reached 91% of this goal in 2018 (2017: 76.2%).[1] The risk associated with using a substance is determined by the combination of its hazardous properties and its potential exposure to people and the environment.

2020 target[1]

Risk assessment of products that we sell in quantities of more than one metric ton per year

>99%

REACH and other chemical regulations

- **Final registration phase of REACH successfully completed**

BASF has completed the third and final registration phase of the E.U. chemicals regulation, REACH, successfully and on time. All substances produced in annual volumes between one and one hundred metric tons were registered by the deadline of May 31, 2018. Above and beyond this, our REACH activities continue to be determined by E.U. authorities' decisions on additional studies in connection with the evaluation of submitted dossiers. BASF is also obligated to continuously update the registration dossiers it has submitted.

We apply the experience we have gathered with REACH to fulfill new legal requirements around the world, such as in South Korea and Turkey. BASF took the industry lead for a significant share of substance registrations in South Korea and submitted all registrations for priority existing chemicals by the July 2018 deadline.

We continue to see a rise in both regulatory requirements for agrochemicals and the number of additional studies required to obtain or extend approval for crop protection products. Potential risks for people and the environment are carefully assessed and minimized throughout the research, development and registration process for crop protection products. We perform a large number of scientific studies every year to ensure that our products meet the highest safety requirements.

1 Our updated corporate strategy realigns our goals from 2019 onward; as a result, we will no longer report on the global risk assessment goal. Furthermore, this goal has become obsolete due to the legal requirement to make chemical risk assessment data available worldwide under regulations such as REACH. For more information on our strategy and goals, see page 25 onward.

Environmental and toxicological testing

■ Use of alternative methods for animal studies

Before launching products on the market, we subject them to a variety of environmental and toxicological testing. We apply state-of-the-art knowledge in the research and development phase of our products. For instance, we only conduct animal studies when they are required by law and approved by respective authorities. Animal studies are at times stipulated by REACH and other national legislation outside the European Union in order to obtain more information on the properties and effects of chemical products.

We adhere to the specifications laid down by the German Animal Welfare Act as well as the requirements of the Association for Assessment and Accreditation of Laboratory Animal Care – the highest standard for laboratory animals in the world. We are continually developing and optimizing alternative methods, and we use them wherever it is possible and accepted by the authorities. We use alternative methods in more than a third of our tests. Currently, 33 alternative methods are being used in our labs and another 19 are in the development stage. BASF spent €3.5 million toward this purpose in 2018. The development of alternative methods for testing the potential of substances to induce developmental toxicity has been a focus area of our research since 2017.

Since 2016, our Experimental Toxicology and Ecotoxicology department has been working together with a total of 39 partners on one of the largest European collaborative projects for alternative methods. The project, planned to run for six years, aims to develop alternative methods to the point that chemical risk assessments can be efficiently conducted largely without animal testing.

For more information on alternative methods, see basf.com/alternative_methods

Management of new technologies

■ Continual safety research on nano- and biotechnology

Nanotechnology and biotechnology offer solutions for key societal challenges – for example, in the areas of climate protection or health and nutrition.

Safe handling of nanomaterials is stipulated in our Nanotechnology Code of Conduct. In recent years, we have conducted over 250 scientific studies and participated in over 40 different projects related to the safety of nanomaterials. The results were published in more than 100 scientific articles. In 2018, we concluded our five-year Nano-In-Vivo research project in cooperation with German governmental bodies. The project delivered important insights into the toxicological effects of long-term exposure to nanoparticles and complements our previous findings that toxicity is determined not by the size of the particles but by the intrinsic properties of the substance.

We contribute our expertise in various working groups of the European Chemicals Agency (ECHA) and the OECD's Business and Industry Advisory Group (BIAC), which develop testing and implementation guidelines. Together with partners from academia and government authorities, in 2018 we started work on E.U.-funded projects to validate alternative testing methods for evaluating and grouping nanomaterials with a view to regulatory acceptance. In 2018, we were recognized by the European Chemical Industry Council (CEFIC) for our transparency in addressing questions about the safety of nanomaterials.

BASF makes successful use of biotechnology. We produce a range of established products with the help of biotechnological methods. This provides us with extensive experience in the safe use of biotechnological methods in research and development as well as in production. When employing biotechnology, we adhere to all standards and legal regulations. We are also guided by the code of conduct set out by EuropaBio, the European biotechnology association.

For more information on nanotechnology and the Nanotechnology Code of Conduct, see basf.com/nanotechnology

Transportation and storage

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Our regulations and measures for transportation and warehouse safety cover the delivery of raw materials, the storage and distribution of chemical products among BASF sites and customers, and the transportation of waste from our sites to the disposal facilities.

Strategy

- **Risk minimization along the entire transportation chain**

We want our products to be safely loaded, transported, handled and stored. This is why we depend on reliable logistics partners, global standards and an effective organization. Our goal is to minimize risks along the entire transportation chain – from loading and transportation to unloading. Some of our guidelines for the transportation of dangerous goods go above and beyond national and international dangerous goods requirements. We have defined global guidelines and requirements for the storage of our products and regularly monitor compliance with these.

Accident prevention and emergency response

- **Risk assessments for transportation and storage**

We regularly assess the safety and environmental risks of transporting and storing raw materials and sales products with high hazard potential using our global guideline. This is based on the guidelines of the European Chemical Industry Council (CEFIC). We also have binding global standards for load safety.

We stipulate worldwide requirements for our logistics service providers and assess them in terms of safety and quality. Our experts use our own evaluation and monitoring tools as well as internationally approved schemes.

Transportation incidents

We are systematically implementing our measures to improve transportation safety. We report in particular on goods spillages that could lead to significant environmental impacts such as dangerous goods leaks of BASF products in excess of 200 kilograms on public transportation routes, provided BASF arranged the transport.

We recorded three incidents in 2018 with spillage of more than 200 kilograms of dangerous goods (2017: 3). None of these transportation incidents had a significant impact on the environment (2017: 0).

Raw materials supply challenges due to low Rhine River

The low water levels on the Rhine River in 2018 impacted logistics at the Verbund site in Ludwigshafen, Germany. Under normal conditions, around 40% of incoming volumes are transported to the site by ship. This makes the Rhine the most important transportation route for incoming raw materials. As far as possible, we replaced transportation by ship with alternatives such as rail and truck while the Rhine was low. We are working on an overarching concept to make the site more resilient to long periods of low water and are investigating various measures, including selectively expanding on-site tank capacities or switching to ships better suited to low water levels. We intend to implement the first measures in 2019.

Activities in external networks

We are actively involved in external networks, which quickly provide information and assistance in emergencies. These include the International Chemical Environmental (ICE) initiative and the German Transport Accident Information and Emergency Response System (TUIS), in which BASF plays a coordinating role. In 2018, we provided assistance to other companies in 145 cases worldwide (2017: 178). We apply the experience we have gathered to set up similar systems in other countries: For example, we intensified our activities in India in 2018.

For more information, see basf.com/distribution_safety and basf.com/emergency_response

Energy and climate protection

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As an energy-intensive company, we are committed to energy efficiency and global climate protection. We want to reduce emissions along the value chain and utilize, for example, efficient technologies for generating steam and electricity, energy-efficient production processes, and comprehensive energy management. Our climate protection products make an important contribution toward helping our customers avoid emissions.

Strategy

- **We are committed to energy efficiency and global climate protection along the value chain**
- **New climate protection goal: CO_2-neutral growth until 2030**

Climate protection is very important to us. As a leading chemical company, we want to achieve CO_2-neutral[1] production growth from 2019 to 2030. We have articulated this commitment in our new climate protection goal, which will apply from 2019. In order to reach this target, we aim to maintain total greenhouse gas emissions from our production sites and our energy purchases at the 2018 level. Sharp increases due to the startup of large-scale plants will be progressively offset. We will compensate for additional emissions with optimization measures at existing plants and a focus on purchasing low carbon energy. When deciding on investments and acquisitions, we systematically consider the effects on greenhouse gas emissions.

Most of BASF's greenhouse gas emissions are attributable to the consumption of energy. At sites that produce their own energy, we primarily rely on highly efficient combined heat and power plants with gas and steam turbines, and on the use of heat released by production processes. Furthermore, we are committed to energy management that helps us analyze and further improve the energy efficiency of our plants on an ongoing basis. We continuously analyze potential risks to our business operations arising in connection with the topics of energy and climate protection and derive appropriate measures.

We offer our customers solutions that help prevent greenhouse gas emissions and improve energy and resource efficiency. Around half[2] of our total annual research and development spending goes toward developing these products and optimizing our processes.

Our climate protection activities are based on a comprehensive analysis of our emissions. We report on greenhouse gas emissions in accordance with the Greenhouse Gas Protocol Standard as well as the sector-specific standard for the chemical industry.

Since 2004, we have participated in the international non-profit organization CDP's program for reporting on data relevant to climate protection. BASF achieved a top score of "A" in CDP's rating for 2018, again awarding it Leadership status. Companies on the Leadership level are distinguished by factors such as the completeness and transparency of their reporting. They also pursue comprehensive approaches in managing the opportunities and risks associated with climate change as well as emissions reduction strategies to achieve company-wide goals.

Climate protection is a shared global task. We advocate climate protection by supporting initiatives to this end. In 2018, BASF actively contributed to recommendations on energy, climate and resource efficiency for state and government leaders in a working group of companies from G20 countries – the Business 20 (B20). As a member of the Alliance of CEO Climate Leaders, BASF explicitly encourages companies to step up their commitment to meeting the targets of the Paris climate accord. In November 2018, BASF also co-signed an open letter published by the Alliance calling for a pledge to increase efforts to reduce emissions, improved analysis and reporting of climate-related financial risks as well as a global carbon pricing mechanism. BASF also supports the recommendations of the Task Force on Climate-related Financial Disclosures

Carbon management

Since 2018, we have bundled global activities to reach our new climate goal and a long-term research and development program under the banner of carbon management. The program targets new technologies to significantly reduce greenhouse gas emissions from production at our Verbund site in Ludwigshafen, Germany. The focus here is on production processes for basic chemicals, which account for the highest share of emissions. These technologies can be transferred to other sites. Developing the technologies is time-intensive and involves uncertainties. We expect these new processes to make a significant contribution to reducing CO_2 from 2030. As well as technical progress, this will require an adequate supply of renewable energy at competitive prices and a supportive regulatory framework.

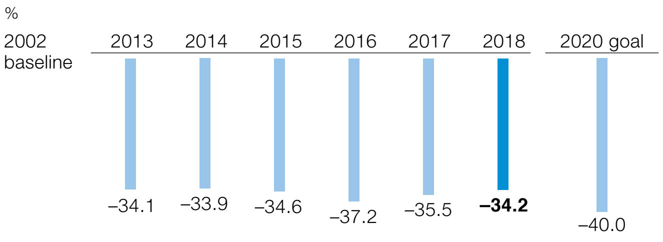
For more information, see basf.com/carbon-management

1 BASF operations excluding the discontinued oil and gas business. The goal includes other greenhouse gases according to the Greenhouse Gas Protocol, which are converted into CO_2 equivalents.
2 Costs not relevant to the calculation of this share include research expenses in early innovation stages of the phase-gate process, patent costs and expenses for supporting services.

(TCFD). In 2018, we started comparing our annual reporting with the TCFD's recommendations and identifying potential action areas.

For more information on climate protection, see basf.com/climate_protection

Reduction of greenhouse gas emissions per metric ton of sales product in BASF operations excluding the discontinued oil and gas business



Global goals and measures

We aim to reduce our greenhouse gas emissions per metric ton of sales product by 40% by 2020, compared with baseline 2002 (BASF operations excluding the discontinued oil and gas business). In absolute terms, our emissions declined slightly in 2018 compared with the previous year. We reduced greenhouse gas emissions per metric ton of sales product by 34.2% compared with baseline 2002 (2017: reduction of 35.5%). Since 1990, we have been able to lower our overall greenhouse gas emissions from BASF operations (excluding the oil and gas business) by 49.2% and even reduce specific emissions by 74.2%.

We will pursue a new goal from 2019 onward: CO_2-neutral growth until 2030. We will maintain greenhouse gas emissions per metric ton of sales product as an additional reporting indicator.

By 2020, we want to have introduced certified energy management systems (DIN EN ISO 50001) at all relevant production sites.[1] Taken together, this represents 90% of BASF's primary energy demand.

BASF Group's greenhouse gas emissions according to the Greenhouse Gas Protocol[1]

Million metric tons of CO_2 equivalents

BASF operations including the discontinued oil and gas business[2]	2002	2017	2018
Scope 1[3]			
CO_2 (carbon dioxide)[4]	14.634	16.813	16.956
N_2O (nitrous oxide)	6.407	0.747	0.740
CH_4 (methane)	0.244	0.048	0.064
HFC (hydrofluorocarbons)	0.061	0.081	0.091
Scope 2[5]			
CO_2[4]	5.243	3.796	3.361
Total	**26.589**	**21.485**	**21.212**
Sale of energy to third parties (Scope 1)[6]			
CO_2[4]	0.347	1.086	0.567
Total	**26.936**	**22.571**	**21.779**

1 BASF reports separately on direct and indirect emissions from the purchase of energy. Scope 1 emissions encompass both direct emissions from production and generation of steam and electricity, as well as direct emissions from the generation of steam and electricity for sale. Scope 2 emissions comprise indirect emissions from the purchase of energy for BASF's use.
2 The assets and businesses acquired from Bayer are not yet included in the reported greenhouse gas emissions of the BASF Group for 2018.
3 Emissions of N_2O, CH_4 and HFC have been translated into CO_2 emissions using the Global Warming Potential, or GWP, factor. GWP factors are based on the Intergovernmental Panel on Climate Change (IPCC) 1995 (2002 emissions) and IPCC 2007, errata table 2012 (2017 and 2018 emissions). HFC (hydrofluorocarbons) are calculated using the GWP factors of the individual components.
4 In 2018, we changed how emissions are allocated for two BASF Group companies with interdependent operations, with part of the Scope 2 emissions included within Scope 1. Total emissions (excluding sales of energy to third parties) remain unchanged. Since double counting of emissions is avoided (see footnote 6), direct emissions from sale of energy to third parties are reduced accordingly.
5 Location-based approach. Under the market-based approach, Scope 2 emissions were 3,657 million metric tons of CO_2 in 2018.
6 Includes sale to BASF Group companies; as a result, emissions reported under Scope 2 can be reported twice in some cases.

This is one of the ways in which we intend to identify and carry out improvements in energy efficiency, reducing not only greenhouse gas emissions and saving valuable energy resources, but also increasing the BASF Group's competitive ability. From 2019 onward, we will maintain this goal as a reporting indicator to track our progress in introducing energy management systems.

2020 target

Reduction of greenhouse gas emissions per metric ton of sales product Baseline 2002

(BASF operations excluding the oil and gas business)

–40%

2020 target

Coverage of our primary energy demand through certified energy management systems at all relevant sites

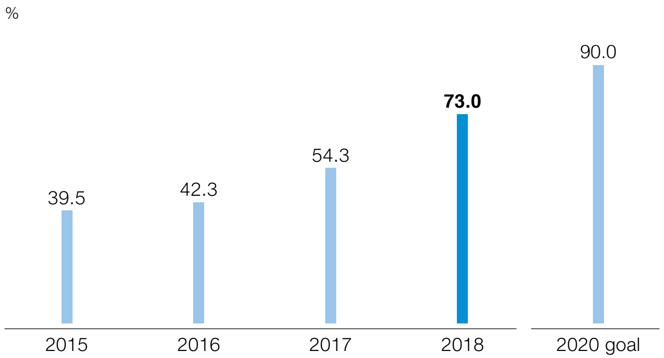
(BASF operations including the oil and gas business)

90%

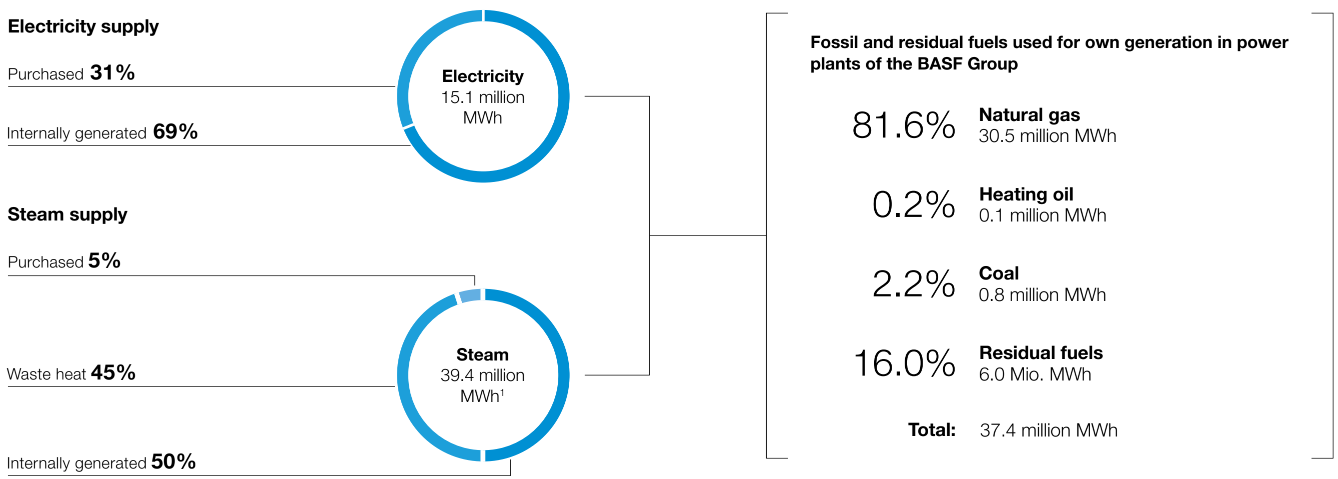
1 The selection of relevant sites is determined by the amount of primary energy used and local energy prices; figures relate to BASF operations including the discontinued oil and gas business.

The introduction and implementation of the energy management systems is steered by a global working group. All energy efficiency measures are recorded and analyzed in a global database and made available to BASF sites as best practices. Currently, more than 150 measures are being pursued to reduce energy consumption and increase competitive ability. Further sites across all regions were certified in accordance with ISO 50001 in 2018. These include the Verbund site in Geismar, Louisiana, as well as another 19 sites in Brazil, India, Malaysia, Thailand, France and the Netherlands, among other countries. At the moment, 64 sites are certified worldwide, representing 73.0% of our primary energy demand.

Certified energy management systems (ISO 50001) at BASF Group sites worldwide, in terms of primary energy demand



Energy supply of the BASF Group 2018



1 Conversion factor: 0.75 MWh per metric ton of steam

Energy supply and efficiency

- **Verbund system as important component of our energy efficiency strategy**

Gas and steam turbines in combined heat and power plants enable us to fulfill more than 70% of the electricity demand of the BASF Group. Compared with separate methods of generating steam and electricity, we saved 13.1 million MWh of fossil fuels and prevented 2.6 million metric tons of carbon emissions in 2018. The Verbund system is an important component of our energy efficiency strategy: Waste heat from one plant's production process is used as energy in other plants. In this way, the Verbund saved us around 18.5 million MWh in 2018, which translates to 3.7 million metric tons less CO_2 released into the environment. With combined power and steam generation as well as our continuously enhanced Energy Verbund, we were thus able to prevent a total of 6.3 million metric tons of carbon emissions in 2018.

Energy saved in 2018 by the Verbund and combined heat and power generation

31.6 million MWh

We were able to further optimize the resource and energy consumption of our production in numerous projects around the world in 2018. For example, a new boiler was installed at the McIntosh site in Alabama to generate steam from production residues that were previously disposed of externally, saving primary energy. Process improvements at many additional sites have also led to savings in steam, electricity and fuel.

We also rely on locally available sources to supply our sites with energy. We are continuously exploring the use of renewable energies. The focus here is on the purchase of electricity. It only makes economic sense to replace highly efficient internal electricity and steam generation using natural gas once renewable energies offer the necessary supply security and are available at competitive prices.

Key indicators for energy and climate protection in BASF operations excluding the discontinued oil and gas business

	Baseline 2002[1]	2017	2018
Greenhouse gas emissions[2] (million metric tons of CO_2 equivalents)	24.713	20.716	20.378
Specific greenhouse gas emissions (metric tons of CO_2 equivalents per ton of sales product)	0.897	0.579	0.590
Primary energy demand[3] (million MWh)	55.759	57.268	57.364
Energy efficiency (kilograms of sales product per MWh)	494	625	602

1 The values for baseline 2002 were not adjusted to reflect the currently applied global warming potential factors.
2 Scope 1 and Scope 2 (location-based) according to the GHG Protocol Standard, excluding emissions from the generation of steam and electricity for sale to third parties
3 Primary energy used in BASF's plants as well as in the plants of our energy suppliers to cover energy demand for production processes

Our research also contributes to increasing the efficiency of technologies for the use of renewable energy sources.

Carbon footprint and climate protection products

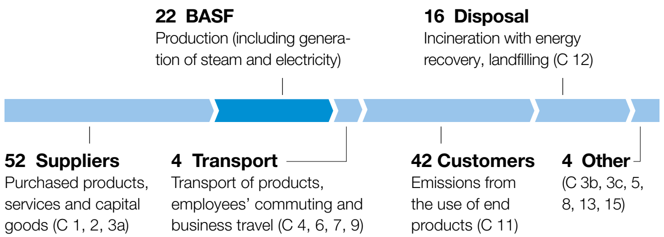
- **Reporting on greenhouse gas emissions along the entire value chain**
- **Customers' use of climate protection products sold in 2018 avoids 640 million metric tons of CO_2 equivalents**

BASF has published a comprehensive corporate carbon footprint since 2008. This reports on all greenhouse gas emissions along the value chain and shows the volume of emissions prevented through the use of our climate protection products. We plan our climate protection activities along the value chain based on our corporate carbon footprint.

Through various measures to reduce our raw material and energy requirements, the emission of greenhouse gases associated with producing the raw materials was decreased by a total of around 142,000 metric tons in 2018.

Greenhouse gas emissions along the BASF value chain in 2018[4]

Million metric tons of CO_2 equivalents



4 BASF operations including the discontinued oil and gas business; according to Greenhouse Gas Protocol, Scope 1, 2 and 3; categories within Scope 3 are shown in parentheses

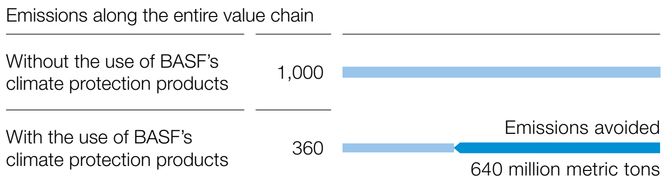
Our climate protection products help us offer solutions to our customers to avoid greenhouse gas emissions over their entire lifecycle as compared with reference products. According to the systematic sustainability analysis we conduct on our portfolio – using the Sustainable Solution Steering method – such products are referred to as "Accelerator" solutions as using them contributes positively to climate protection and energy as compared with reference products. Two examples are Luprosil® and Lupro-Grain®, propionic acid-based preservatives that enable feed grains to be stored for up to 12 months after harvesting without being dried. An Eco-Efficiency Analysis shows that in addition to ecological and economic advantages, these can reduce greenhouse gas emissions by an average of 85% per metric ton of feed.

An analysis of 22 climate protection product groups revealed that customers' use of products sold in 2018 helps to avoid 640 million metric tons of CO_2 equivalents. Every product makes an individual contribution in the value chain of customer solutions. Value chains are assessed in terms of BASF's economic share of the respective customer solution. On average, 5% of the emissions avoided were attributable to BASF in 2018. The calculation of avoided greenhouse gas emissions took into account the chemical industry standards of the International Council of Chemical Associations (ICCA) and the World Business Council for Sustainable Development (WBCSD).

For more information on our emissions reporting, see basf.com/corporate_carbon_footprint
For more information on the sustainability analysis of our product portfolio, see pages 37 to 38

Prevention of greenhouse gas emissions through the use of BASF products

Million metric tons of CO_2 equivalents



Air and soil

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We want to further reduce emissions to air from our production, prevent waste and protect the soil. We have set ourselves standards for doing so in global directives. If no recovery options are available for waste, we dispose of it in a proper and environmentally responsible manner.

Strategy

- **Regular monitoring of emissions to air**
- **Professional disposal of hazardous waste**

Regular monitoring of our emissions to air is a part of environmental management at BASF. Aside from greenhouse gases, we also measure emissions of other pollutants into the atmosphere. Our reporting does not take into account air pollutant emissions from oil and gas operations due to their substantial fluctuation during exploration phases.

Our Raw Material Verbund helps us prevent or reduce waste. We regularly carry out audits to inspect external waste disposal companies to ensure that waste is properly disposed of. In this way, we also contribute to preventive soil protection and keep today's waste from becoming tomorrow's contamination.

If soil and groundwater contamination occurs at active or former BASF sites, proper remediation measures are reviewed based on prevailing legal and current technical standards, and undertaken as necessary.

1 The 2017 figure has been adjusted due to updated data.

Emissions to air

- **Emissions at prior-year level**

Absolute emissions of air pollutants from our chemical plants amounted to 25,787 metric tons in 2018. Emissions of ozone-depleting substances as defined by the Montreal Protocol totaled 19 metric tons in 2018 (2017: 23 metric tons). Emissions of heavy metals in 2018 amounted to 2 metric tons (2017: 2 metric tons[1]).

Our product portfolio contains a variety of catalysts used in the automotive sector and in industry to reduce the emission of air pollutants.

Emissions to air

Metric tons

Air pollutants from BASF operations excluding the oil and gas business	2018	2017
CO (carbon monoxide)	3,627	3,644
NO_x (total nitrogen oxides)	10,712	11,205
NMVOC (nonmethane volatile organic compounds)	5,022	4,727
SO_x (total sulfur oxides)	1,825	1,753
Dust[1]	2,344	2,354
NH_3 (ammonia) and other inorganic substances	2,257	2,170
Total	**25,787**	**25,853**

Management of waste and contaminated sites

- **Total waste volume slightly higher**
- **Systematic management of contaminated sites**

We aim to avoid waste as far as possible. If waste is unavoidable, we review the options for recycling or energy recovery to close materials cycles, using BASF's existing Verbund structures for efficient waste management. Total waste volume amounted to 2.31 million metric tons in 2018 (+9.0%).

Waste generation in the BASF Group

Million metric tons

	2018	2017
Total waste generation[1]	**2.31**	**2.12**
of which from oil and gas exploration	0.12	0.10
Waste recovered	**0.89**	**0.79**
Recycled	0.36	0.27
Thermally recovered	0.53	0.52
Waste disposed of	**1.42**	**1.34**
In underground landfills	0.20	0.17
In surface landfills	0.46	0.39
Through incineration	0.76	0.77
Classification of waste for disposal[2]		
Nonhazardous waste	0.44	0.47
Hazardous waste	0.98	0.87
Transported hazardous waste	0.29	0.23

1 Comprises all production waste and hazardous waste from construction activities
2 The classification of waste into hazardous and nonhazardous waste is performed according to local regulations.

We set out global standards for managing contaminated sites. A worldwide network of experts ensures their proper implementation. We develop remediation solutions that combine nature conservation, climate protection concerns, costs and social responsibility. This means making customized decisions on a case-by-case basis, founded on the legal framework and current technological possibilities.

Relevant sites are documented in a contaminated site database. Ongoing remediation work around the world continued on schedule and planning was concluded on future remediation projects.

For more information on provisions for environmental protection, see the Notes to the Consolidated Financial Statements on pages 220 and 245

Water

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Water is of fundamental importance in chemical production. It is used as a coolant, solvent and cleaning agent, as well as to make our products. We are committed to its responsible use along the entire value chain and especially in our production sites' water catchment areas. We have set ourselves a global goal for sustainable water management.

Strategy

- **Sustainable water management**
- **Updated water goal from 2019 onward**

We aim to use water as sparingly as possible and further reduce emissions to water. To do so, we have set out a Group directive with globally applicable standards.

We are introducing sustainable water management at all relevant production sites. These include our major Verbund sites as well as the sites in water stress areas. Under our previous definition, these were regions in which more than 60% of available water is used by industry, household and agriculture. We consider the quantitative, qualitative and social aspects of water use. We want to identify where we can improve at our sites, and use as little water as possible, especially in water stress areas.

From 2019 onward, we will use an expanded definition of water stress areas: Regions in which more than 40% of available water is used by industry, household and agriculture in accordance with the new Global Reporting Initiative (GRI) standard. We will also report on the water consumption of the BASF Group and water consumption in water stress areas from 2019 onward.

In order to ensure transparency in our reporting on water, we once again took part in CDP reporting in 2018. BASF achieved a rating of "A–" in 2018 and thus Leadership status for sustainable water management. CDP's evaluation of sustainable water management includes how transparently companies report on their water management activities and what they do to reduce risks, such as water scarcity. CDP also assesses the extent to which product developments – even at the customers of the companies under evaluation – can contribute to sustainable water management.

We offer our customers solutions that help purify water and use it more efficiently while minimizing pollution.

For more information on the CDP water survey, see basf.com/en/cdp

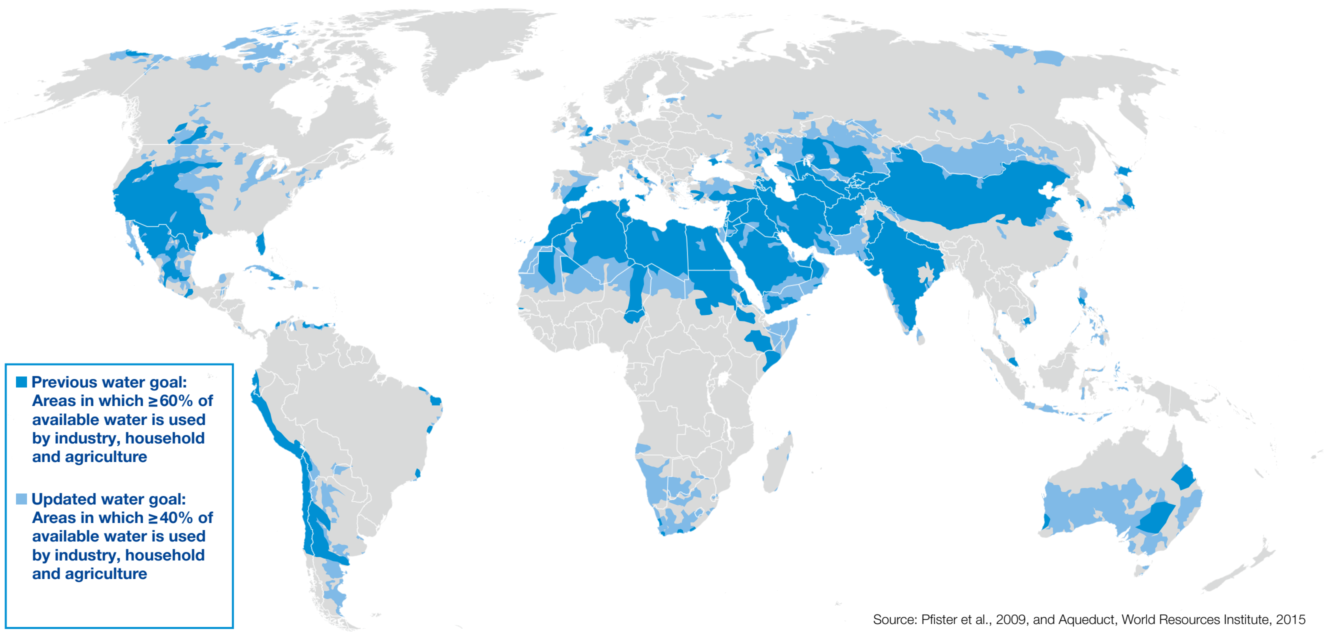
Global goal and measures

Our previous goal was to introduce sustainable water management at all sites in water stress areas and at our Verbund sites by 2025, covering 93% of BASF's total water abstraction. We achieved 50.0% of this goal in 2018 (2017: 45.2%). In 2018, BASF introduced sustainable water management at five sites.

In 2018, around 23% of our production sites were located in water stress areas. Around 1% of BASF's total water supply was abstracted from these sites.

We pursue our goal by applying the European Water Stewardship standard, which rests on four principles: sustainable water abstrac-

Water stress areas around the world



Source: Pfister et al., 2009, and Aqueduct, World Resources Institute, 2015 tion, maintaining good water quality, preserving conservation areas, and ensuring continuous improvement processes.

We will pursue an updated goal from 2019 onward. By 2030, we want to introduce sustainable water management at all sites in water stress areas and at our Verbund sites according to our expanded definition. This almost doubles the number of sites.

Water use

■ Using water responsibly

Our water usage totaled 1,745 million cubic meters in 2018. This demand was covered for the most part by surface water, such as rivers and lakes. At some sites, we use alternative sources such as treated municipal wastewater, brackish water or seawater.

We predominantly use water for cooling purposes (87%), after which we recirculate it back to our supply sources. We reduce our water use by recirculating as much water as possible. To do this, we use recooling plants that allow water to be reused several times.

The supply, treatment, transportation and recooling of water is associated with a considerable energy demand. We are constantly working to optimize our energy consumption and the amount of water we use, and to adapt to the needs of our business and the environment.

Emissions to water

■ Slight decrease in emissions to water

A total of 1,614 million cubic meters of water were discharged from BASF production sites in 2018, including 188 million cubic meters of treated wastewater from production. Emissions of nitrogen to water amounted to 3,100 metric tons (2017: 2,800 metric tons). Around 12,400 metric tons of organic substances were emitted in wastewater (2017: 13,200 metric tons[1]). Our wastewater contained 23 metric tons of heavy metals (2017: 25 metric tons). Phosphorus emissions amounted to 220 metric tons (2017: 420 metric tons). Our wastewater is treated through different methods depending on the type and degree of contamination – including biological processes, oxidation, membrane technologies, precipitation or adsorption.

In order to avoid unanticipated emissions and the pollution of surface or groundwater, we create water protection strategies for our production sites. This is mandatory for all production plants as part of the Responsible Care® initiative. The wastewater protection plans involve evaluating wastewater in terms of risk and drawing up suitable monitoring approaches. We use audits to check that these measures are being implemented and complied with.

For more information, see basf.com/water

Water in the BASF Group 2018

Million cubic meters per year

Abstraction / withdrawal: 1,745[1]

Surface water / freshwater	1,409
Brackish water / seawater	246
Groundwater	66
Drinking water	23
Reusable wastewater from third parties	1

Use: 6,609

13% Production — 87% Cooling

Cooling	6,362
of which recirculating	4,936
once-through	1,426
Production[2]	247

Discharge: 1,614[1]

Surface water / freshwater	1,344
Brackish water / seawater	239
Groundwater	10
External treatment plant	21

1 The difference between the volume of water drawn and the volume discharged is primarily attributable to evaporation losses during closed-circuit cooling.
2 Total from production processes, graywater, rinsing and cleaning in production

1 The 2017 figure has been adjusted due to updated data.

Employees

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Our employees make a significant contribution to BASF's long-term success. We want to attract and retain talented people for our company and support them in their development. To do so, we cultivate a working environment that inspires and connects people. It is founded on inclusive leadership based on mutual trust, respect and dedication to top performance.

122,404

employees around the world

Employee engagement and leadership impact

on center stage

Strategy

- **We are committed to valuing and treating people with respect, and fostering an inspiring working environment**

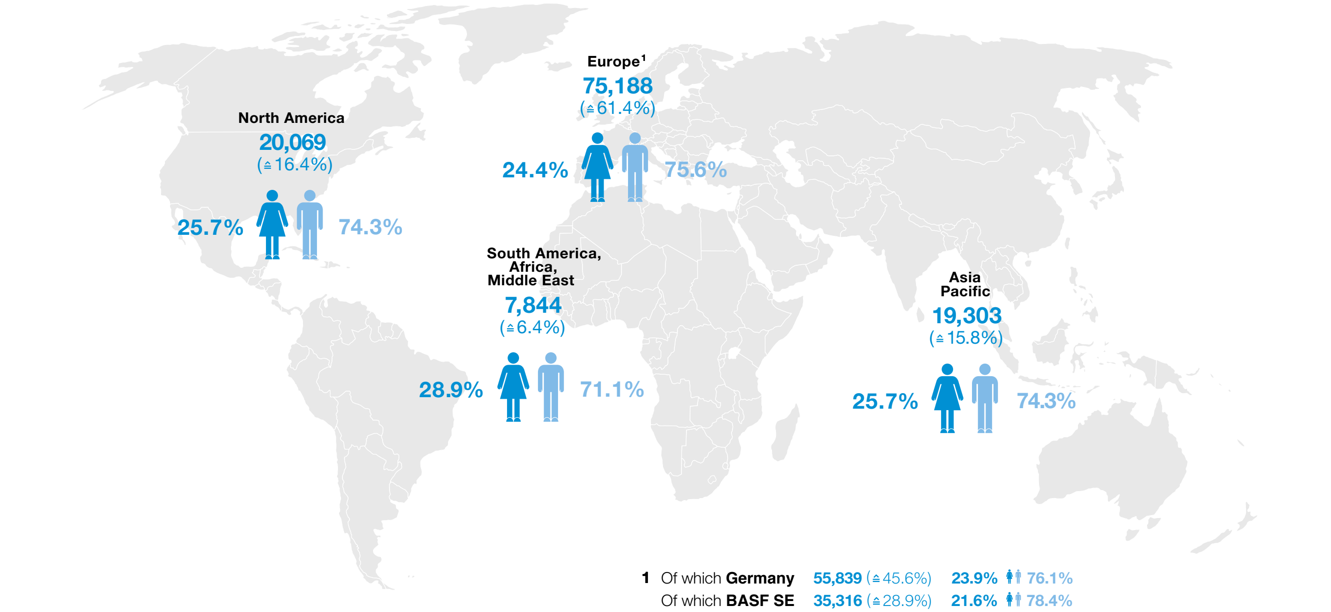
Our employees are key to the successful implementation of BASF's strategy. They contribute to changing the world we live in for the better with innovative and sustainable solutions. We remain convinced of the value of excellent employees, leaders and working conditions, and strive to give our employees the tools and skills necessary to be able to offer our customers products and services with an even greater level of differentiation and customization in the future. As part of the updated corporate strategy, we will sharpen our focus on employee engagement and impactful leadership. In everything we do, we are committed to complying with internationally recognized labor and social standards. We want our working conditions to be a motor for innovation, and one way of achieving this is through inclusion of diversity. We want our employees to thrive and best contribute their individual talents – also considering the increasingly rapidly changing environment, especially as a result of demographic change and the digitalization of work. Lifelong learning and individual employee development lay the foundation for this. Compensation and benefits as well as offerings to balance personal and professional life complete our attractive total offer package. We track our employer rankings so that we can continue to attract talented people to the company in the future. Our employees play an important role here as ambassadors for BASF.

Number of employees

At the end of 2018, BASF had 122,404 employees (2017: 115,490); of these, 3,174 were apprentices[1] (2017: 3,103). 3,226 employees were on temporary contracts (of which 40.9% were women). The higher headcount was primarily due to the businesses acquired from Bayer. In addition, 2,017 employees from the disposal group for the oil and gas business were included in the number of employees as of December 31, 2018.

BASF Group employees by region

(Total: 122,404, of which 25.1% women, as of December 31, 2018)



1 At BASF, the apprenticeship program trains students for technical, scientific and business vocations as well as for trade and craft professions.

Employee engagement

■ Next employee survey to be conducted in 2019

BASF can rely on the engagement of its employees. Employee engagement is shown by, for example, a passion for the job, a dedication to top performance and a commitment to BASF. Previous global employee surveys have shown that employee engagement is already high, and we aim to keep it this way and increase it even further where possible. As part of our updated corporate strategy, we have therefore set ourselves the following goal for the coming years from 2019 onward: More than 80% of our employees feel that at BASF, they can thrive and perform at their best. Our employee engagement level will be regularly calculated as an index score based on set questions in employee surveys. We identify improvement areas based on survey results to further strengthen the engagement of our employees.

Global employee surveys and pulse checks are and will remain an established feedback tool in the BASF Group, and are used to actively involve employees in shaping their working environment. The results are communicated to employees, the Board of Executive Directors and the Supervisory Board. We have performed regular global employee surveys since 2008. As part of the updated corporate strategy, we conducted a global "pulse check" in 2018. We surveyed around 24,000 randomly chosen employees worldwide on topics such as customer focus, innovation, digitalization, sustainability and safety awareness. The results of this survey were taken into account in the strategy development process. We will conduct the next employee survey in 2019 based on an updated concept.

What we expect from our leaders

■ Leaders as role models

Our leaders and their teams should make a sustainable contribution to BASF's success and to safeguarding its future. This is why we want to strengthen leadership impact. We understand impactful leadership as leaders that serve as role models by developing and implementing business strategies in line with our corporate values. They should also have a positive impact on shaping day-to-day business, mobilizing employees and fostering their development. These expectations are part of the standard global nomination criteria for leadership candidates. Our leadership culture is founded on a global Competency Model, which sets out specific behavioral standards, as well as our global Code of Conduct. We offer our leaders learning and development opportunities for each phase of their career, as well as various formats that enable them to share knowledge and learn from one another. Global, regional and local offerings are optimally coordinated.

Regular feedback plays an important role in the development of leaders. In 2018, we tested new digital tools for providing direct, timely feedback in a number of business and functional units. This complements BASF's long-established Global Leadership Feedback tool, where leaders receive feedback from their employees, managers, colleagues and customers on different aspects of their leadership conduct, and derive conclusions and activities from this in a follow-up process. In the coming years, we will introduce additional feedback tools. The use of these tools is binding in order to further enhance our strong feedback culture and promote personal development among our leaders on a regular basis.

Leaders and digital transformation

Leaders play a special role in driving forward digitalization. We offer training and other resources to prepare them and help them inspire their teams about the digital transformation. One example is the BASF Leadership Camp held in the fall of 2018, where leaders from all of the regions came together to discuss topics such as the role of leaders and the challenges of the digital transformation facing them, as well as the possibilities of digital project management. Leaders were also given the opportunity to participate in a modular course with cross-company digitalization projects. The program was run under the auspices of the Digital Academy, a network of large companies and the Mannheim Business School, which aims to drive forward the digital transformation in Germany.

Inclusion of diversity

Promoting diversity is part of our company culture

The strong global character of our markets translates into different customer requirements – and we want to reflect this diversity among our employees, too. For us, diversity means, among other things, having people from different backgrounds working at our company who can draw on their individual perspectives and skills to grow our business. This diversity is important to us because it enables our employees to better meet our customers' needs. By valuing and promoting employee diversity, we boost our teams' performance and power of innovation, and increase creativity, motivation and each and every individual's identification with the company.

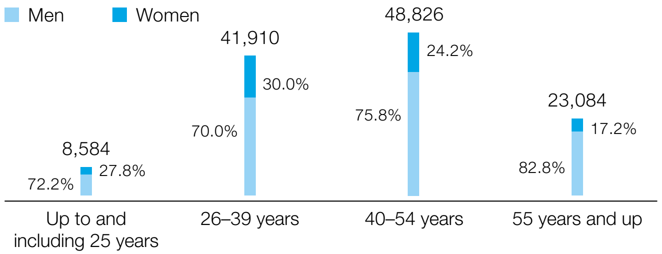
Promoting and valuing diversity across all hierarchical levels is an integral part of our strategy and is also embedded in our corporate values. BASF strives to foster a working environment based on mutual respect, trust and appreciation. This is enshrined in our global Competency Model, which provides a framework for our employees and leaders. The inclusion of diversity is anchored in this model as one of the behaviors expected of employees and leaders.

Our leaders play an important role in its implementation. We support them by integrating topics such as inclusive leadership into our leadership development courses. Special seminars and training events are held to sensitize leaders to issues such as unconscious bias. This enables them to remain as objective as possible when making personnel decisions, for example, to avoid unconscious biases in favor of or against candidates with certain characteristics or views.

Diversity also relates to the company's demographic profile, which varies widely by region within the BASF Group. Our aim is to create a suitable framework to help maintain the employability of our personnel at all stages of life and ensure the availability of qualified employees over the long term. Mixed-age teams also benefit from the combination of different skills and perspectives, for example, by bringing together knowledge of digital technologies with many years of experience and process expertise. We have various measures in place to foster this transfer of knowledge and experience, and learning from each other. Given the special role that our leaders assume, the topic "leadership in times of demographic change" forms a part of many of our leadership programs.

BASF Group employee age structure

(Total: 122,404, of which 25.1% women, as of December 31, 2018)



We also promote diversity in leadership development. Our global approach is evidenced by the high percentage of non-German senior executives,[1] for example. This was 40.4% at the end of 2018 (2017: 38.9%). Our goal is to continue to maintain this figure at significantly above the 2003 baseline (30%).

Since 2015, BASF has set itself global quantitative goals for increasing the percentage of women in leadership positions. We aim to increase this ratio to 22–24% worldwide by 2021, so that the proportion of women in leadership positions reflects the share of female employees in the BASF Group when the target was set.

2021 target

Proportion of women in leadership positions with disciplinary responsibility

22–24%

Considering the low rate of turnover in the BASF Group's leadership team, this is an ambitious goal that we want to achieve through various measures. At BASF in North America, for example, diversity considerations such as gender or ethnic background are systematically considered when drawing up candidate lists and interview panels for all vacant positions. BASF has been a member of the *Chefsache* initiative since 2016, a network of leaders from industry, academia, the public sector and media. The initiative aims to initiate social change such as increasing the percentage of women in leadership positions in Germany. In the BASF Group, the global proportion of female leaders with disciplinary responsibility was 21.7%[2] at the end of 2018 (2017: 20.5%).

Leaders and professionals in the BASF Group[2]

	December 31, 2018	Of which women (%)
(Senior) executives[1]	9,648	21.7
Professionals[2]	39,756	30.2

1 Employees with disciplinary leadership responsibilities
2 Specialists without disciplinary leadership responsibilities

For more information, see basf.com/diversity

For more information on diversity in the Board of Executive Directors and the Supervisory Board, see page 136 onward

For more information on health protection, see page 98

1 The term "senior executives" refers to leadership levels 1 to 4, whereby level 1 denotes the Board of Executive Directors. In addition, individual employees can attain senior executive status by virtue of special expertise.
2 Excluding employees of the businesses acquired from Bayer

Competition for talent

- **Positioning as an attractive employer**
- **Focus on social media and online marketing**

Attracting and retaining the best employees is crucial to our success. Having an attractive and compelling total offer package for employees is becoming increasingly important given the strong global competition for the best qualified employees and leaders. This is why we are constantly working on measures to increase BASF's appeal in the global labor markets.

We are increasingly using digital platforms such as our country-specific career websites as well as global and regional social networks to reach potential candidates. This enables us to address specific target groups. One focus is on the recruitment of digital talents. In 2018, we launched a dedicated global career website for digital talents to strengthen our position among this group. In Germany, we also held our second BASF hackathon in 2018 with the motto "Coding Chemistry." Around 50 university students solved specific problems from our divisions within 24 hours and presented their solutions to a panel of BASF experts.

In North America, our #belongatBASF campaign informed social media users of the benefits of working at BASF in 2018. Employees also joined in and posted about their personal experiences and their working day at BASF. In addition, we offered a global livestream about working at BASF for the first time in 2018, in which our experts interacted directly with and answered questions from potential candidates.

We once again achieved high scores in a number of employer rankings in 2018. For example, in a study conducted by Universum, BASF was again selected by engineering and IT students as one of the 50 most attractive employers in the world. In North America, DiversityInc named BASF as one of the top 50 companies for diversity in recruiting for the sixth consecutive year. In Asia, Top Employer recognized BASF China as one of the best employers for the eighth time in succession.

BASF Group new hires in 2018[1]

	December 31, 2018	Of which women (%)
Europe	5,182	28.9
North America	2,091	29.3
Asia Pacific	2,094	31.1
South America, Africa, Middle East	758	36.8
Total	**10,125**	**30.0**

The BASF Group hired 10,125 new employees in 2018. The percentage of employees who resigned during their first three years of employment – the early turnover rate – was 1.3% worldwide in 2018. This turnover rate was 0.6% in Europe, 2.3% in North America, 2.8% in Asia Pacific and 1.7% in South America, Africa, Middle East. Our early turnover rate is therefore at a desirable low level.[1]

As of December 31, 2018, the BASF Group was training 3,174 people in 15 countries and around 50 occupations. We spent a total of around €110 million[1] on vocational training in 2018.

For more information, see basf.com/apprenticeship

Learning and development

- **Life-long learning concept**
- **Focus on virtual learning and digitalization**

Learning and development are essential success factors for a strong company culture. The skills and competencies of our employees are critical for profitable growth and lasting success. For this reason, we want to further modernize our learning culture and step up our efforts to promote lifelong, self-directed learning. Employee development at BASF is guided by the belief that talent is in everyone. This means that development opportunities and support are open to all employees. In our understanding, there is more to development than a promotion or a job change – it encompasses the development of personal experience and abilities.

In regular development meetings, which are held as part of our annual employee dialogs, employees outline prospects for their individual development together with their leaders and determine specific measures for further training and development, which focus on personal and professional competencies. Our learning activities follow the "70-20-10" philosophy: We apply the elements "learning from experience" (70%), "learning from others" (20%) and "learning through courses and media" (10%). Our learning and development offerings cover a range of learning goals: Starting a career, expanding knowledge, personal growth and leadership development. Virtual learning is playing an increasingly important role here.

We held our first ever global virtual "Go Digital!" week in 2018, for example. This gave employees around the world the chance to find out about different digitalization topics via online events. BASF employees and representatives from other companies provided insights into their digital projects.

1 Excluding employees of the businesses acquired from Bayer

In addition, more and more academies in the divisions and functional units, which teach specific professional content, offer virtual training. We have offered "virtual presence" training since 2018, which gives all employees the opportunity to attend professional development courses via digital communication channels such as virtual meetings. In 2018, we introduced a global website with an accompanying learning app to enable employees around the world to find out about the digital workplace of the future and independently prepare for the digital transformation. Employees can use the app to learn about things like digital jargon and technologies, and acquaint themselves with new working and leadership models.

Compensation and benefits

- **Compensation based on employee's position and individual performance as well as company's success**
- **ROCE determines variable compensation**

We want to attract engaged and qualified employees, retain them and motivate them to achieve top performance with an attractive package including market-oriented compensation, individual development opportunities and a good working environment so that they contribute to the company's long-term success. Our employees' compensation is based on global compensation principles according to position, market and performance. As a rule, compensation comprises fixed and variable components as well as benefits that often exceed legal requirements. In many countries, these benefits include company pension benefits, supplementary health insurance and share programs. We regularly review our compensation systems at local and regional levels.

We want our employees to contribute to the company's long-term success. This is why the compensation granted to vast majority of our employees includes variable compensation components, with which they participate in the success of the BASF Group as a whole and are recognized for their individual performance. The same principles basically apply for all employees worldwide. The amount of the variable component is determined by economic success as well as the employee's individual performance. Since 2018, we have used the BASF Group's return on capital employed (ROCE) to measure economic success for the purposes of variable compensation. This links variable compensation to our ROCE target.[1] Individual performance is assessed as part of a globally consistent performance management process.

In numerous Group companies, our "plus" share program ensures employees' long-term participation in the company's success through incentive shares. In 2018, for example, 25,586 employees worldwide (2017: 23,700) participated in the "plus" share program. BASF offers senior executives the opportunity to participate in a share price-based compensation program, the long-term incentive (LTI) program. In 2018, 91% of the approximately 1,100 people eligible to participate in the LTI program worldwide did so, investing up to 30% of their variable compensation in BASF shares.

For more information, see the Notes to the Consolidated Financial Statements from page 263 onward

Personnel expenses

The BASF Group spent €10,659 million on wages and salaries, social security contributions and expenses for pensions and assistance in 2018 (2017: €10,610 million). This also includes personnel expenses from the disposal group for the oil and gas business in the amount of €276 million (2017: €268 million). The rise in personnel expenses was primarily driven by the higher average headcount following the acquisition of significant businesses from Bayer, as well as higher wages and salaries. The main offsetting effects were the increase in provisions released for the long-term incentive program compared with the previous year and currency effects.

BASF Group personnel expenses

Million €

	2018	2017	+/–
Wages and salaries	8,470	8,471	0%
Social security contributions and assistance expenses	1,459	1,434	1.7%
Pension expenses	730	705	3.5%
Total personnel expenses	**10,659**	**10,610**	**0.5%**

Balancing personal and professional life

- **Wide range of offerings for different phases of life**

Our identity as an employer includes our belief in supporting our employees in balancing their personal and professional lives. We want to strengthen their identification with the company and our position in the global competition for qualified personnel. To achieve this, we have a wide range of offerings aimed at employees in different phases of life. These include flexible working hours, part-time employment and mobile working. Regional initiatives specifically address the needs of our employees at a local level. Our Work-Life Management employee center in Ludwigshafen (LuMit) offers a number of services under one roof: childcare, fitness and health, social counseling and coaching as well as other programs to help employees balance professional and personal life. We also provide social counseling and coaching at the Münster and Schwarzheide sites in Germany as well as in Asia, South Africa and North America to help employees overcome difficult life situations and maintain their employability.

1 In calculating ROCE, adjustments are made for negative and positive special items resulting from acquisitions and divestitures (e.g., integration costs in connection with acquisitions and gains or losses from the divestiture of businesses) when these exceed a corridor of plus or minus 1% of the average cost of capital basis. An adjustment of the ROCE (in the first 12 months after closing) therefore only occurs in cases of exceptionally high special items resulting from acquisitions and divestitures.

Dialog with employee representatives

Trust-based cooperation with employee representatives is an important component of our corporate culture. Our open and ongoing dialog lays the foundation for balancing the interests of the company and its employees, even in challenging situations. In the case of organizational changes or if restructuring leads to staff downsizing, for example, we involve employee representatives to develop socially responsible implementation measures at an early stage.

Our actions are aligned with the respective legal regulations and the agreements reached, as well as operational considerations. In 2018, this happened in preparations to transfer the paper and water chemicals business to a joint venture, for example. We also involved our employee representatives in full and at an early stage when we introduced a new global metric for variable compensation. This ensured wide employee acceptance and seamless implementation of the change. The early, detailed presentation and explanation of the updated corporate strategy in 2018 was also a reflection of our trust-based cooperation.

By focusing our discussions on the local and regional situations, we aim to find tailored solutions to the different challenges and legal considerations for each site. This is why the BASF Europa Betriebsrat (European Works Council) addresses cross-border matters in Europe. In South America, we foster dialog with the Diálogo Social.

For more information, see basf.com/employeerepresentation

International labor and social standards

■ Alignment with U.N. Guiding Principles on Business and Human Rights

We act responsibly toward our employees. Part of this is our voluntary commitment to respecting international labor and social standards, which we have embedded in our global Code of Conduct. This encompasses internationally recognized labor norms as stipulated in the United Nations' Universal Declaration of Human Rights, the OECD Guidelines for Multinational Enterprises, and the Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy of the International Labour Organization (ILO). BASF is committed to complying with these standards worldwide. We mainly approach our adherence to international labor and social standards using three elements: the Compliance Program (including external compliance hotlines), close dialog with our stakeholders (such as with employee representatives or international organizations) and the BASF guideline on compliance with international labor norms, which was established in 2015 and applies Group-wide.

This guideline concretizes what the human rights issues and international labor standards in our global Code of Conduct mean as these relate to our employees. It forms the basis for our global management process: We monitor and evaluate whether the national law of all the countries in which BASF operates complies with international labor and social standards. If the national law contains no or lower requirements, actions plans are drawn up to successively close these gaps in a reasonable time frame. If conflicts with national law or practices arise, we strive to act in accordance with our values and internationally recognized principles without violating the law of the country concerned. As part of the management process, we regularly follow up on and document the results of the comparison between national law and our guideline, as well as measures to implement the guideline. This is our central due diligence system. Based on our guideline, our management process has been able to improve maternity leave at BASF companies with no statutory requirements or lower requirements than in the BASF guideline, for example.

We already use internal control processes such as Responsible Care audits to review the degree of adherence with the individual elements of the guideline in BASF Group companies.[1] Beyond this, we started to integrate our voluntary commitment into the existing corporate audit process in 2018.

For more information on labor and social standards, see basf.com/labor_social_standards
For more information on global standards, see page 28
For more information on our sustainability-related risk management, see page 36 onward
For more information on compliance, see page 140 onward

1 Excluding employees of the businesses acquired from Bayer

Customer Orientation

SUPPLIERS BASF CUSTOMERS

BASF supplies products and services to over 90,000 customers[1] from various sectors in almost every country in the world. Our customer portfolio ranges from major global customers and medium-sized businesses to end consumers.

Over 90,000

customers from almost all sectors and countries in the world

Innovative

in close partnership with our customers

Flexible

thanks to in-depth expertise and wide range of resources

Customer industry orientation

- **Innovations and tailored solutions in close partnership with our customers**
- **Updated corporate strategy aligns BASF even closer with customers**

Our broad portfolio – from basic chemicals to high value-added products and system solutions – means that we are active in many value chains and value creation networks. As a result, we work with a wide range of business models, which we flexibly adapt to the needs of individual industries. These range from cost leadership to tailored, customer-specific solutions for downstream products. This industry orientation is primarily driven forward and enhanced by the divisions. Around half of our business units are oriented toward specific industries.

Aligning our business with our customers' needs is our primary focus. Our ability to combine in-depth expertise with a wide range of resources to meet specific demands enables us to position BASF as a solution-oriented system provider.

Our updated corporate strategy puts an even greater focus on the customer. We aim to develop custom solutions that are both profitable and sustainable in close partnership with our customers, and optimize processes and applications. Our organization is being adapted accordingly so that we can work more effectively and efficiently and be even more customer-centric. We want to satisfy customer requests in a more focused and targeted way, and improve our reaction times. Our comprehensive understanding of value chains and value creation networks as well as our global setup and market knowledge remain key success factors.

We are also pursuing a series of measures that will, among other things, increase transparency for customers, enhance customer service and explore joint growth potential. To ensure even stronger customer communication and better understand our customers' needs, we regularly ask them for direct feedback on how we are doing. This gives us a timely insight into customer satisfaction and we can use the findings to continuously improve our performance.

For more information on BASF's updated corporate strategy and our stronger customer focus, see page 25 onward

For more information on the BASF Group's new organizational structure as of January 1, 2019, see page 19

For more information on the previous segments and their divisions in 2018, see pages 60, 67, 74 and 80 onward

Quality management

Our customers' satisfaction is the basis for long-term business success, which is why quality management is of vital significance for BASF. We strive to continually improve processes and products. This is also reflected in our Global Quality Policy. The majority of BASF's production sites and business units are certified according to ISO 9001.[2] In addition, we also meet industry and customer-specific quality requirements that go beyond the ISO standard.

Customer awards

We again received awards from a number of satisfied customers in 2018. For example, in April 2018 we were named a 2017 General Motors (GM) Supplier of the Year for the thirteenth time since 2002. The award is presented to suppliers who distinguish themselves by meeting performance metrics for quality, execution, innovation and total enterprise cost.

In October 2018, BASF was recognized by technology company 3M for its contribution to improving 3M's competitiveness with the 2017 3M Supplier of the Year Award in the Technology & Innovation category.

BMW honored BASF in November 2018 with a BMW Supplier Innovation Award 2018 as the winner of the Sustainability category. BMW said that BASF achieved the best performance in CO_2 emissions in the report published by the non-governmental organization CDP. BASF's anchoring of the fight against climate change within the company was cited as another reason for the decision. In addition, BASF develops solutions that help its customers reduce CO_2 emissions.

1 The method used to calculate customers in the previous year has been adjusted to the "sold-to" parties of our consolidated companies. The updated figure for 2017 is over 80,000 customers.
2 ISO 9001 is a standard published by the International Organization for Standardization (ISO) and sets out the requirements for a quality management system.

Forecast

Economic Environment in 2019

In a challenging environment characterized by a high level of uncertainty, the global economy is expected to grow by 2.8% in 2019, slower than in 2018 (+3.2%). In the European Union (E.U.), we anticipate weaker increases in both domestic demand and export demand from third countries. The United States will presumably deliver solid growth, although the stimulus effects of the tax reform should be less pronounced than in 2018. Growth in China will continue to cool but remain high compared with the advanced economies. The economic recovery in Brazil is expected to hold up. We expect growth in key customer industries to continue. For the automotive industry, we anticipate a slight recovery after lower production in the previous year. Global chemical production is forecast to grow by 2.7% in 2019, roughly at the same rate as in 2018 (+2.7%). For 2019, we expect an average oil price of $70 per barrel for Brent crude and an exchange rate of $1.15 per euro.

Our macroeconomic forecasts are based on the assumption that the trade conflict between the United States and its trading partners will ease over the course of the year, and that Brexit will occur without wider economic repercussions.

Trends in the global economy in 2019

- **Slower growth forecast for the E.U. and the United States**
- **Growth moderation expected in China**
- **Continuation of recovery in Brazil**

Our forecasts for the **E.U.** assume that the United Kingdom will leave the E.U. in 2019, followed by a transitional period lasting until at least the end of 2020. The slowdown in growth already apparent in 2018 is likely to continue in the E.U. (the E.U. 27 and the United Kingdom[1]); however, we continue to expect moderate growth overall. Both export and domestic demand should see weaker growth. Germany in particular will be negatively impacted by slower growth in demand for investment goods, with GDP growth rates slightly below the E.U. average. As growth of eastern E.U. countries benefited particularly strongly from new inflows of E.U. cohesion and structural funds in 2017 and 2018, growth will presumably decline more strongly than in western Europe. For Russia, we expect weaker GDP growth compared with the previous year.

We are forecasting slower economic momentum for the **United States**, although this will still be significantly above the long-term average. The impetus from the tax reform should slowly taper off. Consumer purchasing power will presumably be curbed by higher prices as a result of the hike in import duties on Chinese goods, while wages continue to see only moderate gains.

Growth in the **emerging markets of Asia** is also expected to weaken slightly. Many Asian markets have close links to China through foreign trade, so the anticipated growth moderation in **China** is a major factor. We expect higher trade tariffs with the United States to dampen export demand and negatively impact investment propensity. However, the Chinese economy should be supported by income and sales tax cuts as well as tax concessions for the private sector. We anticipate growth of just over 6% for China (2018: +6.6%).

In **Japan**, growth is expected to remain at the low prior-year level. Domestic demand should remain stable, although capacity bottlenecks will have a dampening effect on growth. The expected slowdown in China will curb export demand. In addition, the sales tax will be raised in October 2019, which should lead to lower consumer demand in the fourth quarter.

In **South America**, we expect the recovery in Brazil to continue, provided the newly elected president pursues a liberal, reform-oriented economic course. By contrast, the Argentinian economy will likely continue to contract as domestic demand suffers from high inflation.

1 In the rest of this chapter, "E.U." refers to the E.U. 27 and the United Kingdom.

Outlook for gross domestic product 2019

Real change compared with previous year

World	2.8%
European Union	1.4%
United States	2.3%
Emerging markets of Asia	5.8%
Japan	0.8%
South America	1.8%

Trends in gross domestic product 2019–2021

Average annual real change

World	2.9%
European Union	1.5%
United States	2.0%
Emerging markets of Asia	5.7%
Japan	0.7%
South America	2.5%

Outlook for key customer industries

- **Weaker growth expected in global industrial production**

Overall, we expect global industrial growth to be weaker in 2019, at 2.7% (2018: +3.2%). The trajectory should slow in both the advanced economies as well as in the emerging markets.

We expect the **transportation industry** to return to growth after a slight decline in production in the previous year. In the E.U., automotive production will presumably decline again slightly; a slight decline in western Europe should contrast with moderate growth in the eastern E.U. countries. For North America, we are again forecasting weak growth after the slight decrease in 2018. In Asia, too, we anticipate a slight recovery overall, as the expiry of the tax incentives will no longer be felt in China and economic stimuli should take effect. Dynamic growth is again forecast for India. In Japan and South Korea, automotive production should return to positive territory in 2019 after contracting in the previous year. By contrast, growth in South America will likely decline following the strong recovery effects in prior years.

In the **energy and raw materials sector**, we anticipate slightly weaker production growth for 2019. The main driver is the lower growth rate forecast for utilities – which accounts for over 40% of value added in the sector – compared with 2018. This was partly attributable to the extraordinary weather conditions in 2018, which led to unusually high electricity and water consumption.

We anticipate largely stable global growth in the **construction industry** with wide regional variance. Construction in western Europe will soften somewhat, partly due to capacity bottlenecks (Germany) and partly to the limitations of subsidy programs (France). Private sector construction activity in the United Kingdom is expected to remain sluggish due to macroeconomic uncertainty. By contrast, the construction industry in eastern Europe should remain dynamic with strong growth rates, although weaker than in the previous year. We are again seeing a weak development in the United States against a backdrop of rising mortgage rates and construction costs, while growth in Asia is expected to remain stable at a high level, especially in infrastructure. In South America, we anticipate stronger growth in line with the ongoing economic recovery in Brazil.

Growth in consumer goods production should remain stable. Although global GDP growth – the most important demand driver – is likely to decline slightly, demand for consumer goods should stabilize on the back of rising private incomes. The expected regional differences in growth should follow the GDP trends described above.

The **electronics industry** will continue to benefit from increasing digitalization and automation, posting the highest growth rates of all customer industries. Production is concentrated in Asia and North America. However, growth is expected to weaken in both Asia and the United States. Overall, this will lead to a significant slowdown in global growth.

We continue to forecast above-average growth in the **health and nutrition** sector, albeit slightly weaker than in the previous year. The expected decline in growth in the food industry is largely in line with the development of GDP. The pharmaceutical industry will presumably see a stronger decline in growth. Base effects play an important role there, since value creation in a number of countries – including Germany – rose exceptionally strongly in the previous year due to the introduction of new, high-value medications.

We expect stronger growth in **agricultural production** in 2019 compared with the previous year after 2018 yields were negatively impacted by the unusual dry period in central and eastern Europe, parts of North America as well as in Argentina and South Africa.

Outlook for the chemical industry

- **Global growth in chemical industry roughly at level of previous year**

Global chemical production (excluding pharmaceuticals) is expected to grow by 2.7% in 2019, on a level with 2018 (+2.7%). For 2019, we anticipate a similar expansion rate in the advanced economies as in the previous year (2018: +1.5%; 2019: +1.6%) and slightly slower growth in the emerging markets (2018: +3.4%; 2019: +3.3%).

The development of the world's largest chemical market – **China** – has a significant impact on the global growth rate. Our forecast assumes that chemical production in China will grow by 3.6%, about as fast as in the previous year in a slightly weaker global economic environment overall. A stabilization of automotive demand in China should support demand for chemicals. Based on its large share of the global market of around 40%, China alone would therefore still account for almost 60% of global chemical growth. Chemical production growth in the remaining emerging markets of Asia is expected to be similar to that in China.

For the **E.U.**, we anticipate a recovery in chemical production over the course of 2019 following the slump at the end of 2018. However, we only expect production to be flat compared with the full-year 2018. Demand from the automotive industry will presumably continue to decline slightly. Agriculture should see renewed growth. In the construction industry, too, growth is expected to remain solid. Base effects should also have a positive impact.

In the **United States**, we expect slightly lower, but still above-average growth in chemical production in the coming year. Ongoing capacity expansions will strengthen the supply side while on the demand side, industry growth will be slightly weaker.

We expect slightly stronger chemical growth in **Japan**, driven by domestic demand and, in part, by exports to China.

For **South America**, we anticipate an upturn in chemical production in line with the macroeconomic recovery in Brazil.

Outlook for chemical production 2019 (excluding pharmaceuticals)

Real change compared with previous year	
World	2.7%
European Union	0.1%
United States	3.2%
Emerging markets of Asia	3.6%
Japan	2.0%
South America	1.5%

Trends in chemical production 2019–2021 (excluding pharmaceuticals)

Real change compared with previous year	
World	3.0%
European Union	0.8%
United States	2.9%
Emerging markets of Asia	4.2%
Japan	0.8%
South America	2.0%

Outlook 2019

We expect weaker global economic growth in 2019 compared with 2018. At 2.8%, global GDP growth will presumably be slower than in 2018 (+3.2%). Chemical production is expected to increase at a rate of 2.7%, on a level with the previous year (+2.7%). We anticipate an average oil price of $70 for a barrel of Brent blend crude and an exchange rate of $1.15 per euro. Despite the challenging environment characterized by a high level of uncertainty, we aim to grow profitably and slightly increase the BASF Group's sales and income from operations (EBIT) before special items in 2019. The return on capital employed (ROCE) should slightly exceed the cost of capital percentage but decline slightly compared with 2018.

We expect growth in our customer industries to continue. For the automotive industry, we anticipate a slight recovery after lower production in the previous year. Our outlook assumes that the trade conflict between the United States and its trading partners will ease over the course of the year, and that Brexit will occur without wider economic repercussions.

For more information on our expectations for the economic environment in 2019, see page 117 onward

Sales, earnings and ROCE forecast for the BASF Group[1]

- **Slight sales growth, mainly from higher sales volumes and portfolio effects**
- **EBIT before special items slightly above prior-year level**
- **ROCE slightly higher than cost of capital percentage**

We have based the outlook on the segment structure as of January 1, 2019, and adjusted the segment data for 2018 accordingly. In addition to the new segment structure, the composition of a number of divisions has also changed.

For more information on the new segment structure, see The BASF Group on page 19 and Note 4 to the Consolidated Financial Statements from page 211 onward

Our forecast for 2019 takes into account the definitive agreement between BASF and LetterOne to merge their oil and gas businesses. Closing of the transaction is expected in the first half of 2019, subject to the required regulatory approvals. Until closing, the earnings of our oil and gas business will be presented as a separate item, income after taxes from discontinued operations, and will not be included in the sales or EBIT before special items of the BASF Group. After closing, the pro rata share of income after taxes of the joint venture, Wintershall DEA, will be reported as income from companies accounted for using the equity method in the BASF Group's EBIT before special items, presented under Other.

This outlook also includes the acquisition of Solvay's integrated polyamide business, which is expected in the second half of 2019. However, we currently do not expect this transaction to have any material effect on sales, EBIT before special items or ROCE at the level of the BASF Group in 2019.

We anticipate slightly higher sales for the BASF Group in 2019. The main contributing factors should be volumes growth and portfolio effects, especially from the acquisition of significant businesses from Bayer that was closed in August 2018. We expect considerable sales growth in the Agricultural Solutions and Nutrition & Care segments as well as in Other, and slightly higher sales in the Surface Technologies and Materials segments. Sales in the Chemicals segment are expected to be on a level with the previous year. Our planning for the Industrial Solutions segment assumes slightly lower sales due to the transfer of BASF's paper and water chemicals business to the Solenis group as of January 31, 2019.

EBIT before special items will presumably be slightly above the 2018 level. This will largely reflect significantly higher contributions from the Agricultural Solutions, Industrial Solutions, Surface Technologies and Nutrition & Care segments. We are forecasting a slight improvement in earnings in the Chemicals segment. In the Materials segment, by contrast, we anticipate considerably lower EBIT before special items, driven by a decline in margins in the isocyanates business. We also expect the earnings generated by Other to be considerably below the prior-year figure. Positive measurement effects for our long-term incentive program arose in 2018, which we do not expect in 2019.

In 2019, we expect to achieve a ROCE slightly above the underlying cost of capital percentage of 10%. The average cost of capital basis will increase in 2019 due to the full-year inclusion of the assets acquired from Bayer in August 2018. As a result, we expect the BASF Group's ROCE to decline slightly, i.e., at most one percentage point compared with the previous year. In 2018, ROCE amounted to 11.5% adjusted to the new segment structure. Compared with the previous year, we expect a considerable decline in ROCE in the Materials segment (2018: 26.1%) and a slight decrease in the Chemicals segment (2018: 17.7%). By contrast, we anticipate slight year-on-year increases in the Surface Technologies (2018: 4.6%), Nutrition & Care (2018: 11.8%) and Agricultural Solutions (2018: 5.1%) segments, and a considerable increase in the Industrial Solutions segment (2018: 8.7%).

The significant risks and opportunities that could affect our forecast are described in Opportunities and Risks on pages 123 to 130. Achievement of our sales and earnings forecast largely depends on the accuracy of our macroeconomic assumptions for 2019.

1 For sales, "slight" represents a change of 1–5%, while "considerable" applies to changes of 6% and higher. "At prior-year level" indicates no change (+/–0%). For earnings, "slight" means a change of 1–10%, while "considerable" is used for changes of 11% and higher. "At prior-year level" indicates no change (+/–0%). At a cost of capital percentage of 10% for 2018 and 2019, we define a change in ROCE of 0.1 to 1.0 percentage points as "slight," a change of more than 1.0 percentage points as "considerable" and no change (+/–0 percentage points) as "at prior-year level."

Forecast by segment[1,2]

Million €

	Sales		Income from operations (EBIT) before special items	
	2018	Forecast 2019	2018	Forecast 2019
Chemicals	11,694	at prior-year level	1,587	slight increase
Materials	13,270	slight increase	2,400	considerable decline
Industrial Solutions	9,120	slight decline	668	considerable increase
Surface Technologies	13,655	slight increase	690	considerable increase
Nutrition & Care	5,940	considerable increase	736	considerable increase
Agricultural Solutions	6,156	considerable increase	734	considerable increase
Other	2,840	considerable increase	(462)	considerable decline
BASF Group	**62,675**	**slight increase**	**6,353**	**slight increase**

1 For sales, "slight" represents a change of 1–5%, while "considerable" applies to changes of 6% and higher. "At prior-year level" indicates no change (+/–0%). For earnings, "slight" means a change of 1–10%, while "considerable" is used for changes of 11% and higher. "At prior-year level" indicates no change (+/–0%).
2 We have based the outlook on the segment structure as of January 1, 2019, and adjusted the segment data for 2018 accordingly. In addition to the new segment structure, the composition of a number of divisions has also changed.

Sales and earnings forecast for the segments

In the **Chemicals** segment, we expect sales to reach the prior-year level in 2019. We anticipate higher volumes, especially of styrenes, plasticizers and oxo alcohols in the Petrochemicals division, and of amines and polyalcohols in the Intermediates division. By contrast, we expect lower volumes of steam cracker products due to scheduled shutdowns of the steam crackers in Port Arthur, Texas; Antwerp, Belgium; and Ludwigshafen, Germany. EBIT before special items will presumably be slightly above the 2018 level: In particular, we are forecasting improved margins in the butanediol value chain in the Intermediates division, as well as for acrylic acid and its derivatives in the Petrochemicals division.

We expect sales in the **Materials** segment to be slightly above the prior-year level in 2019. In the Performance Materials division, we anticipate stronger volumes and higher prices on average. This should more than offset the significantly lower prices in the isocyanates business in the Monomers division as a result of additional capacities from competitors, especially in the Middle East and Asia. In addition, the acquisition of Solvay's integrated polyamide business is expected to deliver a positive contribution in the second half of 2019. We anticipate considerably lower EBIT before special items compared with 2018, driven mainly by the expected decline in margins in the isocyanates business.

Sales in the **Industrial Solutions** segment will likely decrease slightly in 2019. We expect a considerable decline in sales in the Performance Chemicals division due to the transfer of BASF's paper and water chemicals business to the Solenis group as of January 31, 2019. The higher volumes and prices forecast in the Performance Chemicals division's remaining businesses as well as in the Dispersions & Pigments division and will not be able to completely compensate for this. Despite the continued challenging market environment, we anticipate a considerable increase in EBIT before special items for the segment, mainly from higher volumes and stronger margins.

In the **Surface Technologies** segment, sales should rise slightly as a result of volumes growth and higher prices. Despite the challenging market situation, especially in the automotive industry, we expect sales to increase in all divisions. We aim to considerably increase EBIT before special items, primarily with improved margins and strict cost discipline.

For the **Nutrition & Care** segment, we anticipate considerably higher sales than in 2018, largely from volumes growth in both divisions. In the Nutrition & Health division in particular, our planning assumes improved product availability following the restart of the citral plant in Ludwigshafen, Germany, and the ibuprofen plant in Bishop, Texas, as well as the startup of the menthol plant in Kuantan, Malaysia. We also expect EBIT before special items to considerably exceed the prior-year figure, mainly from higher sales volumes. Softer margins for vitamins and the absence of insurance refunds compared with the previous year will have an offsetting effect.

Despite the continuing challenging market environment, we anticipate considerable sales growth in the **Agricultural Solutions** segment due in particular to the businesses acquired from Bayer and higher volumes. We also expect a considerable increase in EBIT before special items overall. In 2019, we will launch a program to boost efficiency to offset factors such as the rise in fixed costs. We will also continue to invest at a high level in research and development and digitalization.

Sales in **Other** are expected to increase considerably in 2019, mainly as a result of higher volumes in raw materials trading. For EBIT before special items, we are forecasting a figure considerably below the previous year due to the positive measurement effects for our long-term incentive program that arose in 2018, which we do not expect in 2019.

Capital expenditures

■ Capex of around €3.8 billion planned for 2019

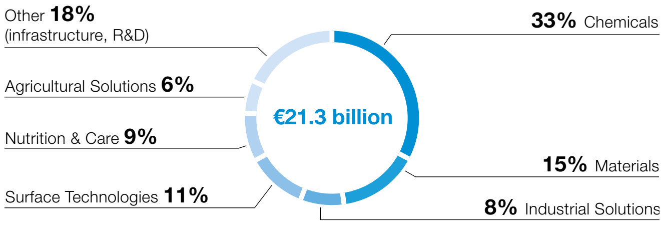
We are planning total capital expenditures (additions to property, plant and equipment excluding acquisitions, IT investments, restoration obligations and right-of-use assets arising from leases) of around €3.8 billion for the BASF Group in 2019. For the period from 2019 to 2023, we have planned capital expenditures totaling €21.3 billion. The investment volume in the coming years thus exceeds that of the planning period 2018 to 2022. Projects currently being planned or underway include:

Capex: selected projects

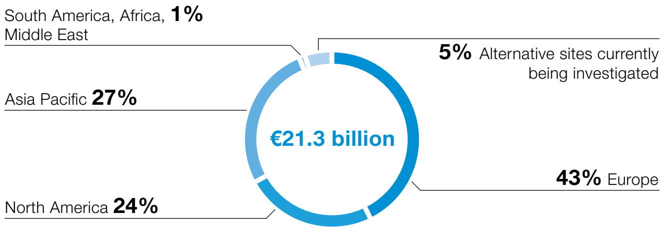
Location	Project
Antwerp, Belgium	Capacity expansion: integrated ethylene oxide complex
Geismar, Louisiana	Capacity expansion: MDI plant
Ludwigshafen, Germany	Replacement: acetylene plant
	Construction: production plant for vitamin A
	Construction: production plant for ibuprofen
Kuantan, Malaysia	Capacity expansion: acrylic acid and butyl acrylate
Mundra, India	Investment: acrylics value chain[1]
Zhanjiang, China	Establishment of an integrated Verbund site

1 In cooperation with Adani Group

Capex by segment 2019–2023



Capex by region 2019–2023



Dividend

We stand by our ambitious dividend policy and offer our shareholders an attractive dividend yield. We aim to increase our dividend each year.

Information on the proposed dividend can be found on page 13

Financing

In 2019, we expect cash outflows in the equivalent amount of around €2.0 billion from the scheduled repayment of bonds. To refinance maturing bonds and to optimize our maturity profile, we continue to have medium to long-term corporate bonds and our U.S. dollar commercial paper program at our disposal.

Information on our financing policies can be found on page 54

Events after the reporting period

On January 31, 2019, BASF and Solenis completed the transfer of BASF's paper and water chemicals business to Solenis as announced in May 2018.

The business was allocated to the Performance Chemicals division until this date. As of February 1, 2019, we hold a 49% share in Solenis. The transaction includes production sites and plants of BASF's paper and water chemicals business in Bradford and Grimsby, U.K.; Suffolk, Virginia; Altamira, Mexico; Ankleshwar, India; and Kwinana, Australia. Since closing, we have accounted for our share in Solenis' income after taxes using the equity method due to our significant influence, and included this in EBIT of the BASF Group, presented in Other.

Opportunities and Risks

The goal of BASF's risk management is to identify and evaluate opportunities and risks as early as possible and to take appropriate measures in order to seize opportunities and limit business losses. The aim is to avoid risks that pose a threat to BASF's continued existence and to make improved managerial decisions to create value. We define opportunities as potential successes that exceed our defined goals. We understand risk to be any event that can negatively impact the achievement of our short-term operational or long-term strategic goals.

Opportunities

Potential successes that exceed our defined goals

Risks

Events that can negatively impact the achievement of our goals

In order to effectively measure and manage identified opportunities and risks, we quantify these where appropriate in terms of probability and economic impact in the event they occur. Where possible, we use statistical methods to aggregate opportunities and risks into risk factors. This way, we achieve an overall view of opportunities and risks at a portfolio level, allowing us to take effective measures for risk management.

Overall assessment

- **Significant opportunities and risks arise from overall economic developments and margin volatility**
- **No threat to continued existence of BASF**

For 2019, we expect the global economy to continue to grow at a slightly slower pace than in the previous year. Important opportunities and risks for our earnings are associated with uncertainty regarding market growth and the development of key customer industries, as well as margin volatility. In particular, a further escalation of the trade conflicts between the United States and its trade partners and a considerable slowdown of the Chinese economy pose significant risks. Such a development would negatively affect demand for intermediate and investment goods. This would impact the emerging markets that export raw materials as well as the advanced economies. This is especially true for Europe. Further risks to the global economy arise from an escalation of geopolitical conflicts.

According to our assessment, there continue to be no significant individual risks that pose a threat to the continued existence of the BASF Group. The same applies to the sum of individual risks, even in the case of another global economic crisis.

Ultimately, however, residual risks remain in all entrepreneurial activities that cannot be ruled out, even by comprehensive risk management.

Potential short-term effects on EBIT of key opportunity and risk factors subsequent to measures taken[1]

Possible variations related to:	Outlook – 2019	+
Business environment and sector		
Market growth	■■■■■	■■■□□
Margins	□■■■■	■■■■□
Competition	□□■■■	■■□□□
Regulation/policy	□□□■■	■□□□□
Company-specific opportunities and risks		
Purchasing/supply chain	□□□■■	■□□□□
Investments/production	□□□■■	■□□□□
Personnel	□□□□■	■□□□□
Acquisitions/divestitures/cooperations	□□□■■	■■□□□
Information technology	□□□□■	□□□□□
Law	□□□■■	■□□□□
Financial		
Exchange rate volatility	□□■■■	■■■□□
Other financial opportunities and risks	□□□■■	■□□□□

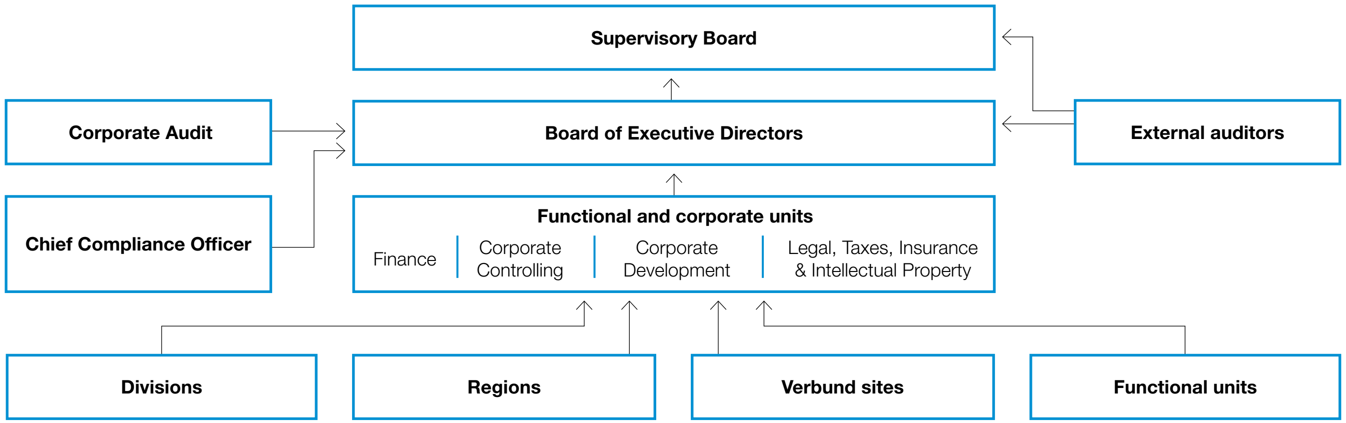
□□□□■	< €100 million	
□□□■■	≥ €100 million	< €500 million
□□■■■	≥ €500 million	< €1,000 million
□■■■■	≥ €1,000 million	< €1,500 million
■■■■■	≥ €1,500 million	≤ €2,000 million

1 Using a 95% confidence interval per risk factor based on planned values; summation is not permissible.

Risk management process

- **Integrated process for identification, assessment and reporting**
- **Decentralized management of specific opportunities and risks**
- **Aggregation at a Group level**

Organization of BASF Group's risk management



The BASF Group's risk management process is based on the international risk management standard COSO II Enterprise Risk Management – Integrated Framework (2004), and has the following key features:

Organization and responsibilities

- Risk management is the responsibility of the Board of Executive Directors, which also determines the processes for approving investments, acquisitions and divestitures.
- The Board of Executive Directors is supported by the units Finance, Corporate Controlling, Corporate Development and Legal, Taxes, Insurance & Intellectual Property, and the Chief Compliance Officer. These units coordinate the risk management process at a Group level and provide the structure and appropriate methodology. Opportunity and risk management is thus integrated into the strategy, planning and budgeting processes.
- A network of risk managers in the business, functional and corporate units as well as in the regions and at the Verbund sites advances the implementation of appropriate risk management practices in daily operations.
- The management of specific opportunities and risks is largely delegated to the business units and is steered at a regional or local level. Risks relating to exchange rates and raw materials prices are an exception. In this case, there is an initial consolidation at a Group level before derivative hedging instruments, for example, are used.
- BASF's Chief Compliance Officer (CCO) manages the implementation of our Compliance Management System, supported by additional compliance officers worldwide. He regularly reports to the Board of Executive Directors on the status of implementation as well as on any significant results. He also provides a status report to the Supervisory Board's Audit Committee at least once a year, including any major developments. In the event of significant incidents, the Audit Committee is immediately informed by the Board of Executive Directors.
- The internal auditing unit (Corporate Audit) is responsible for regularly auditing the risk management system established by the Board of Executive Directors in accordance with section 91(2) of the German Stock Corporation Act. Furthermore, as part of its monitoring of the Board of Executive Directors, the Supervisory Board considers the effectiveness of the risk management system. The suitability of the early detection system we set up for risks is evaluated by our external auditor.

Instruments

- The Risk Management Policy, applicable throughout the Group, forms the framework for risk management and is implemented by the business units according to their particular business conditions.
- A catalog of opportunity and risk categories helps to identify all relevant opportunities and risks as comprehensively as possible.
- We use standardized evaluation and reporting tools for the identification and assessment of risks. The aggregation of opportunities, risks and sensitivities at division and Group level using a Monte Carlo simulation helps us to identify effects and trends across the Group.
- The nonfinancial topics relevant for BASF are addressed by the responsible functional units, which assess the risks identified as being relevant according to impact and probability of occurrence. We identify opportunities and risks that arise in connection with the topics of environment, society and governance with our sustainability management tools. We have established global monitoring systems to check adherence to laws and our voluntary commitments in these areas. These also incorporate our suppliers.

For more information on our sustainability management processes, see page 36 onward

- The BASF Group's management is informed about operational opportunities and risks (observation period of up to one year) in the monthly management report produced by the Corporate Controlling unit. In addition, Corporate Controlling and Finance provide information twice a year on the aggregated opportunity/risk exposure of the BASF Group. Furthermore, if a new individual risk is identified which has a more than €10 million impact on earnings or bears reputational risks, it must be immediately reported.
- As part of strategy development in the strategic business units, the Corporate Development unit conducts strategic opportunity/risk analyses with a 10-year assessment period. These analyses are annually reviewed as part of strategic controlling and are adapted if necessary.
- Our Group-wide Compliance Program aims to ensure adherence to legal regulations and the company's internal guidelines. Our global employee Code of Conduct firmly embeds these mandatory standards into everyday business. Members of the Board of Executive Directors are also expressly obligated to follow these principles.

For more information on our Group-wide Compliance Program, see page 140 onward

Significant features of the internal control and risk management system with regard to the Group financial reporting process

- **Conducted in accordance with standardized Group guidelines**
- **Segregation of duties, principle of dual control and clearly regulated access rights**
- **Annual evaluation of the control environment and relevant processes at significant companies**

The Consolidated Financial Statements are prepared by a unit in the Finance division. BASF Group's accounting process is based on a uniform accounting guideline that sets out accounting policies and the significant processes and deadlines on a Group-wide basis. There are binding directives for the internal reconciliations and other accounting operations within the Group. Standard software is used to carry out the accounting processes for the preparation of the individual financial statements as well as for the Consolidated Financial Statements. There are clear rules for the access rights of each participant in these processes.

Employees involved in the accounting and reporting process meet the qualitative requirements and participate in training on a regular basis. There is a clear assignment of responsibilities between the specialist units, companies and regional service units involved. We strictly adhere to the principles of segregation of duties and dual control, or the "four-eyes principle." Complex actuarial reports and evaluations are produced by specialized service providers or specially qualified employees.

An internal control system for financial reporting continuously monitors these principles. To this end, methods are provided to ensure that evaluation of the internal control system in financial reporting is structured and uniform across the BASF Group.

The significant risks for the BASF Group regarding a reliable control environment for proper financial reporting are reviewed and updated on an annual basis. Risks are compiled into a central risk catalog.

Moreover, a centralized selection process identifies companies that are exposed to particular risks, that are material to the Consolidated Financial Statements of the BASF Group, or that provide service processes. The selection process is conducted annually. In the relevant companies, one person is given the responsibility of monitoring the execution of the requirements for an effective control system in financial reporting.

In these companies, the process comprises the following steps:

- **Evaluation of the control environment**
  Adherence to internal and external guidelines that are relevant for the maintenance of a reliable control environment is checked by means of a standardized questionnaire.
- **Identification and documentation of control activities**
  In order to mitigate the risks to the financial reporting processes listed in our central risk catalog, critical processes and control activities are documented.
- **Assessment of control activities**
  After documentation, a review is performed to verify whether the described controls are capable of adequately covering the risks. In the subsequent test phase, samples are taken to test whether, in practice, the controls were executed as described and effective.
- **Monitoring of control weaknesses**
  The managers responsible receive reports on any control weaknesses identified and their resolution, and an interdisciplinary committee investigates their relevance for the BASF Group. The Board of Executive Directors and the Audit Committee are informed once control weaknesses have been identified that have a considerable impact on financial reporting. Only after material control weaknesses have been resolved does the company's managing director confirm the effectiveness of the internal control system.
- **Internal confirmation of the internal control system**
  All managing directors and chief financial officers of each consolidated Group company must confirm to the Board of Executive Directors of BASF SE every half-year and at the end of the annual cycle, in writing, that the internal control system is effective with regard to accounting and reporting.

Short-term opportunities and risks

Development of demand

The development of our sales markets is one of the strongest sources of opportunities and risks. More details on our assumptions regarding short-term growth rates for the global economy, regions and key customer industries, such as the chemicals, automotive and construction sectors, can be found under Economic Environment in 2019 on pages 117 to 119.

We also consider risks from deviations in assumptions. We continue to see a significant macroeconomic risk in a further escalation of the trade conflicts between the United States and its trade partners and an increased slowdown of the Chinese economy, which would have considerable impact on demand for intermediate goods for industrial production as well as investment goods. This would have an effect on emerging markets that export raw materials as well as on advanced economies that specialize in technological goods. Risks to the global economy would also be posed by the possible escalation of geopolitical conflicts.

Should the macroeconomic environment develop more slowly than we predict, we expect a lower oil price. In this case, we also expect the euro to weaken relative to the U.S. dollar in the medium term as compared with our planning assumptions, as the eurozone's economy shows a high level of dependency on exports and, in times of global economic weakness, the U.S. dollar is preferred by portfolio investors as a safe haven.

Weather-related influences can result in positive or negative effects, especially on our crop protection business.

Margin volatility

Margin risks for the BASF Group result on the one hand from a further decline in margins in the Chemicals segment or the isocyanates business. New capacities or raw materials shortages could also increase margin pressure on a number of products and value chains. This would have a negative effect on our EBIT. In addition, the contribution attributable to BASF from the agreed combination of BASF's and LetterOne's oil and gas businesses will only be included in EBIT again on closing of the transaction. This would have a compensating effect on margin pressure in the chemicals business if oil and gas prices rise. The year's average oil price for Brent crude was around $71 per barrel in 2018, compared with $54 per barrel in the previous year. For 2019, we anticipate an average oil price of $70 per barrel. We therefore expect price levels for the raw materials and petrochemical basic products that are important to our business to remain constant or decrease slightly.

Competition

We continuously enhance our products and solutions in order to maintain competitive ability. We watch the market and the competition, and try to take targeted advantage of opportunities and counter emerging risks with suitable measures. Aside from innovation, key components of our competitiveness are our ongoing cost management and our continuous process optimization.

Regulation and political risks

Risks for us can arise from intensified geopolitical tensions, new trade sanctions, stricter emissions limits for plants or energy and climate laws. In addition, risks to the BASF Group can be posed by further regulations in key customer industries or on the use or registration of agricultural and other chemicals.

Economic and political uncertainties may arise as a result of Brexit. At this point in time, it is not yet clear what the future relationship between the European Union and the United Kingdom will look like post-Brexit and what specific consequences this will have for our sites, our supply chains and the regulatory environment. A cross-divisional Brexit team has been established to prepare the BASF organization for various exit scenarios and enable it to promptly react to political decisions. Together with our operating units, suppliers, customers and logistics partners, we have identified problems and steps to avoid supply chain disruptions, especially in the event of a no-deal hard Brexit with no transition phase. Alternative logistics concepts include, for example, leasing additional warehouse space, establishing consignment warehouses or technical expansions in our ERP systems to be able to react to additional customs requirements on the systems side as well.

Political measures could also give rise to opportunities. For example, we view the worldwide expansion of renewable energy and measures to increase energy efficiency as an opportunity for increased demand for our products, such as our insulation foams for buildings or our solutions for wind turbines. Our broad product portfolio enables us to offer alternatives if chemicals have to be substituted as a result of restrictions in connection with the REACH chemicals regulation or new standards in our customers' industries.

Purchasing and supply chain

We minimize procurement risks through our broad portfolio, global purchasing activities and the purchase of raw materials on spot markets. If possible, we avoid procuring raw materials from a single supplier. When this cannot be avoided, we try to foster competition or we knowingly enter into this relationship and assess the consequences of potential nondelivery. We continuously monitor the credit risk of important business partners. We address the risk of supply interruptions on the procurement and sales side as a result of extreme weather conditions (such as high/low water levels on rivers, hurricanes) by switching to unaffected logistics carriers and the possibility of falling back on unaffected sites within our global Verbund.

Production and investments

We try to prevent unscheduled plant shutdowns by adhering to high technical standards and by continuously improving our plants. We reduce the effects of unscheduled shutdowns on the supply of intermediate and end products through diversification within our global production Verbund.

In the event of a production outage – caused by an accident, for example – our global, regional or local emergency response plans and crisis management structures are engaged, depending on the impact scope. Every region has crisis management teams on a local and regional level. They not only coordinate the necessary emergency response measures, they also initiate the immediate measures for damage control and resumption of normal operations as quickly as possible.

Short-term risks from investments can result from, for example, technical malfunctions or schedule and budget breaches. We counter these risks with highly experienced project management and controlling.

For more information on emergency response, see page 98 onward and basf.com/emergency_response

Acquisitions, divestitures and cooperations

We are constantly watching our environment in order to identify possible targets and develop our portfolio appropriately. In addition, we work together in collaborations with customers and partners to jointly develop new, competitive products and applications.

Opportunities and risks arise in connection with acquisitions and divestitures from the conclusion of a transaction, or it being completed earlier or later than expected. They relate to the regular earnings contributions gained or lost as well as the realization of gains or losses from divestitures if these deviate from our planning assumptions. In the case of transactions involving the contribution of businesses to an investment accounted for using the equity method, a risk of impairment of these investments can arise. The extent of this risk depends on factors such as the amount of hidden reserves uncovered within the scope of initial measurement of the investment accounted for using the equity method.

Personnel

Due to BASF's worldwide compensation principles, the development of personnel expenses is partly dependent on the amount of variable compensation, which is linked to the company's success, among other factors. The correlation between variable compensation and the success of the company has the effect of minimizing risk. Another factor is the development of interest rates for discounting pension obligations. Furthermore, changes to the legal environment of a particular country can have an impact on the development of personnel expenses for the BASF Group. For countries in which BASF is active, relevant developments are therefore constantly monitored in order to recognize risks at an early stage and enable BASF to carry out suitable measures.

For more information on our compensation system, see page 114
For more information on risks from pension obligations, see page 129

Information technology risks

BASF relies on a large number of IT systems. Their nonavailability, violation of confidentiality or the manipulation of data in critical IT systems and applications can all have a direct impact on production and logistics processes. The threat environment has changed in recent years, as attackers have become better organized, use more sophisticated technology, and have far more resources available. If data are lost or manipulated, this can, for example, negatively affect process safety and the accuracy of our financial reporting. Unauthorized access to sensitive data, such as personnel records, competition-related information or research results, can result in legal consequences or jeopardize our competitive position. This would also be accompanied by the associated loss of reputation.

To minimize such risks, BASF uses globally uniform processes and systems to ensure IT security, such as stable and redundantly designed IT systems, backup processes, virus and access protection, encryption systems as well as integrated, Group-wide standardized IT infrastructure and applications. The systems used for information security are constantly tested, continuously updated, and expanded if necessary. In addition, our employees receive regular training on information and data protection. IT-related risk management is conducted using Group-wide regulations for organization and application, as well as an internal control system based on these regulations. BASF also established the Cyber Defense Center in 2015, is a member of Cyber Security Sharing and Analytics e.V. (CSSA) and a founding member of the German Cybersecurity Organization (DCSO) together with Allianz SE, Bayer AG and Volkswagen AG.

Legal disputes and proceedings

We constantly monitor current and potential legal disputes and proceedings, and regularly report on these to the Board of Executive Directors and Supervisory Board. In order to assess the risks from current legal disputes and proceedings and any potential need to recognize provisions, we prepare our own analyses and assessments of the circumstances and claims considered. In addition, in individual cases, we consider the results of comparable proceedings and, if needed, independent legal opinions. Risk assessment is particularly based on estimates as to the probability of occurrence and the range of possible claims. These estimates are the result of close cooperation between the relevant operating and functional units together with the Legal and Finance units. If sufficient probability of occurrence is identified, a provision is recognized accordingly for each proceeding. Should a provision be unnecessary, general risk management continues to assess whether these litigations nevertheless give rise to a risk for the EBIT of the BASF Group.

We use our internal control system to limit risks from potential infringements of rights or laws. For example, we try to avoid patent and licensing disputes whenever possible through extensive clearance research. As part of our Group-wide Compliance Program, our employees receive regular training.

Financial opportunities and risks

The management of liquidity, currency and interest rate risks is conducted in the Treasury unit. The management of commodity price risks takes place in the Procurement & Supply Chain Services functional unit or in appropriately authorized Group companies. Detailed guidelines and procedures exist for dealing with financial risks. Among other things, they provide for the segregation of trading and back office functions.

As a part of risk management, activities in countries with transfer restrictions are continuously monitored. This includes, for example, regular analysis of the macroeconomic and legal environment, shareholders' equity and the business models of the operating units. The chief aim is the reduction of counterparty, transfer and currency risks for the BASF Group.

Exchange rate volatility

Our competitiveness on global markets is influenced by fluctuations in exchange rates. For BASF's sales, opportunities and risks arise in particular when the U.S. dollar exchange rate fluctuates. A full-year appreciation of the U.S. dollar against the euro by $0.01 would result in an increase of around €45 million in the BASF Group's EBIT, assuming other conditions remain the same. On the production side, we counter exchange rate risks by producing in the respective currency zones.

Financial currency risks result from the translation of receivables, liabilities and other monetary items in accordance with IAS 21 at the closing rate into the functional currency of the respective Group company. In addition, we incorporate planned purchase and sales transactions in foreign currencies in our financial foreign currency risk management. These risks are hedged using derivative instruments, if necessary.

Interest rate risks

Interest rate risks result from potential changes in prevailing market interest rates. These can cause a change in the fair value of fixed-rate instruments and fluctuations in the interest payments for variable-rate financial instruments, which would positively or negatively affect earnings. To hedge these risks, interest rate swaps and combined interest rate and currency derivatives are used in individual cases.

In addition to market interest rates, BASF's financing costs are determined by the credit risk premiums to be paid. These are mainly influenced by our credit rating and the market conditions at the time of issue. In the short to medium term, BASF is largely protected from the possible effects on its interest result thanks to the balanced maturity profile of its financial indebtedness.

Risks from metal and raw materials trading

In the catalysts business, BASF employs commodity derivatives for precious metals and trades precious metals on behalf of third parties and on its own account. Appropriate commodity derivatives are also traded to optimize BASF's supply of refinery products, gas and other petrochemical raw materials. To address specific risks associated with these trades, we set and continuously monitor limits with regard to the type and scope of the deals concluded.

Liquidity risks

Risks from fluctuating cash flows are recognized in a timely manner as part of our liquidity planning. We have access to extensive liquidity at any time thanks to our good ratings, our unrestricted access to the commercial paper market and committed bank credit lines. In the short to medium term, BASF is largely protected against potential refinancing risks by the balanced maturity profile of its financial indebtedness as well as through diversification in various financial markets.

For more information on the maturity profile of our financial indebtedness, see the explanations in the Financial Position on page 54 and the Notes to the Consolidated Financial Statements from page 246 onward

Risk of asset losses

We limit country-specific risks with measures based on internally determined country ratings, which are continuously updated to reflect changing environment conditions. We selectively use investment guarantees to limit specific country-related risks. We lower credit risks for our financial investments by engaging in transactions only with banks with good credit ratings and by adhering to fixed limits. Creditworthiness is continuously monitored and the limits are adjusted accordingly. We reduce the risk of default on receivables by continuously monitoring the creditworthiness and payment behavior of our customers and by setting appropriate credit limits. Due to the global activities and diversified customer structure of the BASF Group, there are no major concentrations of credit default risk. Risks are also limited through the use of credit insurance and bank guarantees.

Impairment risks

Asset impairment risks arise if the assumed interest rate in an impairment test increases, the predicted cash flows decline, or investment projects are suspended. In the current business environment, we consider impairment risks for individual assets such as customer relationships, technologies and trademarks, as well as goodwill, to be nonmaterial.

Long-term incentive program for senior executives

Our senior executives have the opportunity to participate in a share price-based compensation program. The need for provisions for this program varies according to the development of the BASF share price and the MSCI World Chemicals Index; this leads to a corresponding increase or decrease in personnel costs.

For more information on the long-term incentive program, see the Notes to the Consolidated Financial Statements from page 263 onward

Risks from pension obligations

Most employees are granted company pension benefits from either defined contribution or defined benefit plans. We predominantly finance company pension obligations externally through separate plan assets. This particularly includes BASF Pensionskasse VVaG and BASF Pensionstreuhand e.V. in Germany, in addition to the large pension plans of our Group companies in North America, the United Kingdom and Switzerland. To address the risk of underfunding due to market-related fluctuations in plan assets, we have investment strategies that align return and risk optimization to the structure of the pension obligations. Stress scenarios are also simulated regularly by means of portfolio analyses. An adjustment to the interest rates used in discounting pension obligations leads immediately to changes in equity. To limit the risks of changing financial market conditions as well as demographic developments, employees have, for a number of years now, been almost exclusively offered defined contribution plans for future years of service. Some of these contribution plans include minimum interest guarantees. If the pension fund cannot generate this, it must be provided by the employer. A permanent continuation of the low interest rate environment could make it necessary to recognize pension obligations and plan assets for these plans as well.

Long-term opportunities and risks

Long-term demand development

We assume that chemical production (excluding pharmaceuticals) will grow slightly faster than global gross domestic product over the next five years and be slightly below the previous five-year average. Through our market-oriented and broad portfolio, which we will continue to strengthen in the years ahead through investments in new production capacities, research and development activities and acquisitions, we aim to achieve volumes growth that exceeds this market growth. Should global economic growth see unexpected, considerable deceleration, due for example to an ongoing weak period in the emerging markets, protectionist tendencies or to geopolitical crises, the expected growth rates could prove too ambitious. As a result of our high degree of diversification across various customer industries and regions, we would still expect our growth to be above the market average, even under these conditions.

For more information on the corporate strategy, see page 25 onward

Development of competitive and customer landscape

We expect competitors from Asia and the Middle East in particular to gain increasing significance in the years ahead. Furthermore, we predict that many producers in countries rich in raw materials will expand their value chains. We counter this risk through active portfolio management. We exit markets in which we see only limited possibilities to stand out from competitors in the long term.

We continuously improve our processes in order to remain competitive through our operational excellence. Our strategic excellence program, which will run from 2019 to 2021, also contributes to this aim. The program will include measures focused on production, logistics, research and development as well as digitalization and automation activities and organizational development. We expect this program to contribute around €2 billion in income each year from 2021 onward.

In order to achieve lasting profitable growth, tap into new market segments and customers, and make our customers more successful, our research and business focus is on highly innovative business areas, some of which we enter into through strategic cooperative partnerships.

Innovation

The trend toward increased sustainability requirements in our customer industries continues. Our aim is to leverage the resulting opportunities in a growing market even more effectively in the future with more sustainable innovations. This is why we applied the Sustainable Solution Steering method, which is used to evaluate the sustainability of our product portfolio, to assessments of innovation projects, and integrated it into an early stage of our research and development processes as well as the development of our business strategies. In this way, we want to benefit from the higher profitability of our Accelerator solutions compared with the rest of our evaluated portfolio. At the same time, as of 2018, we reduce reputational and financial risks by phasing out products for which we have identified substantial sustainability concerns ("Challenged" products) within five years of initial classification as such at the latest. We must develop action plans for these products at an early stage to minimize any potential financial risks. These can include research projects, reformulations or even replacing one product with another.

The central research areas Process Research & Chemical Engineering, Advanced Materials & Systems Research and Bioscience Research serve as global platforms headquartered in our key regions: Europe, Asia Pacific and North America. Together with the development units in our operating divisions, they form the core of the global Know-How Verbund. Our strong regional presence opens up opportunities to participate in local innovation processes and gain access to local talent. We optimize the effectiveness and efficiency of our research activities through our global Know-How Verbund.

Research activities funded by the BASF Group promote the targeted development and enhancement of key technologies as well as the establishment of new business areas. Focus areas in research are determined based on their strategic relevance for BASF, above and beyond existing business areas. We also address the risk of the technical or economic failure of research and development projects by maintaining a balanced and comprehensive project portfolio, as well as through professional, milestone-based project management.

Potential applications of digital technologies and solutions along the entire value chain are investigated in both the operational and functional divisions as well as by cross-divisional teams, and tested in dedicated pilot projects. They are supported here by the Digitalization & Information Services unit. We analyze the opportunities and risks of digitalization in Production, Logistics, Research & Development and for business models as well as in corporate functions such as Finance, Human Resources, Procurement & Supply Chain Services, Legal, Taxes, Insurance & Intellectual Property. The opportunities and risks of digitalization are steered by the operational and functional divisions.

The trust of customers and consumers is essential for the successful introduction of new technologies. That is why we enter into dialog with our stakeholders at an early stage of development.

For more information on portfolio management using the Sustainable Solution Steering method, see page 37 onward
For more information on innovation and digitalization, see page 31 onward

Portfolio development through investments

Our decisions on the type, scope and locations of our investment projects are based on assumptions related to the long-term development of markets, margins and costs, as well as raw material availability and country, currency and technology risks. Opportunities and risks arise from potential deviations in actual developments from our assumptions.

We expect the increase in chemical production in emerging markets in the coming years to remain above the global average. This will create opportunities that we want to exploit by expanding our local presence.

We are continuing to evaluate an investment in a world-scale methane-to-propylene complex on the U.S. Gulf Coast and conduct regular assessments, taking into account raw materials prices and the relevant market conditions.

For more information on our investment plans, see page 122

Acquisitions

In the future, we will continue to refine our portfolio through acquisitions that promise above-average profitable growth as part of the BASF Verbund and help to reach a relevant market position. We also take into account whether they are innovation-driven or offer a technological differentiation, and make new, sustainable business models possible.

The evaluation of opportunities and risks plays a significant role during the assessment of acquisition targets. A detailed analysis and quantification is conducted as part of due diligence. Examples of risks include increased staff turnover, delayed realization of synergies, or the assumption of obligations that were not precisely quantifiable in advance. If our expectations in this regard are not fulfilled, risks could arise, such as the need to impair intangible assets; however, there could also be opportunities, for example, from additional synergies.

Recruitment and long-term retention of qualified employees

BASF anticipates growing challenges in attracting qualified employees in the medium and long term due to demographic change, especially in North America and Europe. As a result, there is an increased risk that job vacancies may not be filled with suitable applicants, or only after a delay. We address these risks with measures to integrate diversity, employee and leadership development, and intensified employer branding. At local level, demographic management includes succession planning, knowledge management and offerings to improve the balance between personal and professional life and promote healthy living. This increases BASF's appeal as an employer and retains our employees in the long term.

For more information on the individual initiatives and our goals, see page 110 onward

Sustainability

As part of our sustainability management, we also assess the opportunities and risks associated with the topics we have identified as material. These also include the increasing internalization of external effects, through which positive and negative earnings contributions from companies' activities that were previously borne by the community are attributed to these companies.

For example, the material topic "energy and climate" is analyzed to enable us to identify, assess and manage climate-related risks and opportunities. For BASF as an energy-intensive company, these arise particularly from regulatory changes, such as in carbon prices through emissions trading systems, taxes or energy legislation.

For more information on sustainability management, see page 36 onward
For more information on energy and climate protection, see page 103 onward
For more information on opportunities and risks from energy policies, see page 126

Chapter 3 pages 131–167

3 Corporate Governance

Corporate Governance Report

Corporate governance refers to the entire system for managing and supervising a company. This includes its organization, values, corporate principles and guidelines as well as internal and external control and monitoring mechanisms. Effective and transparent corporate governance ensures that BASF is managed and supervised responsibly with a focus on value creation. It fosters the confidence of our domestic and international investors, the financial markets, our customers and other business partners, employees, and the public in BASF.

Board of Executive Directors

manages company and represents BASF SE in business with third parties

Supervisory Board

appoints, monitors and advises Board of Executive Directors

Shareholders

exercise rights of co-administration and supervision at Annual Shareholders' Meeting

The fundamental elements of BASF SE's corporate governance system are: its two-tier system, with a transparent and effective separation of company management and supervision between BASF's Board of Executive Directors and the Supervisory Board; the equal representation of shareholders and employees on the Supervisory Board; and the shareholders' rights of co-administration and supervision at the Annual Shareholders' Meeting.

Direction and management by the Board of Executive Directors

- **Board of Executive Directors strictly separate from the Supervisory Board**
- **Responsible for company management**
- **Sets corporate goals and strategic direction**

The Board of Executive Directors is responsible for the management of the company, and represents BASF SE in business undertakings with third parties. BASF's Board of Executive Directors is strictly separated from the Supervisory Board, which monitors the Board of Executive Directors' activities and decides on its composition. A member of the Board of Executive Directors cannot simultaneously be a member of the Supervisory Board. As the central duty of company management, the Board of Executive Directors agrees on the corporate goals and strategic direction of the BASF Group as well as its individual business areas; determines the company's internal organization; and decides on the composition of management on the levels below the Board. It also manages and monitors BASF Group business by planning and setting the corporate budget, allocating resources and management capacities, monitoring and making decisions on significant individual measures, and supervising operational management.

The Board's actions and decisions are geared toward the company's best interests. It is committed to the goal of sustainably increasing the company's value. Among the Board's responsibilities is the preparation of the Consolidated and Separate Financial Statements of BASF SE and reporting on the company's financial and nonfinancial performance. Furthermore, it must ensure that the company's activities comply with the applicable legislation and regulatory requirements, as well as internal corporate directives. This includes the establishment of appropriate systems for control, compliance and risk management as well as establishing a company-wide compliance culture with undisputed standards.

Decisions that are reserved for the Board as a whole by law, through the Board of Executive Directors' Rules of Procedure or through resolutions adopted by the Board, are made at regularly held Board meetings called by the Chairman of the Board of Executive Directors. Board decisions are based on detailed information and analyses provided by the business areas and specialist units, and, if deemed necessary, by external consultants. Board decisions can generally be made via a simple majority. In the case of a tied vote, the casting vote is given by the Chairman of the Board. However, the Chairman of the Board does not have the right to veto the decisions of the Board of Executive Directors. Members of the Board of Executive Directors are authorized to make decisions individually in their assigned areas of responsibility.

The Board can set up Board committees to consult and decide on individual issues such as proposed material acquisitions or divestitures; these must include at least three members of the Board of Executive Directors. For the preparation of important decisions, such as those on acquisitions, divestitures, investments and personnel, the Board has various commissions at the level below the Board that carefully assess the planned measure and evaluate the associated opportunities and risks, and based on this information, report and make recommendations to the Board – independently of the affected business area.

The Board of Executive Directors informs the Supervisory Board regularly, without delay and comprehensively, of all issues important to the company with regard to planning, business development, risk situation, risk management and compliance. Furthermore, the Board of Executive Directors coordinates the company's strategic orientation with the Supervisory Board.

The Statutes of BASF SE define certain transactions that require the Board of Executive Directors to obtain the Supervisory Board's approval prior to their conclusion. Such cases include the acquisition and disposal of enterprises and parts of enterprises, as well as the issue of bonds or comparable financial instruments. However, this is only necessary if the acquisition or disposal price or the amount of the issue in an individual case exceeds 3% of the equity reported in the last approved Consolidated Financial Statements of the BASF Group.

For more information on risk management, see the Forecast from page 123 onward
The members of the Board of Executive Directors, including their areas of responsibility and memberships on the supervisory bodies of other companies, are listed from page 142 onward. Compensation of the Board of Executive Directors is described in detail in the Compensation Report from page 146 onward.

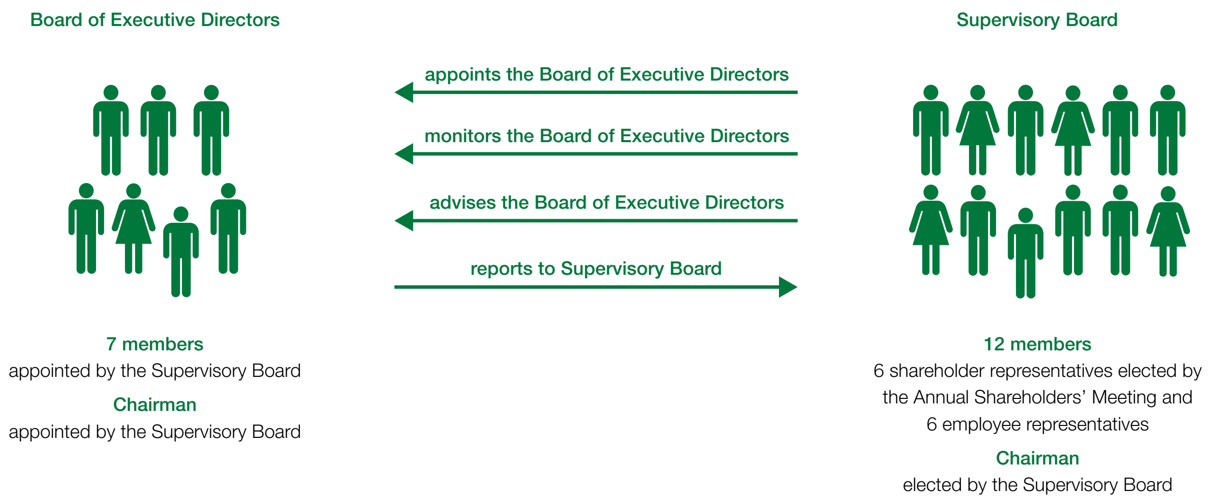
Competence profile, diversity concept and succession planning for the Board of Executive Directors

The Supervisory Board works hand in hand with the Board of Executive Directors to ensure long-term succession planning for the composition of the Board of Executive Directors. BASF aims to fill most Board positions with candidates from within the company. It is the task of the Board of Executive Directors to propose a sufficient number of suitable candidates to the Supervisory Board.

BASF's long-term succession planning is guided by the corporate strategy. It is based on systematic management development characterized by the following:

- Early identification of suitable candidates of different professional backgrounds, nationalities and genders
- Systematic development of leaders through the successful assumption of tasks with increasing responsibility, where possible in different business areas, regions and functions
- Desire to shape strategic and operational decisions, and proven success in doing so, as well as leadership skills, especially under challenging business conditions
- Role model function in putting our corporate values into practice

Two-tier management system of BASF SE



The aim is to enable the Supervisory Board to ensure a reasonable level of diversity with respect to education and professional experience, cultural background, international representation, gender and age when appointing members of the Board of Executive Directors. Independent of these individual criteria, the Supervisory Board is convinced that ultimately, only a holistic approach can determine an individual's suitability for appointment to the Board of Executive Directors of BASF SE. The overall aim is to ensure that the Board of Executive Directors as a whole has the following profile, which serves as a diversity concept:

- Many years of management experience in scientific, technical and commercial fields
- International experience based on background and/or professional experience
- At least one female Board member
- A balanced age distribution to ensure the continuity of the Board's work and enable seamless succession planning

The number of Board members is based on the insights gained by BASF as a company with an integrated leadership culture and is determined by the needs arising from cooperation within the Board of Executive Directors. In May 2018, this was reduced from eight to seven members in the course of the changes to the composition of the Board of Executive Directors. The standard age limit for members of the Board of Executive Directors is 63.

The current composition of the Board of Executive Directors meets the competence profile and the requirements of the diversity concept in full.

Supervision of company management by the Supervisory Board

- **Supervisory Board appoints, monitors and advises Board of Executive Directors**
- **Four Supervisory Board committees**

The Supervisory Board appoints the members of the Board of Executive Directors and supervises and advises the Board of Executive Directors on management issues. As members of the Supervisory Board cannot simultaneously be on the Board of Executive Directors, a high level of autonomy is already structurally ensured with regard to the supervision of the Board of Executive Directors.

In addition to the SE Council Regulation, the relevant legal basis for the size and composition of the Supervisory Board is provided by the Statutes of BASF SE and the Agreement Concerning the Involvement of Employees in BASF SE (Employee Participation Agreement), which also includes the regulations applicable to BASF for implementing the gender quota for the Supervisory Board mandated by law as of January 1, 2016. The German Codetermination Act does not apply to BASF as a European stock corporation (Societas Europaea, SE).

The Supervisory Board of BASF SE comprises 12 members. Six members are each elected for a five-year term by the shareholders at the Annual Shareholders' Meeting. The remaining six members are elected by the BASF Europa Betriebsrat (BASF Works Council Europe), the European employee representation body of the BASF Group.

The meetings of the Supervisory Board and its committees are called by their chairpersons and, independently, at the request of one of their members or the Board of Executive Directors. The shareholder and employee representatives of the Supervisory Board prepare for Supervisory Board meetings in separate preliminary discussions in each case. Resolutions of the Supervisory Board are passed by a simple majority vote of the participating members. In the event of a tie, the vote of the Chairman of the Supervisory Board, who must always be a shareholder representative, shall be the casting vote. This resolution process is also applicable for the appointment and dismissal of members of the Board of Executive Directors by the Supervisory Board. Resolutions can, as needed, also be made in writing or through other means of communication outside of the meetings, as long as no member objects to this form of passing a resolution.

The Board of Executive Directors regularly informs the Supervisory Board about matters such as the course of business and expected developments, the financial position and results of operations, corporate planning, the implementation of the corporate strategy, business opportunities and risks, and risk and compliance management. The Supervisory Board has embedded the main reporting requirements in an information policy. The Chairman of the Supervisory Board is in regular contact with the Board of Executive Directors, especially with its chairman, outside of meetings as well.

BASF SE's Supervisory Board has established a total of four Supervisory Board Committees: the Personnel Committee, the Audit Committee, the Nomination Committee and the Strategy Committee.

For more information on the Statutes of BASF SE and the Employee Participation Agreement, see basf.com/statutes and basf.com/en/corporategovernance

A list of the members of the Supervisory Board of BASF SE indicating which members are shareholder or employee representatives and their appointments to the supervisory bodies of other companies can be found from page 144 onward

The compensation of the Supervisory Board is presented in the Compensation Report from page 158 onward

Personnel Committee

Members

Dr. Jürgen Hambrecht (chairman), Michael Diekmann, Sinischa Horvat, Michael Vassiliadis

Duties

- Prepares the appointment of members to the Board of Executive Directors by the Supervisory Board as well as the employment contracts to be entered into with members of the Board of Executive Directors
- When making recommendations for appointments to the Board of Executive Directors, considers professional qualifications, international experience and leadership skills as well as long-term succession planning, diversity, and especially the appropriate consideration of women
- Prepares the resolutions made by the Supervisory Board with regard to the system and amount of compensation paid to members of the Board of Executive Directors

Audit Committee

Members

Dame Alison Carnwath DBE (chairman), Ralf-Gerd Bastian (until May 4, 2018), Tatjana Diether (since May 4, 2018), Franz Fehrenbach, Michael Vassiliadis

Duties

- Prepares the negotiations and resolutions of the Supervisory Board for the approval of the Financial Statements, the Consolidated Financial Statements and the Management's Reports including the Nonfinancial Statements and discusses the quarterly statements and the half-year financial report with the Board of Executive Directors prior to their publication
- Deals with monitoring the financial reporting process, the annual audit, the effectiveness of the internal control system, the risk

management system, and the internal auditing system as well as compliance issues
- Is responsible for business relations with the company's external auditor: prepares the Supervisory Board's proposal to the Annual Shareholders' Meeting regarding the selection of an auditor, monitors the auditor's independence, defines the focus areas of the audit together with the auditor, negotiates auditing fees and establishes the conditions for the provision of the auditor's non-audit services; the chairman of the Audit Committee regularly discusses this with the auditor outside of meetings as well
- Is authorized to request any information that it deems necessary from the auditor or Board of Executive Directors; can also view all of BASF's business documents and examine these and all other assets belonging to BASF. The Audit Committee can also engage experts such as auditors or lawyers to carry out these inspections

Financial experts

Dame Alison Carnwath DBE and Franz Fehrenbach are members with special knowledge of, and experience in, applying accounting and reporting standards and internal control methods pursuant to the German Corporate Governance Code.

Nomination Committee

Members

Dr. Jürgen Hambrecht (chairman), Dame Alison Carnwath DBE, Prof. Dr. François Diederich, Michael Diekmann, Franz Fehrenbach, Anke Schäferkordt

Duties

- Identifies suitable candidates for the Supervisory Board based on objectives for the composition decided on by the Supervisory Board
- Prepares the recommendations made by the Supervisory Board for the election of Supervisory Board members for the Annual Shareholders' Meeting

Strategy Committee

Members

Dr. Jürgen Hambrecht (chairman), Ralf-Gerd Bastian (until May 4, 2018), Dame Alison Carnwath DBE, Michael Diekmann, Waldemar Helber (since May 4, 2018), Sinischa Horvat, Michael Vassiliadis

Duties

- Handles the further development of the company's strategy
- Prepares resolutions of the Supervisory Board on the company's major acquisitions and divestitures

Meetings and meeting attendance

In the 2018 business year, meetings were held as follows:
- The Supervisory Board met five times.
- The Personnel Committee met three times.
- The Audit Committee met five times.
- The Nomination Committee met three times.
- The Strategy Committee met once.

With the exception of one Supervisory Board meeting, one Audit Committee meeting and one Personnel Committee meeting, at each of which one member was absent, all respective members attended all meetings of the Supervisory Board and its committees.

For more information on the Supervisory Board's activities and resolutions in the 2018 business year, see the Report of the Supervisory Board from page 160 onward

For an individual overview of meeting attendance, see basf.com/supervisoryboard/meetings

Competence profile, diversity concept and objectives for the composition of the Supervisory Board

■ Composition criteria: professional and personal qualifications, diversity, and independence

One important concern of good corporate governance is to ensure that seats on the responsible corporate bodies, the Board of Executive Directors and the Supervisory Board, are appropriately filled. On December 21, 2017, the Supervisory Board therefore agreed on objectives for the composition, the competence profile and the diversity concept of the Supervisory Board in accordance with section 5.4.1 of the German Corporate Governance Code and section 289f(2) no. 6 of the German Commercial Code (HGB). The guiding principle for the composition of the Supervisory Board is to ensure qualified supervision and guidance for the Board of Executive Directors of BASF SE. Candidates shall be proposed to the Annual Shareholders' Meeting for election to the Supervisory Board who can, based on their professional expertise and experience, integrity, commitment, independence and character, successfully perform the work of a supervisory board member at an international chemical company.

Competence profile

The following requirements and objectives are considered essential to the composition of the Supervisory Board as a collective body:
- Leadership experience in managing companies, associations and networks
- Members' collective knowledge of the chemical sector and the related value chains
- Appropriate knowledge within the body as a whole of finance, accounting, financial reporting, law and compliance as well as one independent member with accounting and auditing expertise ("financial expert") within the meaning of section 100(5) of the German Stock Corporation Act (AktG)
- At least one member with in-depth experience in digitalization, information technology, business models and start-ups
- At least one member with in-depth experience in human resources, corporate governance, communications and the media
- Specialist knowledge and experience in sectors outside of the chemical industry

Diversity concept

The Supervisory Board strives to achieve a reasonable level of diversity with respect to character, gender, international representation, professional background, specialist knowledge and experience as well as age distribution, and takes the following composition criteria into account:

- At least 30% women and 30% men
- At least 30% of members have international experience based on their background or professional experience
- At least 50% of members have different educational backgrounds and professional experience
- At least 30% under the age of 60

Further composition objectives

- **Character and integrity:** All members of the Supervisory Board must be personally reliable and have the knowledge and experience required to diligently and independently perform the work of a supervisory board member.
- **Availability:** Each member of the Supervisory Board ensures that they invest the time needed to properly perform their role as a member of the Supervisory Board of BASF SE. The statutory limits on appointments to governing bodies and the recommendations of the German Corporate Governance Code must be complied with and the demands of the capital market given appropriate consideration when accepting further appointments.
- **Age limit and period of membership:** Persons who have reached the age of 72 on the day of election by the Annual Shareholders' Meeting should generally not be nominated for election. Membership on the Supervisory Board should generally not exceed 15 years; this corresponds to three regular statutory periods in office.
- **Independence:** All Supervisory Board members should be independent within the meaning of the criteria specified in the German Corporate Governance Code. This means that they may not have a personal or business relationship with BASF, its governing bodies, a controlling shareholder or a company affiliated with this controlling shareholder that may cause a substantial and not merely temporary conflict of interest. The Supervisory Board has additionally defined the following principles to clarify the meaning of independence: The independence of employee representatives is not compromised by their role as an employee representative or employment by BASF SE or a Group company. Prior membership of the Board of Executive Directors does not preclude independence following the expiry of the statutory cooling-off period of two years. Members who have sat on the Supervisory Board for more than 15 years are not considered independent. Based on these criteria, the Supervisory Board should comprise at least 10 independent members; this also means that of the total of six shareholder representatives, at least four must be independent.

Status of implementation

According to the Supervisory Board's own assessment, its current composition already meets nearly all of the requirements of the competence profile. Only the competence area of digitalization is not yet completely covered. The Supervisory Board intends to meet the competence profile in full with its nominations for election to the Supervisory Board in 2019.

According to the Supervisory Board's assessment, 10 of the 12 current members are considered independent based on the above criteria. Two members of the Supervisory Board no longer meet the independence criteria as they have been members of the Supervisory Board since May 1998 and May 2003. These two members will not be proposed for reelection in the regular election of the Supervisory Board at the Annual Shareholders' Meeting on May 3, 2019, and will retire from the Supervisory Board.

For more information on the statutory minimum quotas for the number of women and men on the Supervisory Board, see the following section

The independent Supervisory Board members are named under Management and Supervisory Boards from page 144 onward

Commitments to promote the participation of women in leadership positions at BASF SE

Minimum quota on Supervisory Board, target figures for Board of Executive Directors and top management

The supervisory board of a publicly listed European stock corporation (SE) that is composed of the same number of shareholder and employee representatives must, according to section 17(2) of the SE Implementation Act, consist of at least 30% women and 30% men. Since the 2018 Annual Shareholders' Meeting, the Supervisory Board of BASF SE comprises four women, of whom two are shareholder representatives and two are employee representatives, and eight men; its composition meets the statutory requirements. On conclusion of the 2018 Annual Shareholders' Meeting, the departing Supervisory Board member Ralf-Gerd Bastian was succeeded by Tatjana Diether, who was personally chosen to replace him as early as late 2013 until the end of the 2019 Annual Shareholders' Meeting.

As a target figure for the Board of Executive Directors, the Supervisory Board determined that, in accordance with section 111(5) AktG for the second target-attainment period after the law's entry into force, which began on January 1, 2017, the Board of Executive Directors should continue to have at least one female member. With eight members of the Board of Executive Directors, this represented 12.5% on the date the target was set, and today represents 14.3% with seven members. The Board of Executive Directors also decided on target figures for the proportion of women in the two management levels below the Board of Executive Directors of BASF SE: Women are to make up 12.1% of the leadership level directly below the Board, and the level below that is to comprise 7.3% women. This corresponds to the status at the time these target figures were determined. The deadline for achieving the goals for the second target-attainment period was set for December 31, 2021.

BASF views the further development and promotion of women as a global duty independent of individual Group companies. We set ourselves ambitious global goals for this and made further progress in 2018. BASF will continue working on expanding the percentage of women in its leadership team. The company is carrying out, and constantly enhancing, worldwide measures to this effect.

The November 2015 Employee Participation Agreement relevant to the composition of the Supervisory Board is available at basf.com/en/corporategovernance

For more information on women in leadership positions in the BASF Group worldwide, see page 23

For more information on the inclusion of diversity, including promotion of women, see the chapter on Employees in the Management's Report on page 112

Shareholders' rights

- **Shareholders' rights of co-administration and supervision at the Annual Shareholders' Meeting**
- **One share, one vote**

Shareholders exercise their rights of co-administration and supervision at the Annual Shareholders' Meeting, which usually takes place within the first five months of the business year. The Annual Shareholders' Meeting elects half of the members of the Supervisory Board and, in particular, resolves on the formal discharge of the Board of Executive Directors and the Supervisory Board, the distribution of profits, capital measures, the authorization of share buybacks, changes to the Statutes and the selection of the auditor.

Each BASF SE share represents one vote. All of BASF SE's shares are registered shares. Shareholders are obliged to have themselves entered with their shares into the company share register and to provide the information necessary for registration in the share register according to the German Stock Corporation Act. There are no registration restrictions and there is no limit to the number of shares that can be registered to one shareholder. Only the persons listed in the share register are entitled to vote as shareholders. Listed shareholders may exercise their voting rights at the Annual Shareholders' Meeting either personally, through a representative of their choice or through a company-appointed proxy authorized by the shareholders to vote according to their instructions. Individual instructions are only forwarded to the company on the morning of the day of the Annual Shareholders' Meeting. Voting rights can be exercised according to shareholders' instructions by company-appointed proxies until the end of the agenda discussion during the Annual Shareholders' Meeting. There are neither voting caps to limit the number of votes a shareholder may cast nor special voting rights. BASF has fully implemented the principle of "one share, one vote."

All shareholders entered in the share register are entitled to participate in the Annual Shareholders' Meetings, to have their say concerning any item on the agenda and to request information about company issues insofar as this is necessary to make an informed judgment about the item on the agenda under discussion. Registered shareholders are also entitled to file motions pertaining to proposals for resolutions made by the Board of Executive Directors and Supervisory Board at the Annual Shareholders' Meeting and to contest resolutions of the Meeting and have them evaluated for their lawfulness in court.

Shareholders who hold at least €500,000 of the company's share capital, a quota corresponding to 390,625 shares, are furthermore entitled to request that additional items be added to the agenda of the Annual Shareholders' Meeting.

Implementation of the German Corporate Governance Code

- **BASF SE follows all recommendations of German Corporate Governance Code**

BASF advocates responsible corporate governance that focuses on sustainably increasing the value of the company.

BASF SE follows all recommendations of the German Corporate Governance Code in its most recently revised version of February 2017. In the same manner, BASF has followed nearly all of the nonobligatory suggestions of the German Corporate Governance Code. We have not implemented the suggestion to enable shareholders to follow the proceedings of the entire Annual Shareholders' Meeting online. The Annual Shareholders' Meeting is publicly accessible via online broadcast until the end of the speech by the Chairman of the Board of Executive Directors. The subsequent discussion of items on the agenda is not accessible online in order to preserve the character of the Annual Shareholders' Meeting as a meeting attended by our shareholders on-site.

The joint Declaration of Conformity 2018 by the Board of Executive Directors and Supervisory Board of BASF SE is rendered on page 166

For more information on the Declaration of Conformity 2018, the implementation of the Code's suggestions and the German Corporate Governance Code, see basf.com/en/corporategovernance

Disclosures according to section 315a(1) of the German Commercial Code (HGB) and explanatory report of the Board of Executive Directors according to section 176(1) sentence 1 of the German Stock Corporation Act (AktG)

As of December 31, 2018, the subscribed capital of BASF SE was €1,175,652,728.32 divided into 918,478,694 registered shares with no par value. Each share entitles the holder to one vote at the Annual Shareholders' Meeting. Restrictions on the right to vote or transfer shares do not exist. The same rights and duties apply to all shares. According to the Statutes, shareholders are not entitled to receive share certificates. There are neither different classes of shares nor shares with preferential voting rights (golden shares).

The appointment and dismissal of members of the Board of Executive Directors is legally governed by the regulations in Article 39 of the SE Council Regulation, section 16 of the SE Implementation Act and sections 84 and 85 AktG as well as Article 7 of the Statutes of BASF SE. Accordingly, the Supervisory Board determines the number of members of the Board of Executive Directors (at least two), appoints the members of the Board of Executive Directors, and can nominate a chairperson, as well as one or more vice chairpersons. The members of the Board of Executive Directors are appointed for a maximum of five years. At BASF, Board members are initially often only appointed for a term of three years. Reappointments are permissible. The Supervisory Board can dismiss a member of the Board of Executive Directors if there is serious cause to do so. Serious cause includes, in particular, a gross breach of the duties pertaining to the Board of Executive Directors and a vote of no confidence at the Annual Shareholders' Meeting. The Supervisory Board decides on appointments and dismissals according to its own best judgment.

According to Article 59(1) of the SE Council Regulation, amendments to the Statutes of BASF SE require a resolution of the Annual Shareholders' Meeting adopted with at least a two-thirds majority of the votes cast, provided that the legal provisions applicable to German stock corporations under the German Stock Corporation Act do not stipulate or allow for larger majority requirements. In the case of amendments to the Statutes, section 179(2) of the German Stock Corporation Act requires a majority of at least three-quarters of the subscribed capital represented.

Pursuant to Article 12(6) of the Statutes of BASF SE, the Supervisory Board is authorized to resolve on amendments to the Statutes that merely concern their wording. This applies in particular to the adjustment of the share capital and the number of shares after the redemption of repurchased BASF shares and after a new issue of shares from authorized capital.

Until May 1, 2019, the Board of Executive Directors of BASF SE is authorized by a resolution passed at the Annual Shareholders' Meeting of May 2, 2014, to increase subscribed capital – with the approval of the Supervisory Board – by a total of €500 million through the issue of new shares against cash or contributions in kind (authorized capital). A right to subscribe to the new shares shall be granted to shareholders. This can also be achieved by a credit institution acquiring the new shares with the obligation to offer these to shareholders (indirect subscription right). The Board of Executive Directors is authorized to exclude the statutory subscription right of shareholders to a maximum amount of a total of 20% of share capital in certain exceptional cases that are defined in Article 5(8) of the BASF SE Statutes. This applies in particular if, for capital increases in return for cash contributions, the issue price of the new shares is not substantially lower than the stock market price of BASF shares and the total number of shares issued under this authorization does not exceed 10% of the shares currently in issue or, in eligible individual cases, to acquire companies or shares in companies in exchange for surrendering BASF shares.

By way of a resolution of the Annual Shareholders' Meeting on May 12, 2017, the share capital was increased conditionally by up to €117,565,184 by issuing up to 91,847,800 new shares. The contingent capital increase serves to grant shares to the holders of convertible bonds or warrants attached to bonds with warrants of BASF SE or a subsidiary, which the Board of Executive Directors is authorized to issue up to May 11, 2022, by way of a resolution of the Annual Shareholders' Meeting on May 12, 2017. A right to subscribe to the bonds shall be granted to shareholders. The Board of Executive Directors is authorized to exclude the subscription right in certain exceptional cases that are defined in Article 5(9) of the BASF SE Statutes.

At the Annual Shareholders' Meeting on May 12, 2017, the Board of Executive Directors was authorized to purchase up to 10% of the shares in issue at the time of the resolution (10% of the company's share capital) until May 11, 2022. At the discretion of the Board of Executive Directors, the purchase can take place on the stock exchange or by way of a public purchase offer directed to all shareholders. The Board of Executive Directors is authorized to sell the repurchased company shares (a) through a stock exchange, (b) through a public offer directed to all shareholders and – with the approval of the Supervisory Board – to third parties, (c) for a cash payment that is not significantly lower than the stock exchange price at the time of sale and (d) for contributions in kind, particularly in connection with the acquisition of companies, parts of companies or shares in companies or in connection with mergers. In the cases specified under (c) and (d), the shareholders' subscription right is excluded. The Board of Executive Directors is furthermore authorized to retire the shares bought back and to reduce the share capital by the proportion of the share capital accounted for by the retired shares.

Bonds issued by BASF SE grant the bearer the right to request early repayment of the bonds at nominal value if, after the date of issue of the bond, one person – or several persons acting together – hold or acquire a volume of BASF SE shares that corresponds to more than 50% of the voting rights (change of control), and one of the rating agencies named in the bond's terms and conditions withdraws its rating of BASF SE or the bond, or reduces it to a noninvestment grade rating within 120 days of the change of control event.

In the event of a change of control, members of the Board of Executive Directors shall, under certain additional conditions, receive compensation (details of which are listed in the Compensation Report on page 157). A change of control is assumed when a shareholder informs BASF of a shareholding of at least 25% or the increase of such a holding. In addition, employees of BASF SE and its subsidiaries who are classed as senior executives will receive a severance payment if their contract of employment is terminated by BASF within 18 months of a change of control event, provided the employee has not given cause for the termination. The employee whose service contract has been terminated in such a case will receive a maximum severance payment of 1.5 times the annual salary (fixed component) depending on the number of months that have passed since the change of control event.

The remaining specifications stipulated in section 315a(1) HGB refer to situations that are not applicable to BASF SE.

For more information on bonds issued by BASF SE, see basf.com/bonds

Directors' and officers' liability insurance

BASF SE has taken out liability insurance that covers the activities of members of the Board of Executive Directors and the Supervisory Board (directors' and officers' liability insurance). This policy provides for the level of deductibles for the Board of Executive Directors as prescribed by section 93(2) sentence 3 AktG and for the level of deductibles for the Supervisory Board as recommended in section 3.8(3) of the German Corporate Governance Code (10% of damages up to one-and-a-half times the fixed annual compensation).

Share ownership by members of the Board of Executive Directors and the Supervisory Board

No member of the Board of Executive Directors or the Supervisory Board owns shares in BASF SE and related options or other derivatives that account for 1% or more of the share capital. Furthermore, the total volume of BASF SE shares and related financial instruments held by members of the Board of Executive Directors and the Supervisory Board accounts for less than 1% of the shares issued by the company.

Share dealings of the Board of Executive Directors and Supervisory Board (obligatory reportable and publishable directors' dealings under Article 19(1) of the E.U. Market Abuse Regulation 596/2014 (MAR))

As legally stipulated by Article 19(1) MAR, all members of the Board of Executive Directors and the Supervisory Board as well as certain members of their families are required to disclose the purchase or sale of financial instruments of BASF SE (e.g., shares, bonds, options, forward contracts, swaps) to the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht) and to the company if transactions within the calendar year exceed the threshold of €5,000.

In 2018, a total of 28 purchases and one sale by members of the Board of Executive Directors and the Supervisory Board and members of their families subject to disclosure were reported as directors' dealings, involving between 20 and 15,000 BASF shares or BASF ADRs. The price per share was between €65.40 and €96.17. The volume of the individual trades was between €1,709.07 and €981,000.00. The disclosed share transactions are published on BASF SE's website.

For more information on securities transactions reported in 2018, see basf.com/en/directorsdealings

Information on the auditor

The Annual Shareholders' Meeting of May 4, 2018, once again elected KPMG AG Wirtschaftsprüfungsgesellschaft as the auditor of the BASF Group Consolidated Financial Statements and Separate Financial Statements of BASF SE for the 2018 business year, as well as the corresponding management's reports. KPMG member firms also audit the majority of companies included in the Consolidated Financial Statements. KPMG has been the continuous auditor of BASF SE since the 2006 Financial Statements. For this reason, a public call to tender was issued in 2015 to all auditors for the audit of the 2016 Consolidated and Separate Financial Statements, in line with the E.U. Regulation 537/2014 of April 16, 2014. Based on the results of the tendering process, the Audit Committee recommended to the Supervisory Board that it once again propose KPMG for election. After completing the tendering process, KPMG can now be proposed for election at the Annual Shareholders' Meeting as BASF's auditor without further tendering processes up to and including the 2025 business year. Alexander Bock has been the auditor responsible for the Consolidated Financial Statements since auditing the 2017 Financial Statements. Since the 2017 Financial Statements, the auditor responsible for the Separate Financial Statements has been Dr. Stephanie Dietz.

The total fee paid to KPMG and auditing firms of the KPMG group by BASF SE and other BASF Group companies for non-audit services, in addition to the auditing fee, was €1 million in 2018. This represents around 4.7% of the fees for auditing the financial statements.

For more information, see Note 33 to the Consolidated Financial Statements on page 267

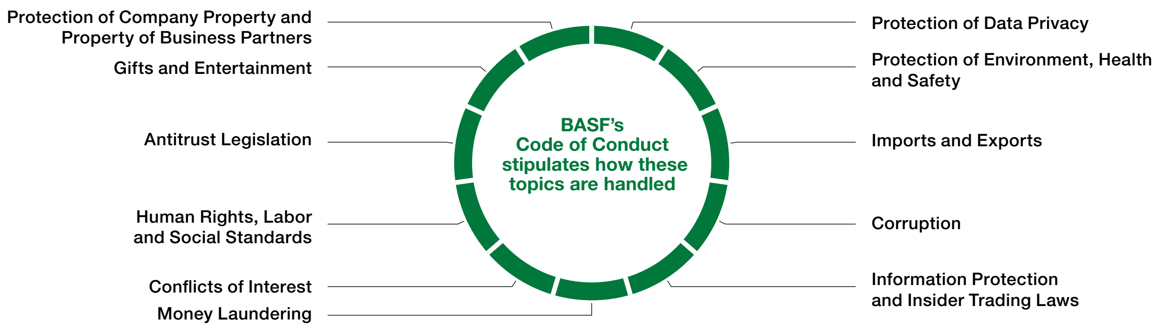
Compliance

Our Group-wide Compliance Program aims to ensure adherence to legal regulations and the company's internal guidelines. Our employee Code of Conduct firmly embeds these mandatory standards into day-to-day business. Members of the Board of Executive Directors are also expressly obligated to follow these principles.

Compliance Program and Code of Conduct

- **Integrated into corporate values**
- **Regular compliance training for employees**

BASF's Code of Conduct



Based on international standards, BASF's Compliance Program combines important laws and company-internal policies – often exceeding legal requirements – with external voluntary commitments to create a framework that regulates how all BASF employees interact with business partners, officials, colleagues and society. At the core of our Compliance Program is the global, standardized Code of Conduct received by every employee. All employees and managers are obligated to adhere to its guidelines, which describe our principles for proper conduct and cover topics ranging from corruption and antitrust laws to human rights, labor and social standards, conflicts of interest and trade control, and protection of data privacy.

Abiding by compliance standards is the foundation of responsible leadership. This has also been embedded in our values. We are convinced that compliance with these standards will not only prevent the disadvantages associated with violations, such as penalties and fines; we also view compliance as the right path toward securing our company's long-term success.

Our efforts are principally aimed at preventing violations from the outset. We perform systematic risk assessments to identify the risk of compliance violations, including corruption risks. These are conducted at division, regional and country level. The regular compliance audits performed by the Corporate Audit department are another source for the systematic identification of risks. These risks are documented in each risk or audit report. The same applies to specific risk minimization measures as well as the time frame for their implementation.

One key element in the prevention of compliance violations is compulsory training and workshops held as classroom or online courses. All employees are required within a prescribed time frame to take part in basic compliance training, refresher courses and special tutorials dealing with, for example, antitrust legislation, taxes or trade control regulations. Course materials and formats are constantly updated, taking into account the specific risks of individual target groups and business areas. In 2018, for instance, we again asked most of our employees around the world to take part in online refresher training as part of the compliance program. In total, more than 96,000 participants worldwide received around 84,000 hours of compliance training in 2018.[1]

For more information on the BASF Code of Conduct, see basf.com/code_of_conduct

Compliance culture at BASF

We firmly believe that for corporate responsibility to be a success, there must be an active culture of living these guidelines within the company. Thanks to the early introduction of our compliance standards, which were consolidated in our global Code of Conduct in 2013, these are firmly established and undisputed. We expect all employees to act in line with these compliance principles. Managers

Code of Conduct
forms core of our Compliance Program

More than 96,000
participants in compliance training[1]

84 internal audits
conducted on compliance

1 Excluding the assets and businesses acquired from Bayer

place a key role here – they serve as an example of and communicate our values and culture both internally and externally.

Monitoring adherence to our compliance principles

BASF's Chief Compliance Officer (CCO) reports directly to the Chairman of the Board of Executive Directors and manages the further development of our global compliance organization and our Compliance Management System. He is supported in this task by more than 100 compliance officers worldwide in the regions and countries as well as in the divisions. Material compliance topics are regularly discussed in the compliance committees established at global and regional level. The CCO reports to the Supervisory Board's Audit Committee in at least one of its meetings each year on the status of the Compliance Program as well as any major developments. In the event of significant incidents, the Audit Committee is immediately informed by the Board of Executive Directors.

We particularly encourage our employees to actively and promptly seek guidance if in doubt. They can consult their managers, dedicated specialist departments, such as the Legal department, and company compliance officers. We have also set up more than 50 external hotlines worldwide that our employees can use – including anonymously – to report potential violations of laws or company guidelines. All hotlines are also open to the public. Each concern is documented according to specific criteria, properly investigated in line with standard internal procedures and answered as quickly as possible. The outcome of the investigation as well as any measures taken are documented accordingly and included in internal reports.

In 2018, 397 calls and emails were received by our external hotlines (2017: 290). These concerns involved questions ranging from personnel management and handling of company property to information on the behavior of business partners or human rights issues, such as on labor and social standards. We launched case-specific investigations, in accordance with applicable law and internal regulations, into all cases of suspected misconduct that we became aware of. These include, for example, improved control mechanisms, additional informational and training measures, clarification and expansion of the relevant internal regulations, as well as disciplinary measures as appropriate. Most of the justified cases related to personal misconduct in connection with the protection of company property, inappropriate handling of conflicts of interests or gifts and invitations. In such isolated cases, we took disciplinary measures up to and including dismissal in accordance with uniform internal standards and also pursued claims for damages where there were sufficient prospects of success.

BASF's Corporate Audit department monitors adherence to compliance principles, covering all areas in which compliance violations could occur. They check that employees uphold regulations and make sure that the established processes, procedures and monitoring tools are appropriate and sufficient to minimize potential risk or preclude violations in the first place. In 2018, 84 Group-wide audits of this kind were performed (2017: 75). Our compliance management system itself is also regularly audited by the internal Corporate Audit department, most recently in November 2018. Overall, the audits confirmed the effectiveness of the compliance management system. No irregularities were shown in the audit's focus areas of antitrust law, trade controls and embargo.

We monitor our business partners in sales for potential compliance risks based on the global Guideline on Business Partner Due Diligence using a checklist, a questionnaire and an internet-based analysis. The results are then documented. If a business partner is not prepared to answer the questionnaire, we do not enter into a business relationship with them. A dedicated global Supplier Code of Conduct applies to our suppliers, which covers compliance with environmental, social and corporate governance standards, among other requirements. As part of our trade control processes, we also check whether persons, companies or organizations appear on sanction lists due to suspicious or illegal activities, and whether there are business processes with business partners from or in countries under embargo.

We support the United Nations' Guiding Principles on Business and Human Rights and are constantly working to enhance our internal guidelines and processes in keeping with these principles. For example, there is an internal guideline to respect international labor and social standards that is applicable throughout the Group. Outside of our company, too, we support respect for human rights and the fight against corruption. We are a founding member of the United Nations Global Compact. As a member of Transparency International Deutschland and the Partnering Against Corruption Initiative (PACI) of the World Economic Forum, we assist in the implementation of these organizations' objectives.

For more information on the Supplier Code of Conduct and supplier assessments, see page 90 onward

For more information on human rights and labor and social standards, see basf.com/human_rights

Management and Supervisory Boards

Board of Executive Directors

There were seven members on the Board of Executive Directors of BASF SE as of December 31, 2018

Dr. Martin Brudermüller
Chairman of the Board of Executive Directors
Degree: Chemistry, 57 years old, 31 years at BASF
Responsibilities: Legal, Taxes, Insurance & Intellectual Property; Corporate Development; Corporate Communications & Government Relations; Senior Executive Human Resources; Investor Relations; Compliance; BASF 4.0; Corporate Technology & Operational Excellence; Digitalization in Research & Development; Innovation Management
First appointed: 2006, **term expires:** 2023

Dr. Hans-Ulrich Engel
Vice Chairman of the Board of Executive Directors
Degree: Law, 59 years old, 31 years at BASF
Responsibilities: Finance; Oil & Gas; Procurement; Supply Chain Operations & Information Services; Corporate Controlling; Corporate Audit
First appointed: 2008, **term expires:** 2023
Internal memberships within the meaning of section 100(2) of the German Stock Corporation Act:
Wintershall Holding GmbH (Chairman of the Supervisory Board)
Wintershall AG (Chairman of the Supervisory Board)
Comparable German and non-German supervisory bodies:
Nord Stream AG (member of the Shareholders' Committee)

Saori Dubourg
Degree: Business Administration, 47 years old, 22 years at BASF
Responsibilities: Agricultural Solutions; Construction Chemicals; Bioscience Research; Region Europe
First appointed: 2017, **term expires:** 2020

Sanjeev Gandhi
Degrees: Chemical Engineering, Business Administration, 52 years old, 25 years at BASF
Responsibilities: Intermediates; Monomers; Petrochemicals; Greater China & Functions Asia Pacific; South & East Asia, ASEAN & Australia/New Zealand
First appointed: 2014, **term expires:** 2023

Michael Heinz
Degree: Business Administration, 54 years old, 35 years at BASF
Responsibilities: Engineering & Maintenance; Environmental Protection, Health & Safety; European Site & Verbund Management; Human Resources
First appointed: 2011, **term expires:** 2024
Comparable German and non-German supervisory bodies:
BASF Antwerpen N.V. (Chairman of the Administrative Council)

Dr. Markus Kamieth
Degree: Chemistry, 48 years old, 20 years at BASF
Responsibilities: Care Chemicals; Dispersions & Pigments; Nutrition & Health; Performance Chemicals; Advanced Materials & Systems Research; BASF New Business; Region South America
First appointed: 2017, **term expires:** 2020
Comparable German and non-German supervisory bodies:
Solenis UK International Ltd. (member of the Board of Directors since February 1, 2019)

Wayne T. Smith
Degrees: Chemical Engineering, Business Administration, 58 years old, 15 years at BASF
Responsibilities: Catalysts; Coatings; Performance Materials; Market & Business Development, Site & Verbund Management North America; Regional Functions & Country Platforms North America; Process Research & Chemical Engineering
First appointed: 2012, **term expires:** 2020

The following member left the Board of Executive Directors on May 4, 2018

Dr. Kurt Bock
Chairman of the Board of Executive Directors
Degree: Business Administration, 60 years old, 27 years at BASF
First appointed: 2003, **term expires:** 2018
Supervisory board membership until date of retirement (excluding internal memberships):
Fresenius Management SE (member)

Division of responsibilities until May 4, 2018

The Chairman of the Board of Executive Directors Dr. Kurt Bock retired from the Board of Executive Directors following the Annual Shareholders' Meeting on May 4, 2018. The Supervisory Board appointed Dr. Martin Brudermüller, previously Vice Chairman, as Chairman of the Board of Executive Directors and Dr. Hans-Ulrich Engel as Vice Chairman of the Board of Executive Directors as of this date. In the course of these changes, the number of Board members was reduced from eight to seven. Until May 4, 2018, the areas of responsibility within the Board of Executive Directors were allocated as follows:

Dr. Kurt Bock
Legal, Taxes, Insurance & Intellectual Property; Corporate Development; Corporate Communications & Government Relations; Senior Executive Human Resources; Investor Relations; Compliance

Dr. Martin Brudermüller
Petrochemicals; Monomers; Intermediates; Process Research & Chemical Engineering; Innovation Management; Digitalization in Research & Development; Corporate Technology & Operational Excellence; BASF New Business

Saori Dubourg
Construction Chemicals; Crop Protection; Bioscience Research; Region Europe

Dr. Hans-Ulrich Engel
Finance; Oil & Gas; Procurement; Supply Chain Operations & Information Services; Corporate Controlling; Corporate Audit

Sanjeev Gandhi
Dispersions & Pigments; Greater China & Functions Asia Pacific; South & East Asia, ASEAN & Australia/New Zealand

Michael Heinz
Engineering & Maintenance; Environmental Protection, Health & Safety; European Site & Verbund Management; Human Resources

Dr. Markus Kamieth
Care Chemicals; Nutrition & Health; Performance Chemicals; Advanced Materials & Systems Research; Region South America

Wayne T. Smith
Catalysts; Coatings; Performance Materials; Market & Business Development, Site & Verbund Management North America; Regional Functions & Country Platforms North America

Division of responsibilities as of January 1, 2019

Dr. Martin Brudermüller
Legal, Taxes, Insurance & Intellectual Property; Corporate Development; Corporate Communications & Government Relations; Senior Executive Human Resources; Investor Relations; Compliance; Corporate Technology & Operational Excellence; Innovation Management

Dr. Hans-Ulrich Engel
Catalysts; Coatings; Oil & Gas; Finance; Procurement & Supply Chain Services; Digitalization & Information Services; Corporate Controlling; Corporate Audit

Saori Dubourg
Agricultural Solutions; Construction Chemicals; Bioscience Research; Region Europe

Sanjeev Gandhi
Intermediates; Petrochemicals; Greater China & Functions Asia Pacific; South & East Asia, ASEAN & Australia/New Zealand

Michael Heinz
Engineering & Technical Expertise; Environmental Protection, Health & Safety; European Site & Verbund Management; Human Resources

Dr. Markus Kamieth
Care Chemicals; Dispersions & Pigments; Nutrition & Health; Performance Chemicals; Advanced Materials & Systems Research; BASF New Business; Region South America

Wayne T. Smith
Monomers; Performance Materials; Process Research & Chemical Engineering; Market & Business Development, Site & Verbund Management North America; Regional Functions & Country Platforms North America

Supervisory Board

In accordance with the Statutes, the Supervisory Board of BASF SE comprises 12 members

The term of office of the Supervisory Board commenced following the Annual Shareholders' Meeting on May 2, 2014, in which the shareholder representatives on the Supervisory Board were elected. It terminates upon conclusion of the Annual Shareholders' Meeting that resolves on the discharge of members of the Supervisory Board for the fourth complete business year after the term of office commenced; this is the Annual Shareholders' Meeting on May 3, 2019. The Supervisory Board comprises the following members:

Dr. Jürgen Hambrecht, Neustadt an der Weinstraße, Germany*[1]
Chairman of the Supervisory Board of BASF SE
Former Chairman of the Board of Executive Directors of BASF SE (until May 2011)
Member of the Supervisory Board since: May 2, 2014
Supervisory board memberships:
Fuchs Petrolub SE[3] (chairman)
Trumpf GmbH & Co. KG[4] (chairman)
Daimler AG[3] (member)

Michael Diekmann, Munich, Germany[1]
Vice Chairman of the Supervisory Board of BASF SE
Chairman of the Supervisory Board of Allianz SE
Member of the Supervisory Board since: May 6, 2003
Supervisory board memberships:
Allianz SE[3] (chairman)
Fresenius Management SE[4] (member)
Fresenius SE & Co. KGaA[3] (vice chairman)
Siemens AG[3] (member)

Sinischa Horvat, Limburgerhof, Germany*[2]
Vice Chairman of the Supervisory Board of BASF SE
Chairman of the Works Council of BASF SE, Ludwigshafen Site; Chairman of BASF's Joint Works Council and of the BASF Works Council Europe
Member of the Supervisory Board since: May 12, 2017

Dame Alison Carnwath DBE, Exeter, England*[1]
Senior Advisor Evercore Partners
Member of the Supervisory Board since: May 2, 2014
Comparable German and non-German supervisory bodies:
Zurich Insurance Group AG[3] (independent, nonexecutive member of the Administrative Council)
Zürich Versicherungs-Gesellschaft AG[4] (independent, nonexecutive member of the Administrative Council)
Land Securities Group plc[3] (nonexecutive chairman of the Board of Directors until July 12, 2018)
BP plc[3] (nonexecutive director since May 21, 2018)
PACCAR Inc.[3] (independent member of the Board of Directors)
Coller Capital Ltd.[4] (nonexecutive member of the Board of Directors)
Broadwell Capital Limited[4] (nonexecutive member of the Board of Directors)

Prof. Dr. François Diederich, Dietikon, Switzerland[1]
Professor at the Swiss Federal Institute of Technology, Zurich, Switzerland
Member of the Supervisory Board since: May 19, 1998

Tatjana Diether, Limburgerhof, Germany*[2]
Member of the Works Council of BASF SE, Ludwigshafen Site, and of the BASF Works Council Europe
Member of the Supervisory Board since: May 4, 2018

Franz Fehrenbach, Stuttgart, Germany*[1]
Chairman of the Supervisory Board of Robert Bosch GmbH
Member of the Supervisory Board since: January 14, 2008
Supervisory board memberships:
Robert Bosch GmbH[4] (chairman)
Stihl AG[3] (vice chairman)
Linde AG[3] (second deputy chairman)
Comparable German and non-German supervisory bodies:
Stihl Holding AG & Co. KG[4] (member of the Advisory Board)
Linde plc[3] (member of the Board of Directors since December 22, 2018)

Waldemar Helber, Otterbach, Germany*[2]
Deputy Chairman of the Works Council of BASF SE, Ludwigshafen Site
Member of the Supervisory Board since: April 29, 2016

Anke Schäferkordt, Cologne, Germany*[1]
Member of the Executive Board of Bertelsmann SE & Co. KGaA (until December 31, 2018)
Chief Executive Officer of Mediengruppe RTL Deutschland GmbH (until December 31, 2018)
Member of the Supervisory Board since: December 17, 2010
Comparable German and non-German supervisory bodies:
Métropole Télévision S.A.[3] (member of the Supervisory Board until December 31, 2018)

Denise Schellemans, Brecht, Belgium*[2]
Full-time trade union delegate
Member of the Supervisory Board since: January 14, 2008

* Classified by the Supervisory Board as an "independent" member of the Supervisory Board (see page 136 for the criteria used to determine independence)
1 Shareholder representative
2 Employee representative
3 Publicly listed
4 Not publicly listed

Roland Strasser, Riedstadt, Germany*[2]
Regional Manager of the Rhineland-Palatinate/Saarland branch of IG BCE
Member of the Supervisory Board since: May 4, 2018
Supervisory board memberships:
AbbVie Komplementär GmbH[4] (member)
V & B Fliesen GmbH[4] (member since September 1, 2018)

Michael Vassiliadis, Hannover, Germany*[2]
Chairman of the Mining, Chemical and Energy Industries Union
Member of the Supervisory Board since: August 1, 2004
Supervisory board memberships:
K+S Aktiengesellschaft[3] (vice chairman until May 15, 2018)
Steag GmbH[4] (member)
RAG AG[3] (vice chairman)
RAG DSK AG[4] (vice chairman)
Henkel AG & Co. KGaA[3] (member since April 9, 2018)

The following members left the Supervisory Board on May 4, 2018

Ralf-Gerd Bastian, Neuhofen, Germany*[2]
Member of the Works Council of BASF SE, Ludwigshafen Site (until March 16, 2018)
Member of the Supervisory Board since: May 6, 2003

Francesco Grioli, Ronnenberg, Germany*[2]
Member of the Executive Committee of the Mining, Chemical and Energy Industries Union
Member of the Supervisory Board since: May 2, 2014
Supervisory board memberships:
Gerresheimer AG[3] (vice chairman)
Villeroy & Boch AG[3] (member until March 23, 2018)
V & B Fliesen GmbH[4] (member until May 31, 2018)
Continental AG[3] (member since November 1, 2018)

* Classified by the Supervisory Board as an "independent" member of the Supervisory Board (see page 136 for the criteria used to determine independence)
1 Shareholder representative
2 Employee representative
3 Publicly listed
4 Not publicly listed

Compensation Report

This report outlines the main principles of the compensation for the Board of Executive Directors and discloses the amount and structure of the compensation of each Board member. Furthermore, it provides information on end-of-service undertakings with respect to members of the Board of Executive Directors, as well as information on the compensation of Supervisory Board members.

This report meets the disclosure requirements of the German Commercial Code, supplemented by the additional requirements based on the German Act on the Disclosure of Management Board Remuneration (VorstOG) as well as the German Act on the Appropriateness of Management Board Remuneration (VorstAG), and is aligned with the recommendations of the German Corporate Governance Code (GCGC) in the version dated February 7, 2017.

Changes to the compensation system as of January 1, 2018

By way of a resolution of the Annual Shareholders' Meeting of May 4, 2018, the further development of the compensation system for the members of the Board of Executive Directors resolved by the Supervisory Board of BASF SE was approved with effect as of January 1, 2018.

One significant change relates to the variable compensation, which was adapted in accordance with a recommendation of the German Corporate Governance Code (GCGC) in the version dated February 7, 2017. The further developed compensation system has been a part of the contracts of the members of the Board of Executive Directors since January 1, 2018. The individual changes were as follows:

- From 2018 onward, the previously applicable annual variable compensation (bonus), which was based on the current and two preceding years, was replaced by a performance bonus with a multiple-year, forward-looking assessment basis. The payment of one part of the performance bonus only occurs after the end of the four-year performance period.
- Until the end of 2017, the key performance indicator for the company's success and variable compensation was the return on assets (ROA). From 2018 onward, it is replaced by the return on capital employed (ROCE), which serves as a consistent key performance indicator for determining variable compensation for all other employee groups as well.
- A clawback clause was introduced for the variable compensation and applies in the event of substantial breaches of duty by a Board member.
- The pensionable age for Board members (Board Performance Pension) was raised from 60 to 63 years for new members appointed to the Board of Executive Directors.
- An option was introduced in the Board Performance Pension enabling members of the Board of Executive Directors to choose between payment of their pension entitlements in the form of a lifelong pension or a lump sum (lump-sum option).

Principles and structure

The compensation of the Board of Executive Directors is determined by the company's size, complexity and financial position, as well as the performance of the Board of Executive Directors as a whole. It is designed to promote sustainable corporate development and ensure a pronounced variability in relation to the performance of the Board of Executive Directors and the BASF Group's success. The external and internal appropriateness of the Board's compensation is reviewed by an independent external auditor on a regular basis. Globally operating companies based in Europe serve as an external reference. For internal comparison, compensation, especially for senior executives, is considered in total as well as over time.

Based on a proposal by the Personnel Committee, the Supervisory Board determines the structure and amount of compensation of members of the Board of Executive Directors.

In 2016, the Supervisory Board engaged an independent external compensation consultant with an appropriateness review. The results of the appropriateness review revealed that the compensation granted to BASF's Board of Executive Directors at that time was below that of the peer group. On this basis, the Supervisory Board resolved in December 2016 to increase the compensation of the Board of Executive Directors with effect as of January 1, 2017. The amount of the increase was determined to position the compensation granted to BASF's Board of Executive Directors competitively within the peer group. The introduction of the new compensation system for the Board of Executive Directors as of January 1, 2018, had no effect on target compensation or maximum compensation.

For more information on the Supervisory Board and its committees, see page 144 and from page 162 onward

Individual compensation components

1. Fixed salary

The fixed salary is a set amount of yearly compensation paid out in equal installments. It is regularly reviewed by the Supervisory Board and adjusted, when appropriate.

The annual fixed salary for an ordinary member of the Board of Executive Directors is currently €800,000. The fixed salary for the chairman of the Board of Executive Directors is 2 times the value for an ordinary Board member, and 1.33 times this value for the vice chairman.

2. Performance bonus

Performance bonus

- Four-year, forward-looking performance period
- The amount of the performance bonus is based on the achievement of set operational targets and strategic medium-term objectives, as well as the BASF Group's ROCE.
- 50% of the performance bonus calculated after the first year is deferred for another three years and only paid out at the end of the four-year performance period based on the achievement of strategic targets.
- If the target ROCE is met and the target achievement is 100%, the performance bonus is double the fixed salary (target amount).

The annual variable compensation in effect until the end of 2017 was replaced as of 2018 with a forward-looking performance bonus that is geared to sustainable corporate development and has a three-year deferral component. The performance bonus is based on the performance of the Board of Executive Directors as a whole and the return on capital employed (ROCE) of the BASF Group. The target ROCE for the variable compensation is one percentage point above the cost of capital percentage for the financial year, which is determined using the weighted average cost of capital (WACC)

Overview of compensation components

Component		
1. Fixed salary	Annual amount	€800,000[1]
	Payment	In equal installments
2. Performance bonus	Annual target	€1,600,000[1]
	Cap	€2,500,000[1]
	Payment	Performance bonus, part 1: after the Annual Shareholders' Meeting for the past business year Performance bonus, part 2: after the end of the four-year performance period
3. Long-term, share price-based incentive program	The annual amount granted is dependent on the fair value of the options as of the grant date and the scope of the individual investment	
	Cap	€3,750,000[1, 2]
	Payment	In a period of 4 to 8 years after the grant date, depending on individual exercise date
4. Fringe benefits	The annual amount corresponds to the value of nonmonetary compensation	
5. Company pension benefits	The annual service cost is the accounting figure for the pension entitlements accrued in the relevant business year	

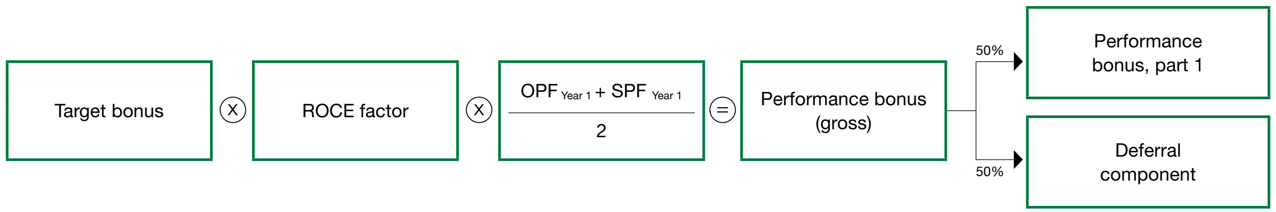
1 Amounts apply to an ordinary member of the Board of Executive Directors. The amount for the chairman of the Board of Executive Directors is 2 times this value, and 1.33 times this value for the vice chairman.
2 To reach the cap, a Board member must make the maximum individual investment based on the maximum performance bonus and the set limit on the gain from exercising the options granted must be reached.

approach in accordance with the Capital Asset Pricing Model. This target reflects the strategic goal of achieving a ROCE considerably above the cost of capital percentage every year, even if the capital structure and interest rate level change over time. The target value is thus directly linked to the return expected by investors, which also serves as orientation for the BASF Group's value-based management.

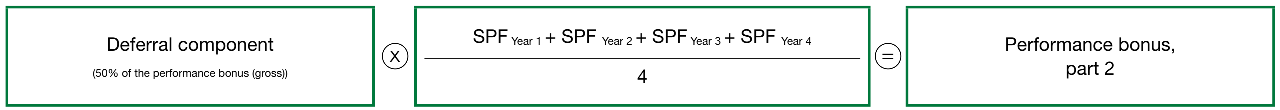
For more information on the determination of the cost of capital percentage, see Value-Based Management on page 29

For each financial year, a member of the Board of Executive Directors is entitled to a performance bonus with a four-year performance period. After the first year of this four-year performance period, the performance bonus (performance bonus (gross)) is determined based on the achievement of operational targets (operational performance factor, OPF) and strategic targets (strategic performance factor, SPF) as well as the ROCE (ROCE factor). 50% of the amount is paid out after the Annual Shareholders' Meeting in the following year (performance bonus, part 1).

Schematic overview: performance bonus, part 1



Schematic overview: performance bonus, part 2



The remaining 50% is deferred for another three years and is not immediately payable (deferral component). The final amount of the deferral component is determined depending on the degree to which the strategic targets were achieved within the four-year performance period (strategic performance factor, SPF) and is paid out after the Annual Shareholders' Meeting in the year following the end of this four-year performance period (performance bonus, part 2).

Target agreement and evaluation

> **Target agreement**
>
> In order to assess the sustainable performance of the Board of Executive Directors, each year the Supervisory Board sets a target agreement with the Board of Executive Directors as a whole. The target agreement contains:
>
> – One-year operational targets, primarily earnings, financial, investment and operational excellence targets such as EBIT before special items, EBIT after cost of capital, investments and operational excellence
>
> – Multiple-year strategic targets relating to the further development of BASF, primarily targets for growth, portfolio optimization, investment and R&D strategy, digitalization, sustainability and the BASF corporate values

The Board of Executive Directors' target agreement contains operational and strategic objectives. The operational targets (primarily earnings, financial, investment and operational excellence targets) cover the company's short-term financial performance. The strategic targets relate to BASF's medium and long-term development on the basis of the corporate strategy. They comprise targets for growth, portfolio optimization, investment and R&D strategy, digitalization, sustainability and the BASF corporate values.

The achievement of operational and strategic targets is evaluated separately. The amount of the performance bonus thus takes into account the Board of Executive Directors' performance for both the short-term and long-term success of the company.

Determination of performance factors

An operational performance factor and a strategic performance factor, each with a value between 0 and 1.5, are determined on the basis of the target achievement ascertained by the Supervisory Board. A target achievement rate of 100% equates to a value of 1.0 for the performance factor. The maximum performance factor of 1.5 applies for a target achievement rate of 125% and over; a target achievement rate of 50% or less represents a performance factor of 0.

Target achievement and performance factor

Target achievement	≤ 50 %	75%	100%	≥ 125 %
Performance factor	0	0.5	1.0	1.5

Values between these figures are interpolated

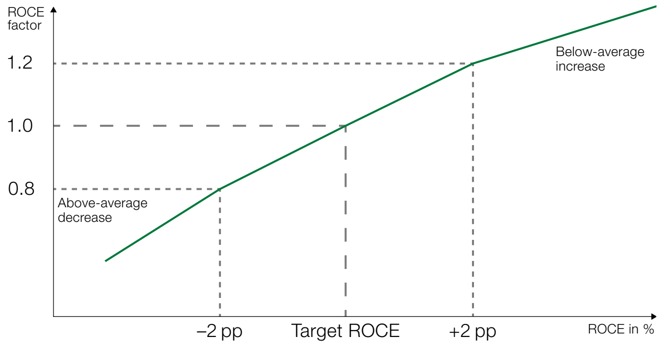
Determination of the ROCE factor

The ROCE of the particular financial year serves as the key performance indicator for the success of the company when determining the performance bonus. ROCE is the ratio of income from operations (EBIT) of the segments in relation to the average operating assets of the segments,[1] plus the customer and supplier financing not included there.

For more information on operating assets, see Value-Based Management on page 29

A ROCE factor is assigned to each relevant ROCE value. If the ROCE is two percentage points or more below the target ROCE, the ROCE factor will decline at a faster rate. The ROCE factor will increase at a slower rate if the ROCE is two percentage points or more above the target ROCE.

ROCE factor



The ROCE factor is 1.0 if the ROCE achieved in the financial year is one percentage point above the weighted cost of capital percentage (based on the weighted average cost of capital, WACC, in accordance with the Capital Asset Pricing Model) for that year, meaning an appropriate premium on the cost of capital was earned. In calculating ROCE, adjustments are made for negative and positive special items resulting from acquisitions and divestitures (e.g., integration costs in connection with acquisitions and gains or losses from the divestiture of businesses) when these exceed a corridor of plus or minus 1% of the average cost of capital basis. An adjustment of the ROCE (in the first 12 months after closing) therefore only occurs in cases of exceptionally high special items resulting from acquisitions and divestitures.

If the target ROCE is met and the target achievement is 100%, the performance bonus is double the fixed salary (target amount).

The Supervisory Board sets a maximum amount for the performance bonus (cap). The current total cap is €2,500,000 for an ordinary member of the Board of Executive Directors (performance bonus, part 1 and performance bonus, part 2). The maximum amount for the chairman of the Board of Executive Directors is 2 times the maximum value for an ordinary member, and 1.33 times this value for the vice chairman.

1 Corresponds to the income from operations (EBIT) of the operating divisions and the operating assets of the divisions as described in the Invitation to the 2018 Annual Shareholders' Meeting

Target agreement and target achievement in 2018

The performance bonus (gross) for 2018 was determined on the basis of target achievement as ascertained by the Supervisory Board and ROCE for the 2018 business year.

Operational performance factor (OPF_{2018}):

The comparison of operational targets (see page 122 of the BASF Report 2017) with target achievement resulted in an operational performance factor (OPF_{2018}) of 0.8:

- Targets for sales and improving operational excellence were met.
- Investments did not fully reach the target values in 2018.
- EBIT before special items and EBIT after cost of capital were considerably below the target values. Including the discontinued oil and gas business, EBIT before special items would have been slightly below the target value.

Strategic performance factor (SPF_{2018}):

The strategic targets were almost reached in the first year, which resulted in a strategic performance factor (SPF_{2018}) of 0.9:

- The portfolio optimization and long-term investment targets were exceeded.
- Targets for digitalization and sustainability were met.
- Volumes growth and sales of innovative products were considerably below the target values.

ROCE factor 2018:

The BASF Group's ROCE, which is used to determine compensation, was 11.4% in 2018. The target ROCE for 2018 was 11%, with the average cost of capital unchanged at 10%. Accordingly, the ROCE factor for 2018 was 1.04.

Performance bonus (gross) for a full-year ordinary member of the Board of Executive Directors

Target amount 2018 performance bonus (2018–2021):		ROCE factor 2018:		$\frac{OPF_{2018} + SPF_{2018}}{2}$		Actual amount 2018 performance bonus (gross) (2018–2021):
€1,600,000	×	1.04	×	$\frac{0.8 + 0.9}{2}$	=	€1,414,400

3. Long-term, share price-based incentive program (LTI program)

LTI program

- Absolute performance threshold: BASF share price gains at least 30% compared with the base price for the LTI program concerned
- Relative performance threshold: BASF shares outperform the MSCI World Chemicals Index and no share price loss compared with the base price on the option grant date
- Share ownership obligation: Mandatory individual investment in BASF shares with a holding obligation of 10% of the actual performance bonus (gross), plus up to an additional 20% of the actual performance bonus (gross)
- Term: eight years
- Exercise first possible; four years after the grant date (vesting period)
- Maximum exercise gain (cap): five times the individual investment

An LTI program exists for members of the Board of Executive Directors. It is also offered to all other senior executives of BASF Group, with a small number of exceptions. To take part in the program, each participant must prove an individual investment in BASF shares and hold the shares for this purpose for a defined period of time (holding period). The individual investment can amount to a maximum of 30% of the participant's performance bonus (gross). The members of the Board of Executive Directors are obligated to invest at least 10% of their individual performance bonus (gross) in the LTI program each year (share ownership obligation). This mandatory investment is subject to a holding period of four years. For any further additional voluntary investment of up to 20% of the performance bonus (gross), the general holding period of two years applies.

Four options are granted for each BASF share brought into the LTI program as an individual investment. After a four-year vesting period, there is a four-year exercise period during which the members of the Board of Executive Directors can exercise these options if performance thresholds are met. During the exercise period, the exercising of options is prohibited during certain periods (closed periods). Each member of the Board of Executive Directors can individually decide on the timing and extent of the exercising of options. Once the options are exercised, the computed value of the options is paid out in cash (cash settlement).

Each option consists of right A (absolute performance threshold) and right B (relative performance threshold), whose value is determined by different performance targets. At least one of the two conditions must be met in order for the option to be exercised:
- Performance threshold, right A: BASF share price increases at least 30% compared with the base price on the option grant date for the LTI program concerned. The value of right A is calculated as the difference between the market price of BASF shares on the exercise date and the base price on the option grant date. It is limited to 100% of the base price (cap). The base price for an LTI program is the volume-weighted average share price in Deutsche Börse AG's electronic trading system (Xetra) on the first trading day after the Annual Shareholders' Meeting of BASF SE in the year in which the LTI program is granted. The base price for the LTI program granted in 2018 was €85.45 (2017: €87.84).
- Performance threshold, right B: The cumulative percentage performance of the BASF share exceeds that of the MSCI World Chemicals Index (outperformance) and the price of the BASF share on the exercise date equals at least the base price. The value of right B is calculated as the base price of the option multiplied by twice the outperformance of BASF shares on the exercise date. It is limited to the closing price on the date of exercise minus the computed nominal value of BASF shares.

In total, the maximum exercise gain (cap) is limited to five times the individual investment and can amount to a maximum of €3,750,000 for an ordinary member of the Board of Executive Directors. The maximum amount for the chairman of the Board of Executive Directors is 2 times the maximum value for an ordinary Board member, and 1.33 times this value for the vice chairman.

Due to the multiple-year exercise period, it can occur that exercise gains from several LTI program years accumulate inside of one year; there can also be years without any exercise gains.

For more information on share ownership by members of the Board of Executive Directors, see page 139

For more information on the LTI program, see page 114 and from page 263 onward

4. Nonmonetary compensation and other additional compensation (fringe benefits)

Members of the Board of Executive Directors receive various fringe benefits in addition to the abovementioned cash compensation. Fringe benefits include delegation allowances, accident insurance premiums, transportation and benefits from the provision of security measures by the company. The fringe benefits granted by the company are subject to specific provisions and thereby also limited in its amount.

The members of the Board of Executive Directors are covered by a directors' and officers' liability insurance (D&O insurance) concluded by the company. This policy provides for the level of deductibles for the Board of Executive Directors as prescribed by section 93(2) sentence 3 of the German Stock Corporation Act.

5. Company pension benefits

Board Performance Pension

- Accrual of annual pension units, the amount of which depend on the company's success and the performance of the Board of Executive Directors as a whole
- Pension entitlement: retirement, disability and surviving dependents' pensions
- Pension benefits due: on reaching the retirement age of 60 (63 for members first appointed to the Board of Executive Directors since 2017) or on account of disability or death

As part of the pension benefits granted to the Board of Executive Directors (Board Performance Pension), company pension benefits are intended to accrue annual pension units, the amount of which depends on the company's success and the performance of the Board of Executive Directors as a whole in the business year concerned. The method used to determine the amount of the pension benefits generally corresponds to that used for all other senior executives of the BASF Group in Germany. The annual pension benefits accruing to Board members in a given reporting year (pension unit) are composed of a fixed and a variable component. The fixed component is calculated by multiplying the annual fixed salary above the Social Security Contribution Ceiling by 32% (fixed pension component).

The variable component of the pension unit is the result of multiplying the fixed pension component with a performance factor based on the relevant ROCE in the reporting year concerned, as well as the performance factors relevant to the performance bonus (variable pension component).

The amount resulting from the fixed and the variable pension component is converted into a pension unit (lifelong pension) using actuarial factors (annuity conversion factor). The currently applied annuity conversion factor is based on an actuarial interest rate of 5%, the probability of death, invalidity and bereavement according to Heubeck Richttafeln, 2005G (modified) and an assumed pension increase (at least 1% each year).

The sum of the pension units accumulated over the reporting years determines the respective Board member's pension benefit in the event of a claim.

This is the amount that is payable on retirement, disability or death. Pension benefits fall due at the end of service on reaching the age of 60 (for members first appointed to the Board of Executive Directors after January 1, 2017: on reaching the age of 63), or on account of disability or death. Pension payments are reviewed on a regular basis and adjusted by at least 1% each year. Members of the Board of Executive Directors have the option to choose between payment of their pension entitlements in the form of a lifelong pension or a lump sum. The amount of the lump-sum payment is calculated by capitalizing the annual pension entitlement accrued as of the end of the service period as a member of the Board of Executive Directors.

The pension units also include survivor benefits. Upon the death of an active or former member of the Board of Executive Directors, the surviving spouse receives a survivor pension amounting to 60% of the Board member's pension entitlement. The orphan pension amounts to 10% for each half-orphan, 33% for an orphan, 25% each for two orphans and 20% each for three or more orphans of the pension entitlement of the deceased (former) Board member. Total survivor benefits may not exceed 75% of the Board member's pension entitlement. If the survivor pensions exceed the upper limit, they will be proportionately reduced.

Board members are members of the BASF Pensionskasse VVaG, as are generally all employees of BASF SE. Contributions and benefits are determined by the Statutes of the BASF Pensionskasse VVaG and the General Conditions of Insurance.

Withholding and clawback clause

A withholding and clawback clause was introduced as of January 1, 2018, for the performance bonus and the LTI program for all members of the Board of Executive Directors. In the event that a Board member commits a serious infringement of the Code of Conduct of BASF Group or of the duty of care as a member of the management of the company, this provision allows for a reduction or cancellation of not yet paid variable compensation as well as the clawback of variable compensation paid out since January 1, 2018.

Amount of total compensation

The tables on pages 154 to 156 show the granted and allocated compensation as well as service cost of each member of the Board of Executive Directors in accordance with section 4.2.5(3) of the German Corporate Governance Code (GCGC) in the version dated February 7, 2017.

Due to the changes resolved to the compensation system for the Board of Executive Directors, this Compensation Report includes a comparison of the compensation granted and allocated under the two different systems. The compensation system for the Board of Executive Directors in effect until the end of 2017 is described in detail in the 2017 Compensation Report. The following comparison summarizes the changes.

	Compensation system for the Board of Executive Directors until the end of 2017	New compensation system for the Board of Executive Directors as of 2018
Performance bonus / annual variable compensation	**Annual variable compensation** – The key performance indicator for the company's success is the return on assets (ROA) – Relevant performance factor is the average of the performance factors in the current and two preceding business years – Payment in full after the Annual Shareholders' Meeting for the business year	**Performance bonus** – The key performance indicator for the company's success is the return on capital employed (ROCE) – Relevant performance factors are the operational performance factor (OPF) for the current business year and the strategic performance factors (SPF) for the current and the following three business years – 50% paid out at the end of the current business year and 50% after the end of the four-year performance period
Long-term incentive program (LTI)	– Long-term, share price-based incentive program – Mandatory individual investment of 10% of the actual annual variable compensation; up to an additional 20% of the actual annual variable compensation can be invested on a voluntary basis	– No changes to the program – Mandatory individual investment of 10% now based on the performance bonus (gross); up to an additional 20% of the performance bonus (gross) can be invested on a voluntary basis
Company pension benefits	– The variable component of the pension unit is the result of multiplying the fixed pension component with a factor based on the relevant return on assets in the reporting year concerned, as well as the performance factor used to determine the actual annual variable compensation	– The variable component of the pension unit is the result of multiplying the fixed pension component with a factor based on the relevant ROCE in the reporting year concerned, as well as the performance factors relevant to the performance bonus – The pensionable age for Board members (Board Performance Pension) was raised from 60 to 63 years for new members appointed to the Board of Executive Directors after January 1, 2017 – Option to choose between payment of pension entitlements in the form of a lifelong pension or a lump sum
Withholding and clawback clause	– None	– Withholding and clawback clause for the performance bonus and the LTI program

Compensation granted in accordance with the German Corporate Governance Code (GCGC)

The table "Compensation granted in accordance with the German Corporate Governance Code (GCGC)" shows: fixed salary, fringe benefits, annual variable target compensation/performance bonus, LTI program measured at fair value as of the grant date and service cost. The individual compensation components are supplemented by individually attainable minimum and maximum compensation.

Furthermore, a reconciliation statement for total compensation to be reported is provided below the table "Compensation granted in accordance with the German Corporate Governance Code (GCGC)" due to the disclosures required by section 314(1) no. 6a of the German Commercial Code (HGB) in connection with the German Accounting Standard 17 (GAS 17).

Compensation granted in accordance with the German Corporate Governance Code (GCGC)

Thousand €	Dr. Martin Brudermüller Chairman of the Board of Executive Directors (since May 4, 2018)				Dr. Hans-Ulrich Engel Vice Chairman of the Board of Executive Directors (since May 4, 2018)				Saori Dubourg Member of the Board of Executive Directors (since May 12, 2017)				Sanjeev Gandhi			
	2017	2018	2018 (min)	2018 (max)	2017	2018	2018 (min)	2018 (max)	2017	2018	2018 (min)	2018 (max)	2017	2018	2018 (min)	2018 (max)
Fixed salary	1,064	1,416	1,416	1,416	800	973	973	973	507	800	800	800	538[1]	761[1]	761[1]	761[1]
Fringe benefits	46	136	136	136	59	112	112	112	37	58	58	58	2,079[2, 3]	1,637[2, 3]	1,637[2, 3]	1,637[2, 3]
Total	**1,110**	**1,552**	**1,552**	**1,552**	**859**	**1,085**	**1,085**	**1,085**	**544**	**858**	**858**	**858**	**2,617**	**2,398**	**2,398**	**2,398**
One-year variable target compensation	2,128	1,416	0	2,212	1,600	973	0	1,521	1,019	800	0	1,250	1,600	800	0	1,250
Annual variable target compensation	2,128	–	–	–	1,600	–	–	–	1,019	–	–	–	1,600	–	–	–
50% of the 2018 performance bonus (2018–2021)	–	1,416	0	2,212	–	973	0	1,521	–	800	0	1,250	–	800	0	1,250
Multiple-year variable compensation	483	2,303	0	5,832	363	1,640	0	4,243	53	1,130	0	2,596	121	1,467	0	3,972
50% of the 2018 performance bonus (2018–2021), deferral component	–	1,416	0	2,212	–	973	0	1,521	–	800	0	1,250	–	800	0	1,250
LTI program 2017 (2017–2025)	483	–	–	–	363	–	–	–	53	–	–	–	121	–	–	–
LTI program 2018 (2018–2026)	–	887	0	3,620	–	667	0	2,722	–	330	0	1,346	–	667	0	2,722
Total	**3,721**	**5,271**	**1,552**	**9,596**	**2,822**	**3,698**	**1,085**	**6,849**	**1,616**	**2,788**	**858**	**4,704**	**4,338**	**4,665**	**2,398**	**7,620**
Service cost	1,001	1,111	1,111	1,111	697	626	626	626	796	1,029	1,029	1,029	957	789	789	789
Total compensation in accordance with GCGC	**4,722**	**6,382**	**2,663**	**10,707**	**3,519**	**4,324**	**1,711**	**7,475**	**2,412**	**3,817**	**1,887**	**5,733**	**5,295**	**5,454**	**3,187**	**8,409**
Reconciliation reporting of total compensation pursuant to section 314(1) no. 6a HGB in connection with GAS 17																
Less granted annual variable target compensation	(2,128)	–			(1,600)	–			(1,019)	–			(1,600)	–		
Less 50% of the granted 2018 performance bonus (2018–2021), (one-year component)	–	(1,416)			–	(973)			–	(800)			–	(800)		
Less 50% of the granted 2018 performance bonus (2018–2021), (deferral component)	–	(1,416)			–	(973)			–	(800)			–	(800)		
Plus allocated actual annual variable compensation	2,414	1,251			1,815	860			1,156	707			1,815	707		
Less service cost	(1,001)	(1,111)			(697)	(626)			(796)	(1,029)			(957)	(789)		
Total compensation	**4,007**	**3,690**			**3,037**	**2,612**			**1,753**	**1,895**			**4,553**	**3,772**		

1 Payment was made partly in local currency abroad based on a theoretical net salary in Germany.
2 Includes payments to cover additional costs of transfers, such as assumption of prevailing local rental fees.
3 Fringe benefits include the payment of additional taxes for 2017 and/or 2018 and tax back payments for previous years arising in connection with transfers.

Compensation granted in accordance with the German Corporate Governance Code (GCGC)

Thousand €

	Michael Heinz				Dr. Markus Kamieth Member of the Board of Executive Directors (since May 12, 2017)				Wayne T. Smith				Dr. Kurt Bock Chairman of the Board of Executive Directors (until May 4, 2018)			
	2017	**2018**	**2018 (min)**	**2018 (max)**	**2017**	**2018**	**2018 (min)**	**2018 (max)**	**2017**	**2018**	**2018 (min)**	**2018 (max)**	**2017**	**2018**	**2018 (min)**	**2018 (max)**
Fixed salary	800	800	800	800	507	800	800	800	955[1]	888[1]	888[1]	888[1]	1,600	557	557	557
Fringe benefits	33	34	34	34	27	41	41	41	71[2]	165[2]	165[2]	165[2]	84	46	46	46
Total	**833**	**834**	**834**	**834**	**534**	**841**	**841**	**841**	**1,026**	**1,053**	**1,053**	**1,053**	**1,684**	**603**	**603**	**603**
One-year variable target compensation	1,600	800	0	1,250	1,019	800	0	1,250	1,600	800	0	1,250	3,200	557	0	870
Annual variable target compensation	1,600	–	–	–	1,019	–	–	–	1,600	–	–	–	3,200	–	–	–
50% of the 2018 performance bonus (2018–2021)	–	800	0	1,250	–	800	0	1,250	–	800	0	1,250	–	557	0	870
Multiple-year variable compensation	363	1,467	0	3,972	182	1,292	0	3,257	431	1,596	0	3,972	726	1,682	0	5,464
50% of the 2018 performance bonus (2018–2021), deferral component	–	800	0	1,250	–	800	0	1,250	–	800	0	1,250	–	557	0	870
LTI program 2017 (2017–2025)	363	–	–	–	182	–	–	–	431	–	–	–	726	–	–	–
LTI program 2018 (2018–2026)	–	667	0	2,722	–	492	0	2,007	–	796	0	2,722	–	1,125	0	4,594
Total	**2,796**	**3,101**	**834**	**6,056**	**1,735**	**2,933**	**841**	**5,348**	**3,057**	**3,449**	**1,053**	**6,275**	**5,610**	**2,842**	**603**	**6,937**
Service cost	816	661	661	661	791	1,023	1,023	1,023	844	709	709	709	1,142	325	325	325
Total compensation in accordance with GCGC	**3,612**	**3,762**	**1,495**	**6,717**	**2,526**	**3,956**	**1,864**	**6,371**	**3,901**	**4,158**	**1,762**	**6,984**	**6,752**	**3,167**	**928**	**7,262**
Reconciliation reporting of total compensation pursuant to section 314(1) no. 6a HGB in connection with GAS 17																
Less granted annual variable target compensation	(1,600)	–			(1,019)	–			(1,600)	–			(3,200)	–		
Less 50% of the granted 2018 performance bonus (2018–2021), (one-year component)	–	(800)			–	(800)			–	(800)			–	(557)		
Less 50% of the granted 2018 performance bonus (2018–2021), (deferral component)	–	(800)			–	(800)			–	(800)			–	(557)		
Plus allocated actual annual variable compensation	1,815	707			1,156	707			1,815	707			3,629	492		
Less service cost	(816)	(661)			(791)	(1,023)			(844)	(709)			(1,142)	(325)		
Total compensation	**3,011**	**2,208**			**1,872**	**2,040**			**3,272**	**2,556**			**6,039**	**2,220**		

1 Payment was made partly in local currency abroad based on a theoretical net salary in Germany.
2 Includes payments to cover additional costs of transfers, such as assumption of prevailing local rental fees.

Compensation allocated in accordance with the German Corporate Governance Code (GCGC)

The "Compensation allocated in accordance with the German Corporate Governance Code (GCGC)" shown for 2017 and 2018 comprises the fixed and variable compensation components actually allocated, plus the service cost calculated for each member of the Board of Executive Directors in the reporting years even though this does not actually represent payment in the narrower sense.

Compensation allocated in accordance with the German Corporate Governance Code (GCGC)

Thousand €

	Dr. Martin Brudermüller Chairman of the Board of Executive Directors (since May 4, 2018)		**Dr. Hans-Ulrich Engel** Vice Chairman of the Board of Executive Directors (since May 4, 2018)		**Saori Dubourg** Member of the Board of Executive Directors (since May 12, 2017)		**Sanjeev Gandhi**		**Michael Heinz**		**Dr. Markus Kamieth** Member of the Board of Executive Directors (since May 12, 2017)		**Wayne T. Smith**		**Dr. Kurt Bock** Chairman of the Board of Executive Directors (until May 4, 2018)	
	2017	**2018**	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**
Fixed salary	1,064	1,416	800	973	507	800	538[5]	761[5]	800	800	507	800	955[5]	888[5]	1,600	557
Fringe benefits	46	136	59	112	37	58	2,079[6,7]	1,637[6,7]	33	34	27	41	71[6]	165[6]	84	46
Total	**1,110**	**1,552**	**859**	**1,085**	**544**	**858**	**2,617**	**2,398**	**833**	**834**	**534**	**841**	**1,026**	**1,053**	**1,684**	**603**
One-year variable compensation	2,414	1,251	1,815	860	1,156	707	1,815	707	1,815	707	1,156	707	1,815	707	3,629	492
Actual annual variable compensation[1]	2,414	–	1,815	–	1,156	–	1,815	–	1,815	–	1,156	–	1,815	–	3,629	–
Performance bonus 2018 (2018–2021), part 1[2]	–	1,251	–	860	–	707	–	707	–	707	–	707	–	707	–	492
Multiple-year variable compensation	–	–	4,037	1,401	–	–	–	–	–	–	–	–	–	–	4,504	1,631
LTI program 2009 (2009–2017)	–	–	4,037[3]	–	–	–	–	–	–	–	–	–	–	–	4,504[3]	–
LTI program 2010 (2010–2018)	–	–	–	1,401[4]	–	–	–	–	–	–	–	–	–	–	–	1,631[4]
LTI program 2011 (2011–2019)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LTI program 2012 (2012–2020)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LTI program 2013 (2013–2021)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	**3,524**	**2,803**	**6,711**	**3,346**	**1,700**	**1,565**	**4,432**	**3,105**	**2,648**	**1,541**	**1,690**	**1,548**	**2,841**	**1,760**	**9,817**	**2,726**
Service cost	1,001	1,111	697	626	796	1,029	957	789	816	661	791	1,023	844	709	1,142	325
Total compensation in accordance with GCGC	**4,525**	**3,914**	**7,408**	**3,972**	**2,496**	**2,594**	**5,389**	**3,894**	**3,464**	**2,202**	**2,481**	**2,571**	**3,685**	**2,469**	**10,959**	**3,051**

1 The basis for the allocated actual annual variable compensation was the return on assets adjusted for special effects and the average performance factor for the current and two preceding years. This includes contributions made to the deferred compensation program.
2 The basis for the performance bonus, part 1, is the ROCE factor and the average of the operating performance factor (OPF) and the strategic performance factor (SPF) in the year the performance bonus was granted. This includes contributions made to the deferred compensation program. 50% of the actual performance bonus is paid out; the remaining 50% of the actual performance bonus is not paid out for another three years (deferral component).
3 At the end of the regular term of the LTI program 2009, exercise gains that were realized in 2013 were allocated to Dr. Hans-Ulrich Engel and Dr. Kurt Bock in 2017 in accordance with the special conditions of the U.S. LTI program.
4 In 2018, at the end of the regular term of the LTI program 2010, exercise gains that were realized in 2017 and 2018 were allocated to Dr. Hans-Ulrich Engel, and exercise gains that were realized in 2016 were allocated to Dr. Kurt Bock in accordance with the special conditions of the U.S. LTI program.
5 Payment was made partly in local currency abroad based on a theoretical net salary in Germany.
6 Includes payments to cover additional costs of transfers, such as assumption of prevailing local rental fees.
7 Fringe benefits include the payment of additional taxes and tax back payments for previous years arising in connection with transfers.

The table below shows the options granted to the Board of Executive Directors on July 1 of both reporting years.

Number of options granted

	2018	2017
Dr. Martin Brudermüller	33,892	18,724
Dr. Hans-Ulrich Engel	25,484	14,076
Saori Dubourg (since May 12, 2017)	12,600	2,040
Sanjeev Gandhi	25,484	4,692
Michael Heinz	25,484	14,076
Dr. Markus Kamieth (since May 12, 2017)	18,792	7,060
Wayne T. Smith	25,484	14,076
Dr. Kurt Bock (until May 4, 2018)	43,008	28,156
Total	**210,228**	**102,900**

Accounting valuation of multiple-year variable compensation (LTI programs)

In 2018, some of the option rights granted resulted in an expense and some resulted in income. This expense or income refers to the total of all option rights from the LTI programs 2010 to 2018 and is calculated as the difference in the fair value of the option rights on December 31, 2018, compared with the fair value on December 31, 2017, considering the option rights exercised and granted in 2018. The fair value of the option rights is based primarily on the development of the BASF share price and its relative performance compared with the benchmark index, the MSCI World Chemicals Index.

The expenses and income reported below are purely accounting figures that do not equate with the actual gains should options be exercised. Each member of the Board of Executive Directors may decide individually on the timing and scope of the exercise of options of the LTI programs, while taking into account the terms and conditions of the program.

The outstanding option rights held by the members of the Board of Executive Directors resulted in the following income and expenses in 2018: Dr. Martin Brudermüller: income of €4,170 thousand (2017: income of €604 thousand); Dr. Hans-Ulrich Engel: income of €3,821 thousand (2017: income of €1,300 thousand); Saori Dubourg: expense of €12 thousand (2017: expense of €8 thousand); Sanjeev Gandhi: income of €185 thousand (2017: expense of €178 thousand); Michael Heinz: income of €2,636 thousand (2017: income of €226 thousand); Dr. Markus Kamieth: expense of €13 thousand (2017: expense of €26 thousand); Wayne T. Smith: income of €1,602 thousand (2017: income of €35 thousand).

The income resulting from the accounting valuation of the option rights granted to Dr. Kurt Bock, the former Chairman of the Board of Executive Directors who retired in 2018, is included in the total compensation for former members of the Board of Executive Directors and their surviving dependents.

For more information on the LTI program, see page 114 and from page 263 onward

Pension benefits

The values for service cost incurred in 2018 contain service cost for BASF Pensionskasse VVaG and Board Performance Pension. Service cost for the members of the Board of Executive Directors is shown individually in the tables "Compensation granted in accordance with the German Corporate Governance Code (GCGC)" and "Compensation allocated in accordance with the German Corporate Governance Code (GCGC)."

The present value of pension benefits (defined benefit obligation) is an accounting figure for the entitlements that the Board members have accumulated in their years of service at BASF. The table below shows the defined benefit obligations for the pension entitlements accrued until the end of 2018 (as of December 31 in each case):

Thousand €	2018	2017
Dr. Martin Brudermüller	19,993	17,248
Dr. Hans-Ulrich Engel	11,985	11,811
Saori Dubourg	5,067	3,665
Sanjeev Gandhi	4,586	3,598
Michael Heinz	12,735	11,411
Dr. Markus Kamieth	4,049	2,739
Wayne T. Smith	5,098	4,165
Dr. Kurt Bock (until May 4, 2018)	24,952	20,313
Total	**88,465**	**74,950**

End-of-service benefits

In the event that a member of the Board of Executive Directors appointed before 2017 retires from employment before the age of 60, either because their appointment was not extended or was revoked for an important reason, they are entitled to pension benefits if they have served on the Board for at least 10 years or if the period until they reach legal retirement age is less than 10 years. The company is entitled to offset compensation received for any other employment against pension benefits until the legal retirement age is reached.

The following applies to end of service due to a change of control event: A change of control event, in terms of this provision, occurs when a shareholder informs BASF of a shareholding of at least 25%, or the increase of such a holding. If a Board member's appointment is revoked within one year of a change of control event, the Board member will receive the contractually agreed payments for the remaining contractual term of office as a one-off payment (fixed salary and annual variable target compensation). The Board member may also receive the fair value of the option rights acquired in connection with the LTI program within a period of three months or may continue to hold the existing rights under the terms of the program. For the determination of the accrued pension benefits from the Board Performance Pension, the time up to the regular expiry of office is taken into consideration.

There is a general limit on severance pay (severance payment cap) for all Board members. Accordingly, payments made to a Board member upon premature termination of their contract, without serious cause, may not exceed the value of two years' compensation, including fringe benefits, nor compensate more than the remaining term of the contract. The severance payment cap is to be calculated on the basis of the total compensation for the past business year and, if appropriate, also the expected total compensation for the current business year. If the appointment to the Board of Executive Directors is prematurely terminated as the result of a change of control event, the payments may not exceed 150% of the severance compensation cap.

Former members of the Board of Executive Directors

Total compensation for previous Board members and their surviving dependents amounted to minus €5.5 million in 2018 (2017: €5.7 million). This figure also contains payments that previous Board members have themselves financed through the deferred compensation program, as well as the income for 2018 relating to option rights that previous members of the Board still hold from the time of their active service period. The decline in total compensation was due to the fair value measurement of these option rights, which generated total income of €16.1 million in 2018 (2017: income of €4.4 million).

Total compensation of former members of the Board of Executive Directors and their surviving dependents

Million €	2018	2017
Retirement and surviving dependents' pensions	10.6	10.1
Income from the fair value measurement of option rights	(16.1)	(4.4)
Total	**(5.5)**	**5.7**

Option rights that have not yet been exercised on retirement are to be continued under the conditions of the program including the associated holding period to emphasize that the compensation for the Board of Executive Directors is geared to sustainability.

Pension provisions for previous Board members and their surviving dependents amounted to €159.5 million (2017: €144.3 million).

Compensation of Supervisory Board members

Compensation of Supervisory Board members

- Fixed salary €200,000[1]
- Share purchase and share holding component: 25% of the fixed compensation must be used to purchase shares in BASF; these shares must be held for the duration of membership on the Supervisory Board
- Compensation for committee memberships: €12,500[2]; Audit Committee: €50,000[2]
- No additional compensation is paid for the Nomination Committee

1 The amount for the chairman of the Supervisory Board is 2.5 times this value, and 1.5 times this value for the vice chairman compared with the compensation of an ordinary member.
2 The amount for the chairman of a committee is 2 times this value, and 1.5 times this value for the vice chairman.

The disclosure of compensation of the Supervisory Board is based on the German Commercial Code and is aligned with the recommendations of the German Corporate Governance Code (GCGC). The compensation of the Supervisory Board is regulated by the Statutes of BASF SE passed by the Annual Shareholders' Meeting.

Each member of the Supervisory Board receives an annual fixed compensation of €200,000. The amount for the chairman of the Supervisory Board is 2.5 times this value, and 1.5 times this value for the vice chairman compared with the compensation of an ordinary member.

Members of the Supervisory Board who are members of a committee, except for the Nomination Committee, receive an additional fixed compensation of €12,500. The additional fixed compensation for members of the Audit Committee is €50,000. The amount of additional fixed compensation for the chairman of a committee is 2 times this value, and 1.5 times this value for the vice chairman.

Each member of the Supervisory Board is required to use 25% of their fixed compensation to acquire shares in BASF SE, and to hold these shares for the duration of membership on the Supervisory Board. This does not apply to the amount of compensation that the member of the Supervisory Board transfers to a third party on a pro rata basis as a result of an obligation entered into before their appointment to the Supervisory Board. In this case, the utilization and holding obligation applies to 25% of the remaining compensation after deducting the amount transferred.

The company reimburses members of the Supervisory Board for out-of-pocket expenses and value-added tax to be paid with regard to their activities as members of the Supervisory Board or of a committee. The directors' and officers' liability insurance (D&O insurance) concluded by the company covers the duties performed by the members of the Supervisory Board. This policy provides for the level of deductibles for the Supervisory Board as recommended in section 3.8(3) of the German Corporate Governance Code (GCGC).

Total compensation of the Supervisory Board in 2018 was around €3.3 million (2017: around €3.3 million). The compensation of the individual Supervisory Board members was as follows.

Compensation of the Supervisory Board of BASF SE

Thousand €

	Fixed salary		Compensation for committee memberships		Total compensation	
	2018	2017	2018	2017	2018	2017
Dr. Jürgen Hambrecht, Chairman[1,2]	500.0	500.0	50.0	50.0	550.0	550.0
Michael Diekmann, Vice Chairman[3,4]	300.0	300.0	31.3	31.3	331.3	331.3
Robert Oswald, Vice Chairman until May 12, 2017[5]	–	125.0	–	10.4	–	135.4
Sinischa Horvat, Vice Chairman since May 12, 2017[3,9]	300.0	200.0	25.0	16.7	325.0	216.7
Ralf-Gerd Bastian, Supervisory Board member until May 4, 2018[6]	83.3	200.0	26.0	58.3	109.3	258.3
Dame Alison Carnwath DBE[7,9]	200.0	200.0	112.5	112.5	312.5	312.5
Prof. Dr. François Diederich	200.0	200.0	–	–	200.0	200.0
Tatjana Diether, Supervisory Board member since May 4, 2018[8]	133.3	–	33.3	–	166.6	–
Franz Fehrenbach[8]	200.0	200.0	50.0	50.0	250.0	250.0
Francesco Grioli, Supervisory Board member until May 4, 2018	83.3	200.0	–	–	83.3	200.0
Waldemar Helber[9]	200.0	200.0	8.3	–	208.3	200.0
Anke Schäferkordt	200.0	200.0	–	–	200.0	200.0
Denise Schellemans	200.0	200.0	–	–	200.0	200.0
Roland Strasser, Supervisory Board member since May 4, 2018	133.3	–	–	–	133.3	–
Michael Vassiliadis[3,8,9]	200.0	200.0	75.0	75.0	275.0	275.0
Total	**2,933.2**	**2,925.0**	**411.4**	**404.2**	**3,344.6**	**3,329.2**

1 Chairman of the Personnel Committee
2 Chairman of the Strategy Committee
3 Member of the Personnel Committee
4 Vice Chairman of the Strategy Committee
5 Member of the Personnel and Strategy Committees until May 4, 2018
6 Member of the Audit and Strategy Committees until May 4, 2018
7 Chairman of the Audit Committee
8 Member of the Audit Committee
9 Member of the Strategy Committee

Compensation for Supervisory Board membership and membership of Supervisory Board committees is payable after the Annual Shareholders' Meeting, which takes delivery of the Consolidated Financial Statements for the business year. Accordingly, compensation relating to the year 2018 will be paid following the Annual Shareholders' Meeting on May 3, 2019, taking into account and applying the share purchase obligation.

In 2018, as in 2017, the company paid the Supervisory Board member Prof. Dr. François Diederich a total of CHF 38,400 (2018: approximately €33,200; 2017: approximately €34,500) for consulting work in the area of chemical research based on a consulting contract approved by the Supervisory Board. Beyond this, no other Supervisory Board members received any compensation in 2018 for services rendered personally, in particular, the rendering of advisory and agency services.

For more information on share ownership by members of the Supervisory Board, see page 139

Report of the Supervisory Board

Dear Shareholders,

In an increasingly difficult political and economic environment, the Supervisory Board addressed the following focus areas at length in 2018:

- The updated BASF corporate strategy
- Portfolio measures, in particular the acquisition of the seed and non-selective herbicides businesses from Bayer, the merger of the oil and gas businesses of BASF and LetterOne and the transfer of the paper and water chemicals business to a joint venture with Solenis, with 49% held by BASF, as well as the repositioning of the construction chemicals business
- The further development of the global manufacturing footprint and the planned establishment of a new Verbund site in southern China
- Changes to the Board of Executive Directors and preparations for the Supervisory Board elections

The Supervisory Board addressed its tasks with a sense of responsibility. Its aim is to lay the best possible foundation for BASF's continued successful and sustainable growth.

Monitoring and consultation in an ongoing dialog with the Board of Executive Directors

In 2018, the Supervisory Board of BASF SE exercised its duties as required by law and the Statutes with the utmost care. It regularly monitored the management of the Board of Executive Directors and provided advice on the company's strategic development and important individual measures, about which the Supervisory Board was regularly and thoroughly informed by the Board of Executive Directors. This occurred both during and outside of the meetings of the Supervisory Board and its committees in the form of written and oral reports on, for example, all of the major financial key performance indicators (KPIs) of the BASF Group and its segments, the economic situation in the main sales and procurement markets, and on deviations in business developments from original plans. Furthermore, the Supervisory Board tackled fundamental questions of corporate planning, including financial, investment, sales volumes and personnel planning, as well as measures for designing the future of research and development. The Supervisory Board discussed in detail the reports from the Board of Executive Directors, and also deliberated on prospects for the company and its individual business areas with the Board of Executive Directors. It was convinced of the lawfulness, expediency and propriety of the Board of Executive Director's company leadership.

The Chairman of the Supervisory Board and the Chairman of the Board of Executive Directors were also in regular contact outside of Supervisory Board meetings. The Chairman of the Supervisory Board was always promptly informed of current developments and significant individual issues. The Supervisory Board was involved at an early stage in decisions of major importance. The Supervisory Board passed resolutions on all of those individual measures taken by the Board of Executive Directors which by law or the Statutes required the approval of the Supervisory Board. In the 2018 business year, these included authorizing:

- The conclusion of the agreements to merge the oil and gas businesses of BASF and LetterOne in a joint venture, Wintershall DEA
- The expanded scope of the seed and crop protection businesses to be acquired from Bayer

- The assumption of a guarantee by BASF SE as part of in connection with the acquisition of a 10% share in a concession to produce natural gas and condensate in the Ghasha field in Abu Dhabi

Supervisory Board meetings

The Supervisory Board held five meetings in the 2018 business year. With the exception of one two-day Supervisory Board meeting, which one member of the Supervisory Board was unable to attend on the first day, all members attended all Supervisory Board meetings in 2018. The members of the Supervisory Board elected by shareholders and those elected by the employees prepared for the meetings in separate preliminary discussions in each case, which were also attended by members of the Board of Executive Directors. All members of the Board of Executive Directors attended the Supervisory Board meetings unless it was deemed appropriate that the Supervisory Board discuss individual topics – such as personnel matters relating to the Board of Executive Directors – without them being present.

An individual overview of attendance at meetings of the Supervisory Board and its committees will be made available on the company website at basf.com/supervisoryboard/meetings

A significant component of all Supervisory Board meetings was the Board of Executive Directors' reports on the current business situation with detailed information on sales and earnings development, as well as on opportunities and risks for business development, the status of important current and planned investment projects, operational excellence and sustainability, developments on the capital markets, significant managerial measures taken by the Board of Executive Directors and innovation projects.

In all meetings, the Supervisory Board discussed the further development of the BASF Group's business activities through acquisitions, divestitures, transfers to joint ventures and investment projects. Discussions focused on:

- Consolidation in the areas of crop protection and seeds, and the acquisition and integration of the seed business from Bayer
- The partial acquisition of the polyamide value chain from Solvay
- The merger of the oil and gas businesses of BASF and LetterOne in a joint venture, Wintershall DEA
- The transfer of the paper and water chemicals business to a joint venture with Solenis, with 49% held by BASF
- The repositioning of the construction chemicals business, including a potential divestiture
- The progress of the Nord Stream 2 pipeline project and its project financing
- The expansion of the battery materials business by establishing production capacities in cooperation with Norilsk Nickel and Toda
- The expansion of the global manufacturing footprint with the establishment of a new Verbund site in southern China

At its meeting on February 22, 2018, the Supervisory Board reviewed and approved the Consolidated Financial Statements, Management's Report and the proposal for the appropriation of profit for the 2017 business year as presented by the Board of Executive Directors. The Supervisory Board met prior to the Annual Shareholders' Meeting on May 4, 2018, primarily to prepare for the Annual Shareholders' Meeting.

The main agenda items at the meeting on July 24, 2018, were the integration and further development of the seed business acquired from Bayer as well as the BASF Group's financial and tax strategy.

At the strategy meeting on October 24/25, 2018, the Board of Executive Directors and the Supervisory Board discussed at length the further development of the "We create chemistry" strategy and agreed on a repositioning of key elements with the BASF corporate strategy, especially relating to customer focus, sustainability, innovation, digitalization and operations. Key consultation topics were:

- Strategic portfolio development
- Operational excellence measures in production, including the digitalization of industrial processes
- Focusing on the customer in all activities
- Sustainability as a basis of long-term business success, in particular CO_2-neutral growth
- Leveraging the power of innovation, including systematically harnessing the opportunities of digitalization
- Enhancing the company's organization with agile structures and streamlined decision-making processes

At its meeting on December 13, 2018, the Supervisory Board discussed and approved the Board of Executive Directors' operational and financial planning including the investment budget for 2019, and as usual authorized the Board of Executive Directors to procure the necessary financing in 2019.

Composition and compensation of the Board of Executive Directors

In several meetings in the 2018 business year, the Supervisory Board conferred on, and passed resolutions on, personnel topics in the Board of Executive Directors as well as questions concerning the compensation of the Board of Executive Directors. Based on preparation conducted by the Personnel Committee, it determined the targets for the Board of Executive Directors for the 2018 business year at its meeting on February 22, 2018.

At its meeting on December 13, 2018, the Supervisory Board evaluated, based on the counsel of the Personnel Committee, the Board of Executive Directors' performance in 2018.

The Chairman of the Board of Executive Directors, Dr. Kurt Bock, retired from the Board of Executive Directors following the Annual Shareholders' Meeting on May 4, 2018, so that he can be elected to the Supervisory Board and appointed as its chairman in 2020. He was succeeded as Chairman of the Board of Executive Directors by Dr. Martin Brudermüller, who previously served as Vice Chairman of the Board of Executive Directors. Also with effect from May 4, 2018, the Chief Financial Officer, Dr. Hans-Ulrich Engel, was additionally appointed Vice Chairman of the Board of Executive Directors. Michael Heinz's appointment to the Board of Executive Directors was extended to the end of the 2024 Annual Shareholders' Meeting. At the same time, the number of Board members was reduced from eight to seven following the Annual Shareholders' Meeting. After being approved by the Annual Shareholders' Meeting on May 4, 2018, an updated compensation system for the Board of Executive Directors was introduced with effect as of January 1, 2018. All members of the Board of Executive Directors agreed to the required change to their employment contracts.

For more information on the compensation of the Board of Executive Directors, see the Compensation Report on pages 146 to 158

The division of responsibilities within the Board of Executive Directors was reallocated following the change in chairman and the reduction in the number of Board members as of May 4, 2018, and due to the reorganization of the segment structure as of January 1, 2019, as part of the updated corporate strategy. The division of responsibilities proposed by the Board of Executive Directors was approved by the Supervisory Board in each case.

For more information on the division of responsibilities within the Board of Executive Directors, see the Corporate Governance Report from page 142 onward

Committees

The Supervisory Board of BASF SE has four committees: 1. the committee for personnel matters of the Board of Executive Directors and the granting of loans in accordance with section 89(4) of the German Stock Corporation Act (Personnel Committee); 2. the Audit Committee; 3. the Nomination Committee; and 4. the Strategy Committee. Following each Committee meeting, the chairpersons of the Committees reported in detail about the meetings and the activities of the Committees at the subsequent meeting of the Supervisory Board.

For information on the composition of the committees and the tasks assigned to them by the Supervisory Board, see the Corporate Governance Report on pages 134 to 135

The **Personnel Committee** met three times during the reporting period. With the exception of one meeting, which one committee member was unable to attend, all committee members attended the meetings. At its meeting on February 22, 2018, the Personnel Committee advised on the targets for the Board of Executive Directors for the 2018 business year. Key topics at the meeting on October 24, 2018, were the development of leadership at the top levels of management below the Board of Executive Directors, including long-term succession planning, potential alternate candidates for that Board of Executive Directors, the extension of Michael Heinz's appointment, as well as the review of the appropriateness of the compensation awarded to the Board of Executive Directors. The performance of the Board of Executive Directors in the 2018 business year and the appointments of the members of the Board of Executive Directors were discussed at the meeting on December 13, 2018.

The **Audit Committee** is responsible for all the tasks listed in section 107(3) sentence 2 of the German Stock Corporation Act (AktG) and in section 5.3.2 of the German Corporate Governance Code in the version dated February 7, 2017. This also includes auditing the Nonfinancial Statements of BASF SE and the BASF Group. The Audit Committee met five times during the reporting period. Its core duties were to review BASF SE's Financial Statements and Consolidated Financial Statements, as well as to discuss the quarterly statements and the half-year financial report with the Board of

Executive Directors prior to their publication. With the exception of one meeting, which one member did not attend, all committee members participated in the meetings.

At the meeting on February 20, 2019, the auditor reported in detail on its audits of BASF SE's Separate and Consolidated Financial Statements for the 2018 business year, including the corresponding management's reports, and discussed the results of its audit with the Audit Committee. The committee's audit also included the nonfinancial statements of BASF SE and the BASF Group. In preparation for the audit, the Audit Committee had, following a corresponding resolution by the Supervisory Board, additionally engaged KPMG to perform a substantive audit with limited assurance of the Nonfinancial Statements and to issue an assurance report on this. KPMG also reported in detail on the focus, the procedure and the key findings of this audit.

At the meeting on July 23, 2018, the Audit Committee engaged KPMG AG Wirtschaftsprüfungsgesellschaft – the auditor elected by the Annual Shareholders' Meeting – with the audit for the 2018 reporting year and auditing fees were agreed upon. The focus areas for the annual audit were discussed and defined together with the auditor. The Audit Committee excluded in principle any service relationships between auditor and BASF Group companies outside of the audit of the annual financial statements, including beyond prevailing legal limitations. These services may only be performed upon approval by the Audit Committee. For certain nonaudit services beyond the scope of the audit of the financial reports, the Audit Committee either granted approval for individual cases or authorized the Board of Executive Directors to engage KPMG AG Wirtschaftsprüfungsgesellschaft for such services to a very limited extent. At the meeting on December 12, 2018, the auditors responsible reported on the status of the annual audit, as well as the focus areas of the audit and the most important individual items.

Other important activities included advising the Board of Executive Directors on accounting issues and the internal control system. The Audit Committee focused on the internal auditing system at the meeting on July 23, 2018, and compliance in the BASF Group on December 12, 2018. In these meetings, the head of the Corporate Audit department and the Chief Compliance Officer reported to the Audit Committee and answered its questions. In all meetings, the Audit Committee also received information on the development of risks from litigation.

The **Nomination Committee** is responsible for preparing candidate proposals for the Supervisory Board members to be elected by the Annual Shareholders' Meeting. The Nomination Committee is guided by the objectives for the composition of the Supervisory Board adopted by the Supervisory Board as well as the competence profile and diversity concept for the Supervisory Board resolved at the meeting on December 21, 2017. The Nomination Committee met three times in 2018. All committee members attended all meetings. The meetings addressed, on the one hand, a review of the competence profile and diversity concept resolved in 2017, as well as the preparation of the proposals for the election of Supervisory Board members at the 2019 Annual Shareholders' Meeting. Based on an analysis of the competencies required by the Supervisory Board as a whole and the competencies already covered, the Nomination Committee used a broad-based selection process to identify suitable candidates to be proposed for election as the successors for Prof. Dr. François Diederich and Michael Diekmann, who will not stand for reelection. The chairman of the committee regularly informed the Supervisory Board as a whole of the status of the selection process. The Nomination Committee presented the results of the selection process together with a nomination proposal for the shareholder representatives to the Supervisory Board for resolution at its meeting on December 13, 2018.

The **Strategy Committee** met once in 2018. The Committee was established to consult on strategic options for the further development of the BASF Group and has comprised six members of the Supervisory Board since May 2017. All committee members attended the meeting. At the meeting, the committee primarily discussed the expanded scope of the acquisition of the seed and crop protection businesses from Bayer, the combination of the paper and water chemicals business with Solenis' business and the status of negotiations with LetterOne on the merger of the oil and gas businesses.

Corporate governance and Declaration of Conformity

The Supervisory Board places great value on ensuring good corporate governance: In 2018, it was therefore once again intensely occupied with the corporate governance standards practiced in the company and the implementation of the recommendations and suggestions of the German Corporate Governance Code. In addition to the review of BASF's corporate governance culture, topics of discussion were the draft of a fundamentally revised German Corporate Governance Code and the proposal to translate the second E.U. Shareholder Rights Directive into German law and its not insignificant impact on the current corporate governance system. In addition, the competence profiles and diversity concepts adopted in 2017 for the Supervisory Board and the Board of Executive Directors were reviewed and confirmed.

For more information on the competence profiles, diversity concepts and composition goals, see page 133 and from page 135 onward

In accordance with the recommendations of the German Corporate Governance Code and the Guiding principles for the dialogue between investors and German supervisory boards, the Chairman of the Supervisory Board again sought dialog with investors where appropriate in 2018. The main topic ahead of the 2018 Annual Shareholders' Meeting was the changes to the compensation system for the Board of Executive Directors. Another focus in the second half of the year was the preparations for the Supervisory Board elections at the upcoming 2019 Annual Shareholders' Meeting.

At its meeting of December 13, 2018, the Supervisory Board approved the joint Declaration of Conformity by the Supervisory Board and the Board of Executive Directors in accordance with section 161 of the German Stock Corporation Act (AktG). BASF complies with the recommendations of the German Corporate Governance Code in the version dated February 7, 2017, without exception. The Corporate Governance Report provides extensive information on the BASF Group's corporate governance.

The full Declaration of Conformity is rendered on page 166 and is available to shareholders on the company website at basf.com/en/corporategovernance

Independence and efficiency review

An important aspect of good corporate governance is the independence of Supervisory Board members and their freedom from conflicts of interest. According to assessments of the Supervisory Board, 10 of its 12 members can be considered independent within the meaning of the German Corporate Governance Code and the additional criteria defined by the Supervisory Board for evaluating their independence. The criteria used for this evaluation can be found in the Corporate Governance Report on page 136. Two of the six shareholder representatives on the Supervisory Board have been members of the Supervisory Board for more than 15 years and are no longer considered independent due to this long period of Supervisory Board membership. Beyond this limitation, the Supervisory Board does not see any indications that the Supervisory Board role is not performed completely independently, including for these Supervisory Board members. Both Supervisory Board members will not stand for reelection at the 2019 Annual Shareholders' Meeting and will retire from the Supervisory Board. In cases where Supervisory Board members hold supervisory or management positions at companies with which BASF has business relations, we see no impairment of their independence. The scope of these businesses is relatively marginal and furthermore takes place under conditions similar to those of a third party. The Supervisory Board reviews the efficiency of its activities every year in the form of a self-assessment. This was again conducted in 2018, with the Chairman of the Supervisory Board holding individual dialogs with each Supervisory Board member using a structured questionnaire. Topics centered in particular on Supervisory Board meeting agendas; cooperation with the Board of Executive Directors; information supply of the Supervisory Board; the composition and work of the committees, and cooperation between shareholder and employee representatives. The Supervisory Board does not see any need for external support of its self-assessment. The results of these individual meetings were presented and thoroughly discussed at the Supervisory Board meeting on December 13, 2018. Overall, its members rated the Supervisory Board's activity as efficient.

Independent of the efficiency review of the Supervisory Board, the Audit Committee also conducted a self-assessment of its activities in 2018 based on individual discussions by the chairman of the Audit Committee with all of its members. Material topic areas were the organization and content of the meetings and the supply of information as the basis of the Committees' work. The Audit Committee discussed the results at its meeting on December 12, 2018, and resolved, in consultation with the Supervisory Board, to further intensify its risk management activities, especially in connection with investments, acquisitions and divestitures.

Separate and Consolidated Financial Statements

KPMG AG Wirtschaftsprüfungsgesellschaft, the auditor elected by the Annual Shareholders' Meeting for the 2018 reporting year, has audited the Financial Statements of BASF SE and the BASF Group Consolidated Financial Statements, which were prepared in accordance with the International Financial Reporting Standards (IFRS) as adopted by the European Union, and the additional requirements that must be applied in accordance with section 315e(1) of the German Commercial Code (HGB), including the Management's Report and the accounting records from which they were prepared, and have approved them free of qualification. Furthermore, the auditor certified that the Board of Executive Directors had taken the measures incumbent on it under section 91(2) of the German Stock Corporation Act (AktG) in an appropriate manner. In particular, it had instituted an appropriate information and monitoring system that fulfilled the requirements of the company and is applicable for the early identification of developments that could pose a risk to the continued existence of the BASF Group. The results of the audit as well as the procedure and material findings of the audit of the financial statements are presented in the Auditor's Report, the content of which has been significantly expanded since the 2017 Financial Statements.

The Auditor's Report is rendered from page 170 onward.
For more information on the auditor, see the Corporate Governance Report on page 139

Beyond the statutory audit of the Financial Statements, KPMG also conducted, on behalf of the Supervisory Board, a substantive audit with limited assurance of the Nonfinancial Statements (NFSs) for BASF SE and the BASF Group, which are integral parts of the respective management's reports. On the basis of its audit, KPMG did not raise any objections to the nonfinancial reporting and the satisfaction of the relevant statutory requirements.

The assurance report issued by KPMG on the substantive audit of the NFS can be found at basf.com/nfs-audit-2018

The auditor's reports were sent in a timely manner to every member of the Supervisory Board. The auditor attended the accounts review meeting of the Audit Committee on February 20, 2019, as well as the accounts meeting of the Supervisory Board on February 21, 2019, and reported on the procedure and material findings of its audit, including the key audit matters described in the Auditor's Report. The auditor also provided detailed explanations of the reports on the day before the accounts meeting of the Supervisory Board.

The Audit Committee reviewed the Financial Statements and Management's Report at its meeting on February 20, 2019, including the reports prepared by the auditor and the key audit matters specified in the Auditor's Report, and discussed them in detail with the auditor. The chairman gave a detailed account of the preliminary review at the Supervisory Board meeting on February 21, 2019. On this basis, the Supervisory Board has examined the Financial Statements and Management's Report of BASF SE for 2018, the proposal by the Board of Executive Directors for the appropriation of profit, and the Consolidated Financial Statements and Management's Report for 2018. The results of the preliminary review by the Audit Committee and the results of the Supervisory Board's own examination fully concur with those of the audit. The Supervisory Board sees no grounds for objection to the management and submitted reports At its accounts meeting on February 21, 2019, the Supervisory Board approved the Financial Statements of BASF SE and the Consolidated Financial Statements of the BASF Group prepared by the Board of Executive Directors, making the 2018 Financial Statements final. The Supervisory Board concurs with the proposal of the Board of Executive Directors regarding the appropriation of profit and the payment of a dividend of €3.20 per share.

Composition of the Supervisory Board

Employee representatives Ralf-Gerd Bastian and Francesco Grioli retired from the Supervisory Board on conclusion of the Annual Shareholders' Meeting on May 4, 2018. The Supervisory Board expresses its very sincere thanks to Ralf-Gerd Bastian and Francesco Grioli for their services to the Supervisory Board. They were succeeded by Tatjana Diether and Roland Strasser, who joined the Supervisory Board as the alternate members appointed by the BASF Works Council Europe on December 4, 2013, in accordance with the Employee Participation Agreement dated November 15, 2007.

The Supervisory Board's term of office ends on conclusion of the 2019 Annual Shareholders' Meeting. At its meeting on December 13, 2018, the Supervisory Board resolved on candidate proposals for the election of the six shareholder representatives based on the recommendation of the Nomination Committee. According to the Supervisory Board's assessment, these meet the competence profile developed by the Supervisory Board and the objectives for its composition in full. The six employee representative were already elected by the BASF Works Council Europe on November 21, 2018, in accordance with the Employee Participation Agreement.

For more information on changes within the Supervisory Board, see the Corporate Governance Report on page 136

Thanks

The Supervisory Board wishes to thank all employees of the BASF Group worldwide and the management for their personal contribution in the 2018 business year.

Ludwigshafen, February 21, 2019

Jürgen Hambrecht
Chairman of the Supervisory Board

Declaration of Conformity Pursuant to Section 161 AktG

Declaration of Conformity 2018 of the Board of Executive Directors and the Supervisory Board of BASF SE

The Board of Executive Directors and the Supervisory Board of BASF SE hereby declare pursuant to section 161 of the German Stock Corporation Act (AktG)

The recommendations of the Government Commission on the German Corporate Governance Code as amended on February 7, 2017, published by the Federal Ministry of Justice on April 24, 2017, in the official section of the electronic Federal Gazette are complied with and have been complied with since the submission of the last Declaration of Conformity in December 2017.

Ludwigshafen, December 2018

The Supervisory Board of BASF SE	**The Board of Executive Directors** of BASF SE

Declaration of Corporate Governance

Declaration of Corporate Governance in accordance with section 315d HGB in connection with section 289f HGB

The Declaration of Corporate Governance, pursuant to section 315d HGB in connection with section 289f HGB, comprises the subchapters Corporate Governance Report including the description of the diversity concept for the composition of the Board of Executive Directors and the Supervisory Board (except for the disclosures pursuant to section 315a(1) HGB), Compliance and Declaration of Conformity as per section 161 of the German Stock Corporation Act (AktG) in the Corporate Governance chapter. It is a component of the Management's Report.

Pursuant to section 317(2) sentence 6 HGB, the auditor checked that the disclosures according to section 315d HGB were made.

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4

Consolidated Financial Statements

Statement by the Board of Executive Directors

and assurance pursuant to sections 297(2) and 315(1) of the German Commercial Code (HGB)

The Board of Executive Directors of BASF SE is responsible for preparing the Consolidated Financial Statements and Management's Report of the BASF Group.

The BASF Group Consolidated Financial Statements for 2018 were prepared according to the International Financial Reporting Standards (IFRS), which are published by the International Accounting Standards Board (IASB), London, and have beenendorsed by the European Union.

We have established effective internal control and steering systems in order to ensure that the BASF Group's Management's Report and Consolidated Financial Statements comply with applicable accounting rules and to ensure proper corporate reporting.

The risk management system we have set up is designed such that the Board of Executive Directors can identify material risks early on and take appropriate defensive measures as necessary. The reliability and effectiveness of the internal control and risk management system are continually audited throughout the Group by our internal audit department.

To the best of our knowledge, and in accordance with the applicable reporting principles, the Consolidated Financial Statements of the BASF Group give a true and fair view of the net assets, financial position and results of operations of the Group, and the Management's Report of the BASF Group includes a fair review of the development and performance of the business as well as position of the BASF Group, together with a description of the principal opportunities and risks associated with the expected development of the BASF Group.

Ludwigshafen am Rhein, February 20, 2019

Dr. Martin Brudermüller
Chairman and Chief Technology Officer

Dr. Hans-Ulrich Engel
Vice Chairman and Chief Financial Officer

Saori Dubourg

Sanjeev Gandhi

Michael Heinz

Dr. Markus Kamieth

Wayne T. Smith

Independent Auditor's Report[1]

To BASF SE, Ludwigshafen am Rhein

Report on the Audit of the Consolidated Financial Statements and of the Group Management Report

Opinions

We have audited the Consolidated Financial Statements of BASF SE and its subsidiaries (the Group), which comprise the balance sheet as at December 31, 2018, statement of income, statement of income and expense recognized in equity, statement of cash flows, statement of equity for the financial year from January 1, 2018 to December 31, 2018 and Notes to the Consolidated Financial Statements, including a summary of significant accounting policies. In addition, we have audited the Group Management Report of BASF SE for the financial year from January 1, 2018 to December 31, 2018. In addition, we have been instructed to express an opinion as to whether the Consolidated Financial Statements comply with full IFRS. In accordance with the German legal requirements we have not audited the content of the non-financial statement and the corporate governance statement which are included in the Group Management Report and are identified as unaudited other information.

In our opinion, on the basis of the knowledge obtained in the audit,

- The accompanying Consolidated Financial Statements comply, in all material respects, with the IFRSs as adopted by the EU, the additional requirements of German commercial law pursuant to Section 315e (1) of the German Commercial Code (HGB) and full IFRS, and in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as at December 31, 2018, and of its financial performance for the financial year from January 1, 2018 to December 31, 2018, and
- The accompanying Group Management Report as a whole provides an appropriate view of the Group's position. In all material respects, this Group Management Report is consistent with the Consolidated Financial Statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the Group Management Report does not cover the content of the non-financial statement and the corporate governance statement mentioned above.

Pursuant to Section 322 (3) sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the Consolidated Financial Statements and of the Group Management Report.

Basis for the opinions

We conducted our audit of the Consolidated Financial Statements and of the Group Management Report in accordance with Section 317 HGB and the EU Audit Regulation No. 537/2014 (referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institute of Public Auditors in Germany (Institut der Wirtschaftsprüfer, IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the Consolidated Financial Statements and on the Group Management Report.

Key Audit Matters in the Audit of the Consolidated Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the Consolidated Financial Statements for the financial year from January 1, 2018 to December 31, 2018. These matters were addressed in the context of our audit of the Consolidated Financial Statements as a whole, and in forming our opinion thereon, we do not provide a separate opinion on these matters.

Recoverability of goodwill

For information on the accounting principles applied, please refer to Note 1.4 to the Consolidated Financial Statements on pages 193 to 194 and 201. The underlying assumptions used in the calculation and the disclosures on the impairment test performed are included in Note 14 to the Consolidated Financial Statements from page 228 onward.

Financial statement risk

Intangible assets in the Consolidated Financial Statements of BASF SE include goodwill in the amount of €9,211 million. Goodwill must be tested for impairment annually and whenever there is an indication that goodwill may be impaired. The impairment test for the Pigments unit revealed that a change to the key assumptions, which is considered reasonably possible, could lead to the carrying amount exceeding the recoverable amount.

Key assumptions by the Board of Executive Directors are the forecasts for future cash inflows in the detailed planning period, the assumed growth rate for subsequent periods, as well as the cost of capital. These assumptions have a material impact on the recoverability of goodwill. The growth forecasts of the Board of Executive Directors are associated with risks and can be revised in

1 This is a translation of the German original. Solely the original text in German language is authoritative.

light of volatile raw materials prices and an instable macroeconomic environment. Deviations from the key assumptions, which the Board of Executive Directors considers reasonably possible, would lead to an impairment at the above unit. There is the risk for the financial statements that impairment has not been identified. In addition, there is also a risk that the Notes to the Consolidated Financial Statements do not contain the required disclosures on the key assumptions and sensitivities for this unit.

Our audit approach

We examined the forecast for future cash inflows in the detailed planning period, in particular with respect to whether the expected development of the relevant sales markets were given appropriate consideration and are consistent with the current budget adopted by the Board of Executive Directors and the Supervisory Board. We compared internal growth forecasts with industry expectations and those of significant competitors. We reviewed whether the assumptions in the budget adopted by the Board of Executive Directors and the Supervisory Board about the future development of margins and the amount of investments are appropriate, focusing on the unit for which the Board of Executive Directors considered deviations from the key assumptions to be reasonably possible and where these deviations would lead to the carrying amount of the unit exceeding its recoverable amount. Our review of the appropriateness of the budget adopted by the Board of Executive Directors and the Supervisory Board also included a comparison of planning in past business years with the results actually achieved. For selected units, we examined whether reasons for not reaching planned values in the past were given appropriate consideration in current planning, to the extent that this was relevant.

We assessed the appropriateness of the assumed growth rate for the period following the detailed planning period on the basis of industry and macroeconomic studies. We satisfied ourselves of the methodological appropriateness of the calculation and the appropriateness of the weighted cost of capital rates. To this end, we calculated our own expected values for the assumptions and parameters underlying the weighted cost of capital rates and compared these with the assumptions and parameters used. The audit team was supported by our company valuation specialists.

Finally, we assessed the completeness of the disclosures on the key assumptions and the sensitivities.

Our observations

The assumptions underlying the calculations of the Board of Executive Directors are balanced overall. The disclosures in the Notes on the key assumptions and the sensitivities are complete.

Acquisition of agricultural solutions businesses from Bayer

For information on the accounting principles applied, please refer to Note 1.4 to the Consolidated Financial Statements on page 200. Information on the acquisition can be found in Note 2.4 to the Consolidated Financial Statements from page 205 onward.

Financial statement risk

On August 1, 2018, BASF SE acquired significant parts of the seed and non-selective herbicide business as well as assets of Bayer AG. An additional acquisition of the global vegetable seeds business followed on August 16, 2018. The total purchase price was €7,421 million. Taking into account the net assets acquired in the amount of €6,168 million, goodwill of €1,253 million arose.

The identifiable assets acquired and liabilities assumed are recognized at fair value on the date of acquisition in accordance with IFRS 3. BASF consulted an external expert on the identification and measurement of the identifiable assets acquired and liabilities assumed.

Identifying and measuring the assets acquired and liabilities assumed is complex and is based on discretionary assumptions by the Board of Executive Directors. The key assumptions are the projected development of sales and margins in the acquired businesses, the licensing fees used for measurements based on the relief from royalty method, the underlying useful lives of the identified assets and the cost of capital.

There is a risk for the Consolidated Financial Statements that the assets acquired and liabilities assumed have not been identified in full, or have not been measured correctly. In addition, there is a risk that the disclosures on the acquisition in the Notes to the Consolidated Financial statements are not complete and appropriate.

Our audit approach

We consulted our valuation specialists in order to assess the appropriateness of the identification and measurement approach, as well as the key assumptions used here, among other things.

To start with, we spoke with members of the Board of Executive Directors and other BASF employees and assessed the relevant agreements to gain an understanding of the transaction. We compared the total purchase price with the underlying purchase agreement and the records of payment.

In addition, we assessed the competence, abilities and objectivity of the independent expert engaged by BASF to identify and measure the identifiable assets and liabilities. We also evaluated whether the process used to identify the assets acquired and liabilities assumed meet the requirements of IFRS 3 based on our knowledge of BASF's business model. We assessed whether the assessment approaches used are consistent with the relevant accounting principles.

We discussed the projected development of sales and margins with the persons responsible for planning. In addition, we evaluated the consistency of the assumptions with external, industry-specific market assessments. We compared the licensing fees used in the measurement of intangible assets with reference values in relevant databases, taking into consideration the supplied profitability analyses for the assets concerned. We evaluated the useful lives applied on the basis of discussions with the client's experts, taking into account any remaining patent terms and the underlying product life cycles. The useful lives of assets selected based on risk were checked for plausibility using existing reference assessments. Furthermore, we satisfied ourselves of the methodological appropriateness of the calculation and the appropriateness of the weighted cost of capital rates. To this end, we compared the assumptions and parameters underlying the cost of capital with our own assumptions and publicly available data. The audit team was supported by our company valuation specialists.

In order to assess the accuracy of the measurement of the identifiable assets and liabilities, we reproduced selected calculations taking into account risk-based considerations.

In addition, we satisfied ourselves of the correct presentation of the acquisition in the Consolidated Financial Statements of BASF SE. In doing so, we also assessed whether the disclosures on the acquisition contained in the Notes to the Consolidated Financial Statements are complete and appropriate.

Our observations

The underlying approach used to identify and measure the assets acquired and liabilities assumed is appropriate and consistent with the applicable accounting principles.

The key assumptions and parameters underlying purchase price allocation are reasonable and the presentation of the acquisition in the Notes to the Consolidated Financial Statements is complete and appropriate.

Accounting treatment of the oil and gas business

For information on the accounting principles applied and on BASF's oil and gas price scenario, please refer to Note 1.4 to the Consolidated Financial Statements on pages 200 and 201. Information on the discontinued oil and gas business can be found in Note 2.5 to the Consolidated Financial Statements from page 209 onward.

Financial statement risk

On September 27, 2018, BASF and LetterOne signed an agreement on the merger of their oil and gas activities. BASF's oil and gas activities represent a separate, material business area of BASF and were accounted for as the Oil & Gas segment until signing of the agreement. BASF will hold a majority share in the newly created company, which will operate under the name Wintershall Dea. BASF will lose control over the oil and gas activities as a result of the agreements signed by the shareholders on the management of the newly created company, and therefore classified these activities as a discontinued operation.

Prerequisites for the classification and thus the presentation of the oil and gas activities as a discontinued operation in accordance with IFRS 5 include the loss of control over these activities. To assess this, the future management structure of Wintershall Dea must be analyzed using the criteria of IFRS 10 (concept of control); this analysis is complex. Properly accounting for the assets and liabilities allocated to the discontinued operation, including their subsequent measurement and the corresponding explanatory disclosures in the Notes to the Consolidated Financial Statements, are just as complex.

There is a risk for the Consolidated Financial Statements that the prerequisites for classification as a discontinued operation are not met, and thus that its presentation as a discontinued operation in the Consolidated Financial Statements of the BASF Group is not correct. In addition, there is a risk that the assets and liabilities allocated to the discontinued operation are not recognized and measured properly, and that the corresponding disclosures in the Notes to the Consolidated Financial Statements are not complete and appropriate.

Furthermore, the accounting figures for the discontinued operation must be tested for potential impairment on initial classification. A key factor in the recoverability of the assets of the oil and gas business, including the goodwill allocated to the Exploration & Production cash-generating unit, is BASF's oil and gas price projections. The oil and gas price projections underlying the calculation are based on an internal estimation process.

It is difficult to forecast future price trends given the high volatility of oil and gas prices. The variety of assumptions underlying the estimation process are subject to significant judgment. This gives rise to the risk that the oil and gas price projections are not within an appropriate range and that the assets of the oil and gas business, including the goodwill allocated to the Exploration & Production cash-generating unit, were not measured properly on initial classification as a discontinued operation. There is also a risk that estimation uncertainties have not been sufficiently disclosed in the Notes to the Consolidated Financial Statements.

Our audit approach

We started by assessing whether the classification of the oil and gas business as a discontinued operation was performed in accordance with IFRS 5. In addition, we satisfied ourselves that BASF loses control over its oil and gas activities as a result of the agreements signed by the shareholders on the management of the newly created company. To this end, we evaluated the agreements concluded in connection with the merger on the management structure and spoke with members of the Board of Executive Directors and other BASF employees. Furthermore, we evaluated whether the assets and liabilities allocated to the discontinued operation were recognized and measured properly, and assessed whether the explanations on the discontinued operation in the Notes to the Consolidated Financial Statements are complete and appropriate.

In addition, in order to assess its suitability as a basis for calculation, we had the company explain to us how the oil and gas price scenario was determined. Our audit procedures included, among others, an assessment of the completeness and balance of the assumptions used in the estimation process. We critically examined the assumptions for the macroeconomic parameters, such as the development of demand for oil and gas, fiscal considerations of important crude oil- and gas-producing countries, rising marginal production costs, as well as producers' investment behavior, and assessed whether these were appropriately reflected in BASF's oil and gas price scenario. Finally, we compared BASF's oil and gas price scenario with the published forecasts of industry associations, analysts, international institutions and other market participants.

We satisfied ourselves of the suitability of the estimation process and the resulting forecasts for accounting purposes by comparing BASF's oil and gas price projections in the past ten years with the actual average annual prices.

We also analyzed, on the basis of alternative scenarios prepared by BASF, the effects of a variation in the oil and gas price scenario on the impairment test on initial classification of the discontinued operation. We satisfied ourselves of the appropriateness of the assumptions underlying the alternative scenarios.

Furthermore, we assessed whether the disclosures in the Notes to the Consolidated Financial Statements on BASF's oil and gas price scenario and estimation uncertainties related to the scenario are sufficient and appropriate.

Our observations

The classification of the oil and gas business as a discontinued operation is appropriate and consistent with IFRS 5. The assets and liabilities allocated to the discontinued operation are recognized and measured properly, and the related explanations in the Notes to the Consolidated Financial Statements are complete and appropriate.

Overall, the assumptions about oil and gas prices made by the Board of Executive Directors underlying the impairment test on initial classification of the discontinued operation are appropriate. The estimates and assumptions made in the preparation of the company's internal forecasts are sufficiently documented and justified. Overall, BASF's oil and gas price forecasts therefore represent a reasonable basis for calculation.

The explanations in the Notes to the Consolidated Financial Statements on the oil and gas price scenario assumed by BASF as a significant source of estimation uncertainties are sufficiently detailed and appropriate.

Other Information

The Board of Executive Directors is responsible for the other information. The other information comprises:

- the unaudited part of the Group Management Report described in section "Opinions", and
- the remaining parts of the BASF Report 2018, with the exception of the audited Consolidated Financial Statements and Group Management Report and our auditor's report.

Our opinions on the Consolidated Financial Statements and on the Group Management Report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the Consolidated Financial Statements, with the Group Management Report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

In accordance with our engagement, we performed a separate review of the nonfinancial statement. For the type, scope and results of this review, please refer to our audit report dated, February 20, 2019.

Responsibilities of the Board of Executive Directors and the Supervisory Board for the Consolidated Financial Statements and the Group Management Report

Board of Executive Directors is responsible for the preparation of the Consolidated Financial Statements that comply, in all material respects, with IFRSs as adopted by the EU, the additional requirements of German commercial law pursuant to Section 315e (1) HGB and full IFRS and that the Consolidated Financial Statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the Board of Executive Directors is responsible for such internal control as they have determined necessary to enable the preparation of Consolidated Financial Statements that are free from material misstatement, whether due to fraud or error.

In preparing the Consolidated Financial Statements, the Board of Executive Directors is responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the Board of Executive Directors is responsible for the preparation of the Group Management Report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the Consolidated Financial Statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the Board of Executive Directors is responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a Group Management Report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the Group Management Report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the Consolidated Financial Statements and of the Group Management Report.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report

Our objectives are to obtain reasonable assurance about whether the Consolidated Financial Statements as a whole are free from material misstatement, whether due to fraud or error, and whether the Group Management Report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the Consolidated Financial Statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the Consolidated Financial Statements and on the Group Management Report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these Consolidated Financial Statements and this Group Management Report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the Consolidated Financial Statements and of the Group Management Report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit of the Consolidated Financial Statements and of arrangements and measures (systems) relevant to the audit of the Group Management Report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the Board of Executive Directors and the reasonableness of estimates made by the Board of Executive Directors and related disclosures.
- Conclude on the appropriateness of the Board of Executive Directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the Consolidated Financial Statements and in the Group Management Report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the Consolidated Financial Statements, including the disclosures, and whether the Consolidated Financial Statements present the underlying transactions and events in a manner that the Consolidated Financial Statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU, the additional requirements of German commercial law pursuant to Section 315e (1) HGB and full IFRS.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the Consolidated Financial Statements and on the Group Management Report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions.
- Evaluate the consistency of the Group Management Report with the Consolidated Financial Statements, its conformity with law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the Board of Executive Directors in the Group Management Report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the Board of Executive Directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with the audit committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the audit committee with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the related safeguards.

From the matters communicated with the audit committee, we determine those matters that were of most significance in the audit of the Consolidated Financial Statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other Legal and Regulatory Requirements

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as group auditor by the annual general meeting on May 4, 2018. We were engaged by the Chairwoman of the audit committee on July 23, 2018. We have been the group auditor of BASF SE without interruption since the financial year 2006.

We declare that the opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

German Public Auditor Responsible for the Engagement

The German Public Auditor responsible for the engagement is Alexander Bock.

Frankfurt am Main, February 20, 2019

KPMG AG
Wirtschaftsprüfungsgesellschaft
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Statement of Income

BASF Group

Statement of income

Million €

	Explanations in Note	2018	2017 restated[1]	2017 previous
Sales revenue	**[1], [4]**	**62,675**	**61,223**	**64,475**
Cost of sales	[6]	(44,319)	(41,591)	(43,929)
Gross profit on sales		**18,356**	**19,632**	**20,546**
Selling expenses	[6]	(8,588)	(8,182)	(8,262)
General administrative expenses	[6]	(1,426)	(1,330)	(1,412)
Research and development expenses	[6]	(2,028)	(1,843)	(1,888)
Other operating income	[7]	1,815	1,569	1,916
Other operating expenses	[8]	(2,365)	(2,582)	(2,949)
Income from companies accounted for using the equity method	[9]	269	323	571
Income from operations	**[4]**	**6,033**	**7,587**	**8,522**
Income from other shareholdings		36	27	31
Expenses from other shareholdings		(78)	(57)	(60)
Net income from shareholdings		**(42)**	**(30)**	**(29)**
Interest income		174	177	226
Interest expenses		(540)	(492)	(560)
Interest result		**(366)**	**(315)**	**(334)**
Other financial income		32	39	70
Other financial expenses		(369)	(399)	(429)
Other financial result		**(337)**	**(360)**	**(359)**
Financial result	**[10]**	**(745)**	**(705)**	**(722)**
Income before income taxes		**5,288**	**6,882**	**7,800**
Income taxes	[11]	(1,138)	(1,290)	(1,448)
Income after taxes from continuing operations		**4,150**	**5,592**	**–**
Income after taxes from discontinued operations	**[2]**	**829**	**760**	**–**
Income after taxes		**4,979**	**6,352**	**6,352**
Noncontrolling interests	[12]	(272)	(274)	(274)
Net income		**4,707**	**6,078**	**6,078**
Earnings per share from continuing operations (€)	**[5]**	**4.29**	**5.84**	**–**
Earnings per share from discontinued operations (€)	**[5]**	**0.83**	**0.78**	**–**
Earnings per share (€)	**[5]**	**5.12**	**6.62**	**6.62**
Dilution effect (€)	[5]	(0.01)	(0.01)	(0.01)
Diluted earnings per share (€)	**[5]**	**5.11**	**6.61**	**6.61**

1 Figures for 2017 were restated with the presentation of the oil and gas activities as discontinued operations. For more information, see Note 1.4 from page 192 onward

Statement of Income and Expense Recognized in Equity

BASF Group

Statement of comprehensive income[1]

Million €

	2018			2017		
	BASF Group	Shareholders of BASF SE	Noncontrolling interests	BASF Group	Shareholders of BASF SE	Noncontrolling interests
Income after taxes	**4,979**	**4,707**	**272**	**6,352**	**6,078**	**274**
Remeasurement of defined benefit plans[2]	(977)	(977)	–	1,064	1,064	–
Deferred taxes on nonreclassifiable gains/losses	235	235	–	(320)	(320)	–
Nonreclassifiable gains/losses after taxes from equity-accounted investments	(3)	(3)	–	9	9	–
Nonreclassifiable gains/losses	**(745)**	**(745)**	**–**	**753**	**753**	**–**
Unrealized gains/losses from fair value changes in securities measured at FVOCI[3]	1	1	–	6	6	–
Reclassification of realized gains/losses recognized in the statement of income	–	–	–	–	–	–
Fair value changes in securities measured at FVOCI,[3] net[4]	**1**	**1**	**–**	**6**	**6**	**–**
Unrealized gains/losses in connection with cash flow hedges	23	23	–	(48)	(48)	–
Reclassification of realized gains/losses recognized in the statement of income	(48)	(48)	–	99	99	–
Fair value changes in derivatives designated as cash flow hedges, net[4]	**(25)**	**(25)**	**–**	**51**	**51**	**–**
Unrealized gains/losses from currency translation	194	172	22	(2,051)	(1,964)	(87)
Deferred taxes on reclassifiable gains/losses	9	9	–	12	12	–
Reclassifiable gains/losses after taxes from equity-accounted investments	(20)	(20)	–	(126)	(126)	–
Reclassifiable gains/losses	**159**	**137**	**22**	**(2,108)**	**(2,021)**	**(87)**
Other comprehensive income after taxes	**(586)**	**(608)**	**22**	**(1,355)**	**(1,268)**	**(87)**
Comprehensive income	**4,393**	**4,099**	**294**	**4,997**	**4,810**	**187**

1 For more information on other comprehensive income, see Note 20 on page 239
2 For more information, see Note 22, "Provisions for pensions and similar obligations," from page 240 onward
3 FVOCI: fair value through other comprehensive income
4 For more information, see Note 27, "Supplementary information on financial instruments," from page 251 onward

Development of income and expense recognized in equity attributable to shareholders of BASF SE

Million €

	Other comprehensive income				
	Remeasurement of defined benefit plans	Unrealized gains/losses from currency translation	Measurement of securities at fair value	Cash flow hedges	Total income and expense recognized in equity
As of December 31, 2017	**(4,620)**	**(605)**	**39**	**(96)**	**(5,282)**
IFRS 9 transition effect	–	–	(35)	(14)	(49)
As of January 1, 2018	**(4,620)**	**(605)**	**4**	**(110)**	**(5,331)**
Changes	(980)	141	1	(14)	(852)
Deferred taxes	235	(2)	–	11	244
As of December 31, 2018	**(5,365)**	**(466)**	**5**	**(113)**	**(5,939)**
As of January 1, 2017	**(5,373)**	**1,476**	**32**	**(149)**	**(4,014)**
Changes	1,073	(2,109)	8	68	(960)
Deferred taxes	(320)	28	(1)	(15)	(308)
As of December 31, 2017	**(4,620)**	**(605)**	**39**	**(96)**	**(5,282)**

Balance Sheet

BASF Group

Assets

Million €

	Explanations in Note	December 31, 2018	December 31, 2017
Intangible assets	[14]	16,554	13,594
Property, plant and equipment	[15]	20,780	25,258
Investments accounted for using the equity method	[16]	2,203	4,715
Other financial assets	[16]	570	606
Deferred tax assets	[11]	2,342	2,118
Other receivables and miscellaneous assets	[18]	886	1,332
Noncurrent assets		**43,335**	**47,623**
Inventories	[17]	12,166	10,303
Accounts receivable, trade[1]	[18]	10,665	10,801
Other receivables and miscellaneous assets[1]	[18]	3,139	3,494
Marketable securities		344	52
Cash and cash equivalents[2]	[1]	2,300	6,495
Assets of disposal groups	[2]	14,607	–
Current assets		**43,221**	**31,145**
Total assets		**86,556**	**78,768**

1 As of January 1, 2018, receivables from bank acceptance drafts are no longer reported under trade accounts receivable, but under the item other receivables and miscellaneous assets. The 2017 figures have been restated accordingly. For more information, see Note 18 from page 235 onward
2 For a reconciliation of the amounts in the statement of cash flows with the balance sheet item cash and cash equivalents, see page 181.

Equity and liabilities

Million €

	Explanations in Note	December 31, 2018	December 31, 2017
Subscribed capital	[19]	1,176	1,176
Capital reserves	[19]	3,118	3,117
Retained earnings	[19]	36,699	34,826
Other comprehensive income	[20]	(5,939)	(5,282)
Equity attributable to shareholders of BASF SE		**35,054**	**33,837**
Noncontrolling interests	[21]	1,055	919
Equity		**36,109**	**34,756**
Provisions for pensions and similar obligations	[22]	7,434	6,293
Other provisions	[23]	1,860	3,478
Deferred tax liabilities	[11]	1,787	2,731
Financial indebtedness	[24]	15,332	15,535
Other liabilities	[24]	705	1,095
Noncurrent liabilities		**27,118**	**29,132**
Accounts payable, trade		5,122	4,971
Provisions	[23]	3,252	3,229
Tax liabilities	[11]	695	1,119
Financial indebtedness	[24]	5,509	2,497
Other liabilities	[24]	2,998	3,064
Liabilities of disposal groups	[2]	5,753	–
Current liabilities		**23,329**	**14,880**
Total equity and liabilities		**86,556**	**78,768**

Statement of Cash Flows

BASF Group

Statement of cash flows[1]

Million €	2018	2017
Net income	4,707	6,078
Depreciation and amortization of intangible assets and property, plant and equipment	3,750	4,213
Changes in inventories	(1,249)	(915)
Changes in receivables	(394)	(870)
Changes in operating liabilities and other provisions	1,113	618
Changes in pension provisions, defined benefit assets and other items	78	(227)
Gains (–) / losses (+) from the disposal of noncurrent assets and securities	(66)	(112)
Cash flows from operating activities	**7,939**	**8,785**
Payments made for property, plant and equipment and intangible assets	(3,894)	(3,996)
Payments made for financial assets and securities	(1,210)	(748)
Payments made for acquisitions	(7,362)	(150)
Payments received for divestitures	107	177
Payments received from the disposal of noncurrent assets and securities	555	759
Cash flows from investing activities	**(11,804)**	**(3,958)**
Capital increases/repayments and other equity transactions	3	19
Additions to financial and similar liabilities	6,355	8,572
Repayment of financial and similar liabilities	(3,389)	(5,324)
Dividends paid		
To shareholders of BASF SE	(2,847)	(2,755)
noncontrolling interests	(174)	(118)
Cash flows from financing activities	**(52)**	**394**
Net changes in cash and cash equivalents	**(3,917)**	**5,221**
Changes in cash and cash equivalents		
From foreign exchange rates	(59)	(110)
changes in the scope of consolidation	–	9
Cash and cash equivalents at the beginning of the year	**6,495**	**1,375**
Cash and cash equivalents at the end of the year[2]	**2,519**	**6,495**

1 More information on the statement of cash flows can be found in the Management's Report (Financial Position) from page 55 onward. Other information on cash flows can be found in Note 29 from page 261 onward.
2 From the third quarter of 2018 onward, cash and cash equivalents presented in the statement of cash flows deviate from the figure in the balance sheet, as cash and cash equivalents of the oil and gas business in the balance sheet have been reclassified to the disposal group.

Statement of Equity

BASF Group

Statement of equity[1]

Million €

	Number of shares outstanding	Subscribed capital	Capital reserves	Retained earnings	Other comprehensive income[2]	Equity attributable to shareholders of BASF SE	Noncontrolling interests	Equity
As of December 31, 2017	**918,478,694**	**1,176**	**3,117**	**34,826**	**(5,282)**	**33,837**	**919**	**34,756**
IFRS 9 transition effect	–	–	–	21	(49)	**(28)**	(2)	**(30)**
As of January 1, 2018	**918,478,694**	**1,176**	**3,117**	**34,847**	**(5,331)**	**33,809**	**917**	**34,726**
Effects of acquisitions achieved in stages	–	–	–	–	–	**–**	–	**–**
Dividends paid	–	–	–	(2,847)	–	**(2,847)**	(174)[3]	**(3,021)**
Income after taxes	–	–	–	4,707	–	**4,707**	272	**4,979**
Changes to income and expense recognized directly in equity	–	–	–	–	(608)	**(608)**	22	**(586)**
Changes in scope of consolidation and other changes	–	–	1[4]	(8)	–	**(7)**	18	**11**
As of December 31, 2018	**918,478,694**	**1,176**	**3,118**	**36,699**	**(5,939)**	**35,054**	**1,055**	**36,109**
As of January 1, 2017	**918,478,694**	**1,176**	**3,130**	**31,515**	**(4,014)**	**31,807**	**761**	**32,568**
Effects of acquisitions achieved in stages	–	–	–	–	–	**–**	–	**–**
Dividends paid	–	–	–	(2,755)	–	**(2,755)**	(118)[3]	**(2,873)**
Income after taxes	–	–	–	6,078	–	**6,078**	274	**6,352**
Changes to income and expense recognized directly in equity	–	–	–	–	(1,268)	**(1,268)**	(87)	**(1,355)**
Changes in scope of consolidation and other changes	–	–	(13)[4]	(12)	–	**(25)**	89	**64**
As of December 31, 2017	**918,478,694**	**1,176**	**3,117**	**34,826**	**(5,282)**	**33,837**	**919**	**34,756**

1 For more information on the items relating to equity, see Notes 19 and 20 from page 238 onward
2 Details are provided in the Statement of Income and Expense Recognized in Equity on page 177.
3 Including profit and loss transfers
4 Granting of BASF shares under BASF's "plus" share program

Notes

Policies and Scope of Consolidation

1 Summary of accounting policies

1.1 General information

BASF SE (registered at the district trade register, or *Amtsgericht*, for Ludwigshafen am Rhein, number HRB 6000) is a publicly listed corporation headquartered in Ludwigshafen am Rhein, Germany. Its official address is Carl-Bosch-Str. 38, 67056 Ludwigshafen am Rhein, Germany.

The Consolidated Financial Statements of BASF SE as of December 31, 2018, have been prepared in accordance with the International Financial Reporting Standards (IFRS) of the International Accounting Standards Board (IASB), and section 315a (1) of the German Commercial Code (HGB). IFRSs are generally only applied after they have been endorsed by the European Union. For the 2018 fiscal year, all of the binding IFRSs and pronouncements of the International Financial Reporting Interpretations Committee (IFRIC) were applied.

The Consolidated Financial Statements are presented in euros. All amounts, including the figures for previous years, are given in million euros unless otherwise indicated.

The individual financial statements of the consolidated companies are prepared as of the balance sheet date of the Consolidated Financial Statements. The accounting policies applied are largely the same as those used in 2017, with the exception of any changes arising from the application of new or revised accounting standards.

In its meeting on February 18, 2019, the Board of Executive Directors prepared the Consolidated Financial Statements, submitted them to the Supervisory Board for review and approval, and released them for publication.

1.2 Changes in accounting principles

Accounting policies applied for the first time in 2018

IFRS 9 – Financial Instruments
IFRS 9 – Financial Instruments was endorsed by the European Union in the fourth quarter of 2016 and applied by BASF for the first time as of January 1, 2018.

IFRS 9 contains, in particular, new requirements for the classification and measurement of financial assets, fundamental changes regarding the accounting treatment of impairments of certain financial assets, and a revised approach to hedge accounting. IFRS 9 retains "amortized cost" and "fair value" as measurement bases for financial instruments and continues to differentiate between changes in fair value recognized through profit or loss and through other comprehensive income.

The classification and measurement of financial assets in accordance with IFRS 9 is based on the one hand on the cash flow condition (the "solely payments of principle and interest" criterion), that is, the contractual cash flow characteristics of an individual financial asset. On the other hand, it also depends on the business model used for managing financial asset portfolios.

Unlike in IAS 39, under IFRS 9 impairments of financial assets that are not measured at fair value through profit or loss are not just recognized when there is objective evidence of impairment. Rather, impairment allowances are also to be recognized for expected credit losses. These are determined based on the credit risk of a financial asset, as well as any changes to this credit risk: If the credit risk of a financial asset has increased significantly since initial recognition, expected credit losses are generally recognized over the lifetime of the asset. If, however, the credit risk has not increased significantly in this period, impairments are generally only recognized for the 12-month expected credit losses. By contrast, under a simplified approach, impairments for receivables such as lease receivables and trade accounts receivable always cover the lifetime expected credit losses of the receivable concerned.

IFRS 9 also contains new requirements for the application of hedge accounting to better present an entity's risk management activities, in particular with respect to the management of nonfinancial risks.

The first-time adoption of IFRS 9 at BASF follows the modified retrospective method, which means that prior-period information is not restated; this continues to be presented in accordance with IAS 39.

The introduction of the cash flow condition at BASF mainly resulted in the reclassification of securities that were allocated to the "available for sale" category under IAS 39 and subsequently measured at fair value in the balance sheet, with fair value changes recognized in other comprehensive income. Provided the contractual cash flows resulting from these securities are not solely payments of principal and interest, they continue to be measured at fair value in the balance sheet; however, fair value changes are recognized directly in income after taxes. The cash flow condition also leads to minor changes to the subsequent measurement of other receivables that were measured at amortized cost under IAS 39. These are now measured at fair value in the balance sheet, provided the resulting cash flows are not solely payments of principal and interest. Changes to the fair value of these other receivables are recognized in profit or loss as income after taxes.

At BASF, the definition of a business model for financial asset portfolios has implications for the accounting treatment of securities, which were allocated to the "available for sale" category under IAS 39 and, according to IFRS 9, do not have to be measured at fair value because of the cash flow condition. If these securities are managed with the intention of collecting the contractual cash flows, they are subsequently measured at amortized cost in line with the requirements of IFRS 9. If, however, these securities classified as "available for sale" are also managed with the intention of generating cash flows from their sale, they are subsequently measured at fair value; fair value changes are recognized in other comprehensive income.

At BASF, the recognition of impairments for expected credit losses mainly impacts the carrying amounts of trade accounts receivable. It also affects the carrying amounts of other receivables that represent financial instruments. The table below presents the effects of the transition from IAS 39 to IFRS 9 on the carrying amounts as of December 31, 2017, by category of financial instruments:

Reconciliation of carrying amounts of financial assets

Million €

IAS 39 as of December 31, 2017			Changes due to		IFRS 9 as of January 1, 2018		
	Carrying amount	Measurement category[1]	Changes in measurement categories	Changes in measurement parameters	Carrying amount		Measurement category[1]
Shareholdings	482	AfS	–	–	482	Shareholdings	FVTPL
Receivables from finance leases	29	n/a	–	–	29	Receivables from finance leases	AC
Accounts receivable, trade	11,190	LaR	–	(28)	11,162	Accounts receivable, trade	AC
			–	–	–	Accounts receivable, trade	FVTPL
Derivatives – no hedge accounting	340	aFVTPL	–	–	340	Derivatives – no hedge accounting	FVTPL
Derivatives – hedge accounting	72	n/a	–	–	72	Derivatives – hedge accounting	FVTOCI
Other receivables and miscellaneous assets	1,508	LaR	0	(6)	1,502	Other receivables and miscellaneous assets	AC
			0	–	0	Other receivables and miscellaneous assets	FVTPL
Securities – AfS	175	AfS	(141)	(1)	33	Securities	FVTOCI
			13	0	13	Securities	AC
			128	–	128	Securities	FVTPL
Securities – HtM	1	HtM	–	–	1	Securities	AC
			–	–	–	Securities	FVTOCI
			–	–	–	Securities	FVTPL
Cash and cash equivalents	6,495	LaR	–	0	6,495	Cash and cash equivalents	AC
Total financial assets	**20,292**		**0**	**(35)**	**20,257**	**Total financial assets**	

1 AfS: Available for Sale
AC: Amortized Cost
FVTOCI: at Fair Value through Other Comprehensive Income
(a)FVTPL: (at) Fair Value through Profit or Loss
HtM: Held to Maturity
LaR: Loans and Receivables

At BASF, the credit risk of a financial asset is assessed using both internal estimates, which are prepared as part of credit management, and external rating information on the respective counterparty. A significant increase in the counterparty's credit risk is assumed if its rating is lowered by a certain number of notches. The significance of the increase in credit risk is not reviewed for financial assets subject to the simplified approach.

BASF calculates the expected credit losses of a financial asset as the probability-weighted present value of each expected cash shortfall. As a general rule, three key parameters are used here: the probability of default of the counterparty, the loss ratio if the counterparty defaults, and the amount at risk. In the case of receivables from banks, the expected credit losses are primarily calculated on the basis of the probabilities of default derived from credit default swaps for the counterparty concerned.

The effects of the changes to the valuation allowance model on the impairments recognized in accordance with IAS 39 as of December 31, 2017, are presented in the table below. These mainly relate to valuation allowances for financial assets that were allocated to the "loans and receivables" category under IAS 39. Impairments were increased due to the recognition of expected credit losses. A countereffect arose from the fact that impairments to reflect transfer risks for certain countries and staggered impairments based on overdue status are no longer recognized under IFRS 9.

Reconciliation of impairments for financial assets

Million €

		Changes due to		
	Cumulative impairments as of December 31, 2017 (under IAS 39)	**Changes in measurement categories**	**Changes in measurement parameters**	**Impairments as of January 1, 2018 (under IFRS 9)**
Available for sale	–	–	–	–
Held to maturity	–	–	–	–
Loans and receivables	431	–	35	466
Total impairments for financial assets	**431**	**–**	**35**	**466**

BASF exercises the option to apply the hedge accounting requirements of IFRS 9 only prospectively from January 1, 2018. This option cannot be applied to changes to the time value component of options if only its intrinsic value is designated as a hedging instrument in a hedge accounting relationship. In this case, IFRS 9 stipulates that changes to the fair value of the time value component during the term of the hedging relationship must be recognized in other comprehensive income, and that the amounts accumulated there must be released as an adjustment to the cost of the underlying item or directly in profit or loss. By contrast, under IAS 39, changes to the fair value of these time value components were recognized immediately in profit or loss.

Transition effects from the first-time adoption of IFRS 9 were recognized cumulatively in equity as of the date of initial application. Overall, after allowing for deferred taxes, the first-time adoption of IFRS 9 reduced equity by €30 million, primarily as a result of the increase in valuation allowances for trade accounts receivable. By contrast, the reclassification of components of income that were presented in other comprehensive income under IAS 39 to retained earnings did not have any effect on equity.

The table below shows the first-time adoption effects of IFRS 9 on retained earnings and other comprehensive income:

First-time adoption effects of IFRS 9 on equity

Million €

Effects on retained earnings	
Retained earnings as of December 31, 2017 (prior to application of IFRS 9)	**34,826**
Changes to valuation allowances for trade accounts receivable	(28)
Changes to valuation allowances for other financial instruments	(7)
Transfers to/from other comprehensive income	49
Deferred taxes for first-time adoption effects	5
Retained earnings as of January 1, 2018 (following application of IFRS 9)	**34,845**
Effects on other comprehensive income	
Other comprehensive income after taxes, including noncontrolling interests (prior to application of IFRS 9)	**(5,282)**
Transfers to/from retained earnings, changes to measurement categories	(35)
Transfers to/from retained earnings, other	(14)
Deferred taxes for first-time adoption effects	–
Other comprehensive income after taxes, including noncontrolling interests (following application of IFRS 9)	**(5,331)**
First-time adoption effects of IFRS 9 on equity	**(30)**

IFRS 15 – Revenues from Contracts with Customers

IFRS 15 – Revenues from Contracts with Customers was endorsed by the European Union in the third quarter of 2016 and applied by BASF for the first time as of January 1, 2018.

According to IFRS 15, sales revenue is measured at the amount the entity expects to recognize in exchange for goods and services when control of the agreed goods or services and the benefits obtainable from them are transferred to the customer. The standard provides the following five-step process for revenue recognition:

– Step 1: Identify contracts with customers
– Step 2: Identify performance obligations contained in the contracts
– Step 3: Determine the transaction price
– Step 4: Allocate the transaction price to the performance obligations
– Step 5: Recognize revenue when the performance obligation is satisfied

Control can be transferred at a certain point in time or over a period of time. The performance obligations arising from contracts with BASF's customers are almost always satisfied at a point in time. In individual cases, in particular for licensing agreements, they are satisfied over a period of time.

BASF applied IFRS 15 as of January 1, 2018, using the modified retrospective method. As a result, comparative information for 2017 was not restated. In accordance with IFRS 15.C7, only contracts that had not yet been completed as of the date of initial application were transitioned to the new standard. Contract modifications arising before initial application (IFRS 15.C7 A(b)) did not have to be accounted for.

As part of the adoption of the new standard, the items "contract assets" and "contract liabilities" were added to the balance sheet. A contract liability is BASF's obligation to transfer goods or services to a customer, for which BASF has already received consideration from the customer. There were no contract assets at any point in time during 2018.

The main effect of initial application of the new standard was a change in presentation within "other liabilities." Deferred sales revenue of €204 million from licenses and long-term contracts with customers that was previously presented as deferred income was reclassified to contract liabilities. The adoption of the new standard did not lead to any changes in retained earnings.

Sales revenue of €62 million, that was included in contract liabilities as of January 1, 2018, was recognized in 2018.

Sales revenue for the 2018 fiscal year includes €135 million from performance obligations fulfilled in prior periods in connection with sales and usage-based licenses.

Annual Improvements to IFRSs (2014–2016)

In IAS 28, it was clarified that the option to measure an investment in an associated company or a joint venture held by an entity that is a venture capital organization or other qualifying entity, can be exercised on an investment-by-investment basis. The short-term exemptions in IFRS 1, Appendix E (IFRS 1.E3–E7) for first-time IFRS users were deleted. The amendments are not expected to have any material effect on BASF.

Amendments to IFRS 2 – Classification and Measurement of Share-Based Payment Transactions

The amendments address a number of individual issues pertaining to the accounting of cash-settled share-based payment transactions. The amendments relate to the calculation of fair value of obligations arising from share-based payment transactions. Other requirements concern the effects of withholding tax obligations on the classification of compensation programs, as well as the presentation of option rights with respect to the type of compensation to be received or granted (cash or equity settlement). The amendments are to be applied to compensation granted or changed in fiscal years beginning on or after January 1, 2018. The amendments have no effect on BASF.

Amendments to IFRIC 22 – Foreign Currency Transactions and Advance Consideration

IFRIC 22 addresses an application question for IAS 21 – The Effects of Changes in Foreign Exchange Rates. It clarifies the point in time for determining the exchange rate used to translate foreign currency transactions containing advance payments that have been made or received. The underlying asset, income or expense is translated using the relevant exchange rate on the date on which the asset or liability resulting from the prepayment was first recognized. The amendments have no material effect on BASF.

ASCG Interpretation 4 (IFRS) – Accounting for Interest and Penalties Related to Income Taxes under IFRSs

The interpretation addresses the accounting for interest and penalties related to taxes within the meaning of section 3(4) of the Fiscal Code of Germany (AO) that relate to current income taxes within the meaning of IAS 12.5 in financial statements presented in accordance to IFRS as recognized by the European Union. It prescribes the application of IAS 37 to interest and penalties related to taxes within the meaning of section 3(4) AO and the implications for the recognition, measurement and presentation of interest and penalties related to taxes. At BASF, interest income/expense related to income taxes in accordance with IAS 12.5 and tax penalties were therefore no longer reported under tax income/ expense for the first time in 2018; rather, these were shown under other financial result or other operating expenses. The change in presentation represents a change in accounting policy within the meaning of IAS 8. As the effects were not material, the prior-year figures were not restated in accordance with IAS 8. The interpretation is effective for the first time for reporting periods beginning on or after January 1, 2018.

IFRSs and IFRICs not yet to be considered but already endorsed by the E.U.

The effects on the BASF Group financial statements of the IFRSs and IFRICs not yet in force but already endorsed by the European Union in 2018 were reviewed and are explained below.

IFRS 16 – Leases

The IASB published the new standard on leases, IFRS 16, on January 13, 2016. The rules and definitions of IFRS 16 will supersede the content of IAS 17, IFRIC 4, SIC-15 and SIC-27. The standard requires an accounting model for a lessee that recognizes all right-of-use assets and liabilities from lease agreements in the balance sheet, unless the term is twelve months or less or the underlying asset is of low value. As for the lessor, the new standard substantially carries forward the accounting requirements of IAS 17 – Leases. This means that lessors will continue to classify leases as either finance or operating leases. The European Union endorsed the new standard on October 31, 2017. IFRS 16 must be applied for reporting periods beginning on or after January 1, 2019.

BASF has largely completed its analysis of the effects on the Consolidated Financial Statements and intends to exercise the exemption for lease agreements with a term of up to 12 months and low-value assets. Lease agreements that are already in place as of December 31, 2018, will not be re-assessed.

BASF will generally apply a threshold of €5,000 when identifying leases to be capitalized. However, in the future, a significant number of lease agreements that today represent operating leases will be reported in the balance sheet as right-of-use assets with the corresponding lease liabilities. As of the date of initial application of the new standard (January 1, 2019), BASF will measure – in accordance with the modified retrospective method – lease liabilities arising from operating leases with a remaining term of more than 12 months at the present value of the remaining lease payments, taking into account current incremental borrowing rates. The right-of-use asset will be recognized at the same amount as the lease liability. Existing finance leases will not be affected.

BASF introduced a new software program to manage and measure leases, in which the relevant leases were documented. The following statements on the effects of IFRS 16 are based on a simulation conducted on December 31, 2018, using the data available.

As well as increasing BASF's total assets by around €1.1 billion, the presentation of expenses associated with operating leases will change. For 2019, BASF anticipates a depreciation charge for right-of-use assets of around €250 million and interest expenses on lease liabilities of around €20 million. Moreover, the additional liability items are expected to reduce BASF's equity ratio by 0.5%.

BASF will present the interest component in lease payments in cash flows from operating activities and the repayment portion in cash flows from financing activities. Lease payments under short-term agreements, agreements with low-value assets or variable payments will be presented in cash flows from operating activities.

For more information on leases, see Note 28 from page 259 onward

Amendments to IFRS 9 – Financial Assets with a Prepayment Feature with Negative Compensation

The amendments pertain to the relevant criteria for the classification of financial assets. Financial assets with a prepayment feature with negative compensation may be recognized under certain conditions at amortized cost or at fair value through other comprehensive income instead of at fair value through profit and loss. The amendments are effective as of January 1, 2019. They are not expected to have any material effect on BASF.

IFRIC 23 – Uncertainty over Income Tax Treatments

IFRIC 23 expands on the requirements in IAS 12 on how to account for uncertainties surrounding the income tax treatment of circumstances and transactions with respect to both actual and deferred taxes. The interpretation is effective for reporting periods beginning on or after January 1, 2019. The amendments have no material effect on BASF.

Amendments to IAS 28 – Long-Term Interests in Associates and Joint Ventures

On October 12, 2017, the IASB published amendments to IAS 28 on long-term interests in associated companies and joint ventures. These amendments clarify that IFRS 9 is to be applied to long-term interests in associated companies or joint ventures that are not accounted for using the equity method. The amendments were adopted as E.U. legislation in the first quarter of 2019 and must be applied as of January 1, 2019. The effects are explained under IFRS 9 – Financial Instruments in this Note.

IFRSs and IFRICs not yet to be considered and not yet endorsed by the E.U.

The IASB issued further amendments to standards and interpretations whose application is not yet mandatory and is still subject to E.U. endorsement. These amendments are unlikely to have a material impact on the reporting of BASF. BASF does not plan on early adoption of these amendments.

Amendments to IFRS 10 and IAS 28 – Sale or Contribution of Assets between an Investor and an associated company or Joint Venture

The IASB issued amendments to IFRS 10 and IAS 28 on September 11, 2014. The amendments address a known inconsistency between the requirements of IFRS 10 and IAS 28 (2011) in the case of the sale of an asset to an associated company or a joint venture or the contribution of an asset to an associated company or a joint venture.

IASB has postponed the effective date of the changes indefinitely.

Annual Improvements to IFRSs (2015–2017)

Four IFRSs were amended in the Annual Improvements to IFRSs (2015–2017).

In IFRS 3, it was clarified that when a party to a joint arrangement obtains control of a business that is a joint operation and had rights to the assets and obligations for the liabilities relating to that joint operation immediately before the acquisition date, the transaction is a business combination achieved in stages. The acquirer shall therefore apply the requirements for a business combination achieved in stages, including remeasuring its previously held interest in the joint operation.

In IFRS 11, it was clarified that when an entity obtains joint control of a business that is a joint operation and had rights to the assets and obligations for the liabilities relating to that joint operation immediately before the acquisition date, the previously held interest in that business is not to be remeasured.

IAS 12 was amended to the extent that all income tax effects of dividend payments must be considered in the same way as the income on which the dividends are based.

Finally, in IAS 23, it was determined that when entities borrow funds in general for the acquisition of qualifying assets that those costs for borrowed capital specifically for the acquisition of qualifying assets should not be considered in the determination of the financing rate until their completion.

The amendments are – subject to E.U. endorsement – to be applied for the first time in the reporting period beginning on or after January 1, 2019.

Improvements to IAS 19 – Plan Amendment, Curtailment or Settlement

The amendments relate to the measurement of pension obligations based on updated assumptions if plan amendment, curtailment or settlement occurs. After such an event, the past service cost as well as any gains or losses on the basis of current actuarial assumptions and a comparison of the resulting pension benefits must be calculated before and after the change. The periods before and after the plan amendment, curtailment or settlement are treated separately in subsequent measurement. The amendments are – subject to E.U. endorsement – to be applied for the first time in the reporting period beginning on or after January 1, 2019.

Conceptual Framework

The revised Conceptual Framework issued on March 29, 2018, replaces the previous Conceptual Framework from 2010. The main changes primarily relate to the definition, recognition and measurement of assets and liabilities, as well as the differentiation between income and expense and other comprehensive income. Subject to adoption by E.U. legislation, amendments are effective as of January 1, 2020.

Amendments to References to the Conceptual Framework in IFRS Standards

The amendments update references to and quotes from the Conceptual Framework. The amendments are – subject to E.U. endorsement – to be applied for the first time in the reporting period beginning on or after January 1, 2020.

Amendments to IFRS 3 – Business Combinations

The amendments issued on October 22, 2018, clarify that a business is a set of activities and assets with at least one input and one substantive process that together significantly contribute to the ability to create outputs. Outputs are defined as the provision of goods and services to customers. The reference to cost reduction was removed. In addition, the new provisions also contain an optional concentration test designed to simplify identification of a business. Subject to adoption by E.U. legislation, the modified definition is to be applied to business combinations with an acquisition date on or after January 1, 2020.

Amendments to IAS 1 Financial Statement Presentation and IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors
The amendments issued on October 31, 2018, provide a uniform and more precise definition of the materiality of information provided in the financial statements, together with accompanying examples. In this connection, the definitions in the Conceptual Framework, IAS 1, IAS 8 and the IFRS Practice Statement 2 (Making Materiality Judgements) were harmonized. Subject to adoption by E.U. legislation, the amendments are effective as of January 1, 2020.

1.3 Group accounting principles

Scope of consolidation: The scope of consolidation is based on the application of the standards IFRS 10 and 11.

According to IFRS 10, a group consists of a parent entity and the subsidiaries controlled by the parent. "Control" of an investee assumes the simultaneous fulfillment of the following three criteria:
– The parent company holds decision-making power over the relevant activities of the investee
– The parent company has rights to variable returns from the investee
– The parent company can use its decision-making power to affect the variable returns

Based on corporate governance and any additional agreements, companies are analyzed for their relevant activities and variable returns, and the link between the variable returns and the extent to which their relevant activities could be influenced.

According to IFRS 11, which regulates the accounting of joint arrangements, a distinction must be made between joint ventures and joint operations. In the case of a joint venture, the parties that have joint control of a legally independent company have rights to the net assets of that arrangement. In joint operations, the parties that have joint control have direct rights to the assets and obligations for the liabilities relating to the arrangement. This requirement is particularly fulfilled if the production output of the joint arrangement is almost entirely transferred to the partners, through which the partners guarantee the joint arrangements' ongoing financing.

Companies whose corporate governance structures classify them as joint arrangements are analyzed to determine if they meet the criteria for joint ventures or joint operations in accordance with IFRS 11. Should the arrangement be structured through a separate vehicle, its legal form, contractual arrangements and all other facts and circumstances are reviewed.

In addition to BASF SE, the Consolidated Financial Statements include all material subsidiaries on a fully consolidated and all material joint operations on a proportionally consolidated basis. Companies whose business is dormant or of low volume, and are of minor importance for the presentation of a true and fair view of the net assets, financial position and results of operations, are not consolidated, but rather are reported under other shareholdings. These companies are carried at amortized cost and are written down in the case of an impairment. The aggregate assets and equity of these companies amount to less than 1% of the corresponding value at Group level.

Joint ventures and associated companies are accounted for using the **equity method** in the Consolidated Financial Statements. Associated companies are entities that are not subsidiaries, joint ventures or joint operations, and over whose operating and financial policies significant influence can be exercised. In general, this applies to companies in which BASF has an investment of between 20% and 50%. Equity-accounted income is reported as part of income from operations (EBIT).

Consolidation methods: Assets and liabilities of consolidated companies are uniformly recognized and measured in accordance with the principles described herein. For companies accounted for using the equity method, material deviations in measurement resulting from the application of other accounting principles are adjusted for.

Transactions between consolidated companies as well as intercompany profits resulting from trade between consolidated companies are eliminated in full; for joint operations, they are proportionally eliminated. Material intercompany profits related to companies accounted for using the equity method are eliminated.

Capital consolidation is conducted at the acquisition date according to the purchase method. Initially, all assets, liabilities and additional intangible assets that are to be capitalized are measured at fair value. Finally, the acquisition cost is compared with the proportional share of the net assets acquired at fair value. The resulting positive differences are capitalized as goodwill. Negative differences are reviewed once more, then recognized directly in the income statement.

The incidental acquisition costs of a business combination are recognized in the income statement under other operating expenses.

Foreign currency translation: The cost of assets acquired in foreign currencies and revenue from sales in foreign currencies are determined by the exchange rate on the date the transaction is recognized. Foreign currency receivables and liabilities are valued at the exchange rates on the balance sheet date. Changes in assets and liabilities arising from foreign currency translation are recognized in the income statement, and reported under other operating expenses or income, other financial result, and in the case of financial assets measured at fair value, in other comprehensive income.

Translation of foreign currency financial statements: The translation of foreign currency financial statements depends on the functional currency of the consolidated companies. For companies whose functional currency is not the euro, translation into the reporting currency is based on the closing rate method: Balance sheet items are translated into euros using closing rates on the balance sheet date; expenses and income are translated into euros at monthly average rates and accumulated for the year. The difference between a company's translated equity at historical rates at the time of acquisition or retention and its equity at closing rates on the balance sheet date is reported separately in equity under other comprehensive income (translation adjustments) and is recognized in income only upon the company's disposal.

For certain companies outside the eurozone or U.S. dollar zone, the euro or U.S. dollar is the functional currency. In such cases, financial statements prepared in the local currency are translated into the functional currency using the temporal method: All nonmonetary assets and related depreciation and amortization as well as equity are translated at the exchange rate applying to the respective transactions. All other balance sheet items are translated using closing rates on the balance sheet date; other expenses and income are translated at monthly average rates. The resulting translation differences are recognized in the income statement under other operating income or expenses. If necessary, financial statements in the functional currency are translated into the presentation currency according to the closing rate method.

Selected exchange rates

€1 equals

	Closing rates		Average rates	
	Dec. 31, 2018	Dec. 31, 2017	2018	2017
Brazil (BRL)	4.44	3.97	4.31	3.60
China (CNY)	7.88	7.80	7.81	7.63
United Kingdom (GBP)	0.89	0.89	0.88	0.88
Japan (JPY)	125.85	135.01	130.40	126.68
Malaysia (MYR)	4.73	4.85	4.76	4.85
Mexico (MXN)	22.49	23.66	22.71	21.32
Norway (NOK)	9.95	9.84	9.60	9.33
Russia (RUB)	79.72	69.39	74.04	65.92
Switzerland (CHF)	1.13	1.17	1.15	1.11
South Korea (KRW)	1,277.93	1,279.61	1,299.07	1,276.52
United States (USD)	1.15	1.20	1.18	1.13

1.4 Accounting policies

Revenue recognition

Sales revenue from contracts with customers is recognized in the amount of the consideration BASF expects to receive in exchange for the goods or services when control of the goods or services is transferred to the customer.

BASF primarily generates income from the sale of goods. It is recognized as sales revenue at the point in time when control of the product is transferred from BASF to the customer; this is generally the case on delivery. If products are delivered to a consignment warehouse, BASF normally retains control. Revenue is recognized when the customer consumes the goods. Long-term supply agreements usually contain variable prices dependent on the development of raw materials prices and variable volumes.

Sales revenue from the sale or licensing of technologies or technical expertise are recognized according to the contractually agreed-upon transfer of the rights and obligations associated with these technologies. Recognition of revenue from granting licenses for technology and intellectual property depends on whether they are based on usage rights or access rights. Revenue from a usage-based rights is recognized at the point in time when the license is granted. Revenue from access-based rights is recognized over the term of the contract with the customer. Sales revenue from sales and usage-based licenses is recognized in accordance with the underlying settlement agreements.

Sales revenue from the sale of precious metals to industrial customers is recognized on delivery and the corresponding purchase prices are recorded as cost of sales. In the trading of precious metals and their derivatives with traders, where there is usually no physical delivery, revenues are netted against the associated costs.

Services rendered to customers are invoiced according to work completed and recognized as revenue accordingly.

For more information on the allocation of sales revenue, see Note 4 from page 211 onward and the Management's Report from page 46 onward

If the consideration promised in a contract includes variable components, BASF estimates the amount of consideration to which it will be entitled in exchange for transferring the promised goods to the customer. Variable components are only recognized as revenue when it is highly unlikely that a reversal of sales revenue will occur. Expected rebates and other trade discounts are accrued in accordance with the principle of individual measurement to cover probable risks related to the return of goods, future warranty obligations and other claims.

BASF grants customers rebates if the goods purchased by the customer exceed a contractually defined threshold within the period specified. Rebates are usually deducted from the amounts payable by the customer. Depending on the terms of the underlying contract, BASF uses either the expected value or the most likely amount to estimate the variable consideration for expected future rebates. The method that is the best predictor of variable consideration is primarily determined by the number of volume thresholds contained in the contract. All available historical, current and forecast information is taken into account when calculating rebates.

Customers generally have a right of return if the supplied goods do not meet the agreed specifications. Furthermore, certain contracts grant the customer the right to return the goods within a defined period of time. BASF uses the expected value method to estimates the goods that will be returned, as this method is the best predictor of the amount of variable consideration to which BASF will be entitled.

BASF applies the practical expedient in IFRS 15, which means that it does not adjust the promised amount of consideration for the effects of a significant financing component if, at contract inception, it is expected that the period between the transfer of the promised goods or services to a customer and payment for these goods or services by the customer will be one year or less.

Pursuant to IFRS 15, no information on remaining performance obligations as of December 31, 2018 that have an expected original term of one year or less was reported.

Assets

Acquired intangible assets (excluding goodwill) with defined useful lives are generally measured at cost less straight-line amortization. The useful life is determined using the period of the underlying contract or the period of time over which the intangible asset can be expected to be used.

Impairments are recognized if the recoverable amount of the asset is lower than the carrying amount. The recoverable amount is the higher of either fair value less costs to sell or the value in use. The value in use is determined on the basis of future cash inflows and outflows, and the weighted average cost of capital after taxes, depending on tax rates and country-related risks. If the reasons for an impairment no longer exist, the write-downs are reversed up to the value of the asset had an impairment not been recognized. Depending on the type of intangible asset, amortization is reported under cost of sales, selling expenses, research and development expenses or other operating expenses.

Intangible assets with indefinite useful lives are trade names and trademarks that have been acquired as part of acquisitions. These are measured at cost and tested for impairment annually, or if there is an indication that their value has declined.

Internally generated intangible assets primarily comprise internally developed software. Such software and other internally generated intangible assets are measured at cost and amortized over their estimated useful lives. Impairments are recognized if the carrying amount of an asset exceeds the recoverable amount. In addition to those costs directly attributable to the asset, costs of internally generated intangible assets also include an appropriate portion of overhead costs.

The estimated useful lives and amortization methods of intangible assets are based on historical values, plans and estimates. The weighted average amortization periods of intangible assets were as follows:

Average amortization in years

	2018	2017
Distribution, supply and similar rights	15	15
Product rights, licenses and trademarks	19	20
Know-how, patents and production technologies	15	15
Internally generated intangible assets	4	4
Other rights and values	4	5

Emission rights: Emission rights certificates, which are granted free of charge by the German Emissions Trading Authority (Deutsche Emissionshandelsstelle) or a similar authority in other countries, are recognized in the balance sheet with a value of zero. Certificates purchased on the market are capitalized at cost as intangible assets. Emissions generated create an obligation to surrender the emission certificates. Emission certificates purchased on the market are subsequently measured at fair value, up to a maximum of the amount of the acquisition costs. If the fair value is lower than the carrying amount on the balance sheet date, the emission rights are impaired.

Goodwill is only written down in the case of an impairment. Impairment testing is performed once a year and whenever there is an indication of impairment. Goodwill impairments are not reversed.

Property, plant and equipment are measured at cost less depreciation and impairment over their useful lives. The revaluation method is not applied. Low-value assets are fully expensed in the year of acquisition.

The cost of self-constructed plants includes direct costs, appropriate allocations of material and production overhead costs, and a share of the general administrative costs of the divisions involved in the construction of the plants.

Expenditures related to the scheduled maintenance of large-scale plants are capitalized separately and depreciated using the straight-line method over the period until the next planned turnaround. Costs for the replacement of components are recognized as assets if an additional future benefit is expected. The carrying amount of the replaced components is derecognized. Costs for maintenance and repair as part of normal business operations are recognized as an expense.

Both movable and immovable fixed assets were, for the most part, depreciated using the straight-line method, with the exception of production licenses and plants in the oil and gas business, which has been classified as a discontinued operation since the end of September 2018. Until then, these were primarily depreciated based on use in accordance with the unit of production method. The estimated useful lives and depreciation methods of property, plant and equipment are based on historical values, plans and estimates. The depreciation methods, useful lives and residual values are reviewed at each balance sheet date. The weighted average depreciation periods of continuing operations were as follows:

Weighted average depreciation in years

	2018	2017
Buildings and structural installations	22	21
Machinery and technical equipment	11	10
Miscellaneous equipment and fixtures	7	6

Impairments are recognized if the recoverable amount of the asset is lower than the carrying amount. The measurement is based on fair value less costs to sell or the value in use. The value in use is determined on the basis of future cash inflows and outflows, and the weighted average cost of capital after taxes, depending on tax rates and country-related risks. An impairment is recognized for the difference between the carrying amount and the recoverable amount. If the reasons for an impairment no longer exist, the write-downs are reversed up to the value of the asset had an impairment not been recognized.

Investment properties held to realize capital gains or rental income are immaterial. They are valued at the lower of fair value or acquisition cost less depreciation.

Leases: A lease is an agreement whereby the lessor conveys to the lessee the right to use an asset for an agreed period of time in return for a payment or series of payments. Lease contracts are classified as either finance or operating leases.

Assets subject to operating leases are not capitalized. Lease payments are recognized in the income statement in the period they are incurred.

A lease is classified as a finance lease if it transfers all material risks and rewards related to the leased asset. Assets subject to a finance lease are capitalized at the lower of the fair value of the leased assets or the present value of the minimum lease payments. A lease liability is recorded in the same amount. The periodic lease payments must be divided into principal and interest components. The principal component reduces the liability, while the interest component represents an interest expense. Depreciation is recognized over the shorter of the useful life of the asset or the period of the lease.

Leases can be embedded within other contracts. If separation is required under IFRS, the embedded lease is recorded separately from its host contract and each component of the contract is carried and measured in accordance with the applicable regulations.

Borrowing costs: Borrowing costs directly incurred as part of the acquisition, construction or production of a qualifying asset are capitalized as part of the acquisition or production cost of that asset. A qualifying asset is an asset for which the time period necessary to make it ready for its intended use or sale is longer than one year. Borrowing costs are capitalized up to the date the asset is ready for its intended use. The borrowing costs were calculated based on a rate of 1.5% (previous year: 2.0%) and adjusted on a country-specific basis, if necessary. All other borrowing costs are recognized as an expense in the period in which they are incurred.

Government grants: Government grants related to the acquisition or construction of property, plant and equipment reduce the acquisition or construction cost of the respective assets. Other government grants or government assistance are recognized immediately as other operating income or treated as deferred income and released over the underlying period.

Investments accounted for using the equity method: The carrying amounts of these companies are adjusted annually based on the pro rata share of net income, dividends and other changes in equity. Should there be indications of a reduction in the value of an investment, an impairment is recognized in the income statement.

Inventories are measured at acquisition cost or cost of conversion based on the weighted average method. If the market price or the fair value of the sales products, which are based on the net realizable values, is lower, then the sales products are written down to this lower value. The net realizable value is the estimated price in the ordinary course of business less the estimated costs of completion and the estimated selling costs.

In addition to direct costs, cost of conversion includes an appropriate allocation of production overhead costs based on normal utilization rates of the production plants, provided that they are related to the production process. Pensions, social services and voluntary social benefits are also included, as well as allocations for administrative costs, provided they relate to the production. Borrowing costs are not included in cost of conversion.

Inventories may be written down if the prices for the sales products decline, or in cases of a high rate of days sales of inventory (DSI). Write-downs on inventories are reversed if the reasons for them no longer apply.

The exception made by IAS 2 for traders is applied to the measurement of precious metal inventories. Accordingly, inventories held exclusively for trading purposes are to be measured at fair value less costs to sell. All changes in value are recognized in the statement of income.

Deferred taxes: Deferred taxes are recorded for temporary differences between the carrying amount of assets and liabilities in the financial statements and the carrying amounts for tax purposes as well as for tax loss carryforwards and unused tax credits. This also comprises temporary differences arising from business combinations, with the exception of goodwill. Deferred tax assets and liabilities are calculated using the respective country-specific tax rates applicable for the period in which the asset or liability is realized or settled. Tax rate changes enacted or substantively enacted on or before the balance sheet date are taken into consideration.

Deferred tax assets are offset against deferred tax liabilities provided they are related to the same taxation authority and have the same maturities. Surpluses of deferred tax assets are only recognized provided that the tax benefits are likely to be realized. The valuation of deferred tax assets is based on the probability of a reversal of the differences and the assessment of the ability to utilize tax loss carryforwards and unused tax credits. This depends on whether future taxable profits will exist during the period in which temporary differences are reversed and in which tax loss carryforwards and unused tax credits can be claimed. The valuation of deferred tax assets is based on internal projections of the future earnings of the particular Group company.

Changes in deferred taxes in the balance sheet are recorded as deferred tax expense or income if the underlying transaction is not to be recognized directly in equity or in income and expenses recognized in equity. For those effects which have been recognized in equity, changes to deferred tax assets and tax liabilities are also recognized directly in equity.

Deferred tax liabilities are recognized for differences between the proportional IFRS equity and the tax base of the investment in a consolidated subsidiary if a reversal of these differences is expected in the foreseeable future. Deferred tax liabilities are recognized for dividend distributions planned for the following year if these distributions lead to a reversal of temporary differences.

For more information, see Note 11 from page 223 onward

Financial instruments

Financial assets and financial liabilities are recognized in the consolidated balance sheet when the BASF Group becomes a party to a financial instrument. Financial assets are derecognized when BASF no longer has a contractual right to the cash flows from the financial asset or when the financial asset is transferred together with all material risks and rewards of ownership and BASF does not have control of the financial asset after it has been transferred. For example, receivables are derecognized when they are definitively found to be uncollectible. Financial liabilities are derecognized when the contractual obligations expire, are discharged or cancelled. Regular-way purchases and sales of financial instruments are accounted for using the settlement date; in precious metals trading, the day of trading is used.

The fair value of a financial instrument is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. If pricing on an active market is available, for example in the form of share prices, these are used as the basis for the measurement. Otherwise, the measurement is based on internal measurement models using current market parameters or external measurements, for example, from banks. These internal measurements predominantly use the net present value method and option pricing models.

BASF began applying IFRS 9 as of January 1, 2018. Except for financial assets measured at fair value through profit or loss, this requires the recognition of impairments for expected credit losses, independent of the existence of any actual default events and individual valuation allowances if evidence of a permanent need for impairment exists. If this evidence no longer exists, the impairment is reversed in the statement of income up to the carrying amount of the asset had the default event not occurred. Valuation allowances are generally recognized in separate accounts.

The classification and measurement of financial assets is based on the one hand on the cash flow condition (the "solely payments of principle and interest" criterion), that is, the contractual cash flow characteristics of an individual financial asset. On the other hand, it also depends on the business model used for managing financial asset portfolios. Based on these two criteria, BASF uses the following measurement categories for financial assets:

- **Financial assets recognized at fair value through profit or loss** include all financial assets whose cash flows are not solely payments of principal and interest in accordance with the cash flow condition established in IFRS 9. At BASF, derivatives are allocated to this measurement category, for example. BASF does not generally exercise the fair value option in IFRS 9, which permits the allocation of financial instruments not to be measured at fair value through profit or loss on the basis of the cash flow condition or the business model criterion to the above category under certain circumstances.
- **Financial assets measured at amortized cost** include all assets with contractual terms that give rise to cash flows on specific dates, provided that these cash flows are solely payments of principal and interest on the principal amount outstanding in accordance with the cash flow condition in IFRS 9, to the extent that the asset is held with the intention of collecting the expected contractual cash flows over its term. At BASF, this measurement category includes trade accounts receivable, as well as receivables reported under other receivables and miscellaneous assets and certain securities.
Initial measurement of these assets is generally at fair value, which usually corresponds to the transaction price at the time of acquisition. Subsequent measurement effects are recognized in income using the effective interest method.
Impairments are recognized for expected credit losses in both initial and subsequent measurement, even before the occurrence of any default event. If the counterparty is considered as having defaulted, an individual valuation allowance is generally recognized for the financial assets measured at amortized cost. In addition, a valuation allowance must be recognized when the contractual conditions that form the basis for the receivable are changed through renegotiation in such a way that the present value of the future cash flows decreases.
The extent of expected credit losses is determined based on the credit risk of a financial asset, as well as any changes to this credit risk: If the credit risk of a financial asset has increased significantly since initial recognition, expected credit losses are generally recognized over the lifetime of the asset. If, however, the credit risk has not increased significantly in this period, impairments are generally only recognized for the 12-month expected credit losses. By contrast, under the simplified approach for determining expected credit losses permitted by IFRS 9, impairments for receivables such as lease receivables and trade accounts receivable always cover the lifetime expected credit losses of the receivable concerned.
At BASF, the credit risk of a financial asset is assessed using both internal information and external rating information on the respective counterparty. A significant increase in the counterparty's credit risk is assumed if its rating is lowered by a certain number of notches. The significance of the increase in the credit risk is not reviewed for trade accounts receivable or lease receivables. Furthermore, it is generally assumed that the credit risk for a counterparty with a high credit rating will not have increased significantly.
Regional and, in certain circumstances, industry-specific factors and expectations are taken into account when assessing the need for a valuation allowance as part of the calculation of expected credit losses and individual valuation allowances. In addition, BASF uses internal and external ratings and the assessments of debt collection agencies and credit insurers, when available. Individual valuation allowances are also based on experience relating to customer solvency and customer-specific risks. Factors such as credit insurance, which covers a portion of receivables measured at amortized cost, are likewise considered when calculating valuation allowances. Bank guarantees and letters of credit are used to an immaterial extent. Expected credit losses and individual valuation allowances are only calculated for those receivables that are not covered by insurance or other collateral. The valuation allowances for receivables whose insurance includes a deductible are not recognized in excess of the amount of the deductible.

A decrease in valuation allowances due, for example, to a reduction in the credit risk of a counterparty or an objective event occurring after the valuation allowance is recorded in profit or loss. Reversals of valuation allowances may not exceed amortized cost, less any expected future credit losses.

– **Financial assets measured at fair value through other comprehensive income** include all assets with contractual terms that give rise to cash flows on specified dates, which are solely payments of principal and interest on the principal amount outstanding in accordance with the cash flow condition in IFRS 9, to the extent that the asset is not just held with the intention of collecting the expected contractual cash flows over its term, but also generating cash flows from its sale. At BASF, certain securities that are classified as debt instruments are allocated to this category. BASF does not exercise the option to subsequently measure equity instruments through other comprehensive income.
  Assets measured at fair value through other comprehensive income are initially measured at fair value, which usually corresponds to the nominal value of the securities allocated to this category at the time of acquisition. Subsequent measurement is likewise at fair value. Changes in the time value are recognized in other comprehensive income and reclassified to the statement of income when the asset is disposed of.
  Impairments on financial assets measured at fair value through other comprehensive income are calculated in the same way as impairments on financial assets measured at amortized cost and recognized in profit or loss. The following measurement categories are used for financial liabilities:

– **Financial liabilities that are measured at amortized cost** generally include all financial liabilities, provided these do not represent derivatives. They are generally measured at fair value at the time of initial recognition, which usually corresponds to the value of the consideration received. Subsequent measurement is recognized in profit or loss at amortized cost using the effective interest method. At BASF, for example, bonds and liabilities to banks reported under financial indebtedness are measured at amortized cost.
– **Financial liabilities recognized at fair value through profit or loss** contain derivative financial liabilities. These are likewise measured at the value of the consideration received as the fair value of the liability on the date of initial recognition. The latter also represents the measurement basis for these liabilities in subsequent measurement. The option to subsequently measure financial liabilities at fair value is not exercised.
  Derivative financial instruments can be embedded within other contracts, creating a hybrid financial instrument. If IFRS requires separation, the embedded derivative is accounted for separately from its host contract and measured at fair value. If IFRS 9 does not provide for separation, the hybrid instrument is accounted for at fair value in its entirety.

Financial guarantees of the BASF Group are contracts that require compensation payments to be made to the guarantee holder if a debtor fails to make payment when due under the terms of a transaction entered into with the holder of the guarantee. Financial guarantees issued by BASF are measured at fair value upon initial recognition. In subsequent periods, these financial guarantees are carried at the higher of amortized cost or the best estimate of the present obligation as of the reporting date.

In **cash flow hedges,** future cash flows and the related income and expenses are hedged against the risk of changes in fair value. To this end, future underlying transactions and the corresponding hedging instruments are designated and the cost of hedging are a cash flow hedge accounting relationship for accounting purposes. The effective portion of the change in fair value of the hedging instrument, which often meets the definition of a derivative, and the cost of hedging are recognized directly in equity under other comprehensive income over the term of the hedge, taking deferred taxes into account. The ineffective portion is recognized immediately in the income statement. In the case of future transactions that lead to recognition of a nonfinancial asset or a nonfinancial liability, the cumulative fair value changes of the hedge in equity are generally charged against the acquisition costs of the hedged item on its initial recognition. For hedges based on financial assets, financial liabilities or future transactions, cumulative fair value changes of the hedges are transferred from equity to the income statement in the reporting period in which the hedged item is recognized in the income statement. The maturity of the hedging instrument is determined based on the effective date of the future transaction.

When **fair value hedge accounting** is used, the asset or liability recognized is hedged against the risk of a change in fair value. The hedging instruments used, which often take the form of a derivative, are measured at fair value and changes in fair value are recognized in the statement of income. The carrying amounts of the assets or liabilities designated as the underlying transaction are also measured at fair value through the statement of income.

BASF applied IAS 39 in 2017. It required recognition of an impairment loss if there was evidence of a permanent impairment of a financial instrument not measured at fair value through profit or loss. If the reason for the impairment of loans and receivables as well as held-to-maturity financial instruments ceased to exist, the impairment was reversed up to the amortized cost and recognized in the income statement. Impairments on financial instruments were recognized in separate accounts.

Financial assets and liabilities were divided into the following measurement categories:

- **Financial assets and liabilities at fair value recognized in the income statement** consisted of derivatives and other trading instruments. At BASF, this measurement category included derivatives only. Derivatives were reported in other receivables and miscellaneous assets or other liabilities. BASF did not make use of the fair value option under IAS 39. The calculation of fair values was based on market parameters or measurement models based on such parameters. In some exceptional cases, the fair value was calculated using parameters that are not observable on the market.
- **Loans and receivables** comprised financial assets with fixed or determinable payments, which were not quoted on an active market and were not derivatives or classified as available-for-sale. This measurement category included trade accounts receivable as well as other receivables and loans reported under other receivables and miscellaneous assets. Initial measurement was at fair value, which generally corresponded to the nominal value of the receivable or loan. Interest-free and low-interest long-term loans and receivables were recorded at present value. Subsequent measurement recognized in income was generally at amortized cost using the effective interest method. If there was objective evidence for an impairment of a receivable or loan, an individual valuation allowance was made. When assessing the need for a valuation allowance, regional and sector-specific conditions were considered. In addition, BASF used internal and external ratings, as well as the assessments of debt collection agencies and credit insurers, when available. A portion of receivables was covered by credit insurance. Bank guarantees and letters of credit were used to an immaterial extent. Valuation allowances were only recognized for those receivables not covered by insurance or other collateral. The valuation allowances for receivables whose insurance included a deductible were not recognized in excess of the amount of the deductible. Write-downs were based on historical values relating to customer solvency and the age, period overdue, insurance policies and customer-specific risks. In addition, a valuation allowance had to be recognized when the contractual conditions forming the basis for the receivable were changed through renegotiation in such a way that the present value of the future cash flows decreased. Furthermore, valuation allowances were recognized for receivables based on transfer risks for certain countries. If, in a subsequent period, the amount of the impairment decreased, and the decrease could be objectively attributed to an event occurring after the valuation allowance was made, it was reversed in the income statement. Reversals of valuation allowances did not exceed amortized cost. Loans and receivables were derecognized when they were definitively found to be uncollectible.
- **Held-to-maturity financial assets** consisted of nonderivative financial assets with fixed or determinable payments and a fixed term, for which there was the intent and ability to hold until maturity, and which did not fall under other valuation categories. They were initially recognized at fair value, which corresponded to the nominal value in most cases. Subsequent measurement was at amortized cost using the effective interest method. BASF did not have any material financial assets that fell under this category.
- **Available-for-sale financial assets** comprised financial assets that were not derivatives and did not fall under any of the above valuation categories. This measurement category comprised shareholdings reported under the item other financial assets, which were not accounted for using the equity method, as well as short and long-term securities. Measurement was at fair value. Changes in fair value were recognized directly in equity (other comprehensive income) and were only recognized in the income statement when the assets had been disposed of or impaired. Subsequent reversals were recognized directly in equity (other comprehensive income). In the case of debt instruments only, reversals were recognized in the income statement up to the amount of the original impairment; reversals above this amount were recognized directly in equity. If the fair value of available-for-sale financial assets fell below acquisition costs, the assets were impaired if the decline in value was material and was considered permanent. The fair values were determined using market prices. Shareholdings whose fair value could not be reliably determined were carried at cost and written down in the case of impairment. Cost represented the best estimate of the fair value of these shareholdings. This category included investments in other shareholdings, provided that these shares were not publicly traded. There were no plans to sell significant shares in these shareholdings.

- **Financial liabilities that were not derivatives** were initially measured at fair value. This usually corresponded to the amount received. Subsequent measurement was at amortized cost using the effective interest method.
- **Cash and cash equivalents** consisted primarily of cash on hand and bank balances with maturities of less than three months.

Derivative financial instruments could be embedded within other contracts. If IAS 39 required separation, the embedded derivative was accounted for separately from its host contract and measured at fair value.

Other comprehensive income

The expenses and income shown in other comprehensive income are divided into two categories: Items that will be recognized in the income statement in the future (known as "recycling") and items that will not be reclassified to the income statement in the future. The first category includes translation adjustments, the measurement of securities at fair value, and changes in the fair value of derivatives held to hedge future cash flows and net investments in foreign operations. Items in other comprehensive income that will not be reclassified to the income statement at a future date include effects from the remeasurement of defined benefit plans.

Liabilities

Provisions for pensions and similar obligations: Provisions for pensions are calculated on an actuarial basis in accordance with the projected unit credit method using assumptions relating to the following valuation parameters, among others: future developments in compensation, pensions and inflation, employee turnover and the life expectancy of beneficiaries. Obligations are discounted based on the market yields on high-quality corporate fixed-rate bonds rated between "AA–" to "AA+" by at least one of the following rating agencies: Fitch, Moody's or Standard & Poor's.

Similar obligations, especially those arising from commitments by North American Group companies to pay the healthcare costs and life insurance premiums of retired staff and their dependents, are reported under provisions for similar obligations.

Actuarial reports are used to calculate the amount of pension provisions.

Actuarial gains and losses from changes in estimates relating to the actuarial assumptions used to calculate defined benefit obligations, the difference between standardized and actual returns on plan assets, as well as the effects of the asset ceiling are recognized directly in equity as other comprehensive income.

For more information on provisions for pensions and similar obligations, see Note 22 from page 240 onward

Other provisions: Other provisions are recognized when there is a present obligation as a result of a past event and when there is a probable outflow of resources whose amount can be reliably estimated. Provisions are recognized at the probable settlement value.

Provisions for German trade income tax, German corporate income tax and similar income taxes are calculated and recognized based on the expected taxable income of the consolidated companies less any prepayments that have been made. Provisions are set up for interest accrued. Other taxes to be assessed are considered accordingly.

Provisions are established for certain environmental protection measures and risks if there is a present legal or constructive obligation arising from a past event, and the expected cash outflow can be estimated with sufficient reliability.

In addition, other provisions also cover expected costs for dismantling existing plants and buildings, rehabilitating contaminated sites, recultivating landfills, removal of environmental contamination from existing production or storage sites and similar measures. If BASF is the only responsible party that can be identified, the provision covers the entire expected claim. At sites operated together with one or more partners, the provision generally covers only BASF's share of the expected claim. The determination of the amount of the provision is based on the available technical information on the site, the technology used, legal regulations, and official obligations.

Provisions are recognized for expected severance payments or similar personnel expenses as well as for demolition expenses and other charges related to restructuring measures that have been planned and publicly announced by management.

Provisions for long-service and anniversary bonuses are predominantly calculated based on actuarial principles. For contracts signed under phased retirement programs, approved supplemental payments are accrued in installments until the end of the exemption phase at the latest. Accounting and measurement follow the German Accounting Standards Committee's Implementation Guidance 1 (IFRS) dated December 2012.

Other provisions also cover risks resulting from legal disputes and proceedings, provided the criteria for recognizing a provision are fulfilled. In order to determine the amount of the provisions, the company takes into consideration the facts related to each case, the size of the claim, claims awarded in similar cases and independent expert advice as well as assumptions regarding the probability of a successful claim and the range of possible claims. Actual costs can deviate from these estimates.

For more information, see Note 26 from page 250 onward

The probable amount required to settle noncurrent provisions is discounted if the effect of discounting is material. In this case, the provision is recognized at present value. Assumptions must be made in determining the discount rate (2018: 1.5%; 2017: 2.0%) used for calculating noncurrent provisions. Financing costs related to unwinding the discount of provisions in subsequent periods are shown in other financial result.

Other accounting policies

Business combinations: In business combinations, the acquired assets and liabilities are recognized at fair value on the date the acquirer effectively obtains control. The fair value of acquired assets and assumed liabilities at the date of acquisition, as well as the useful lives of the acquired assets, are determined on the basis of assumptions. Measurement is largely based on projected cash flows. Actual cash flows can deviate significantly from those. Independent external appraisals are used for the purchase price allocation of material business combinations. Valuations in the course of business combinations are based on existing information as of the acquisition date.

Groups of assets and liabilities held for sale (disposal groups): These comprise those assets and directly associated liabilities shown separately on the balance sheet whose sale in the context of a single transaction is highly probable. A transaction is assumed to be highly probable if there are no significant risks of completion of the transaction, which usually requires the conclusion of binding contracts. The assets and liabilities of disposal groups are recognized at the lower of the sum of their carrying amounts or fair value less costs to sell; this does not apply to assets that do not fall under the valuation principles of IFRS 5. Depreciation of noncurrent assets and the use of the equity method are suspended.

Discontinued operations: These are classified as held for sale and are presented as discontinued operations in BASF's Consolidated Financial Statements in accordance with IFRS 5. Until closing, the income after taxes of discontinued operations will be shown in income after taxes of the BASF Group as a separate item (income after taxes from discontinued operations). The BASF Group's sales and earnings were retroactively adjusted for the consolidated figures for discontinued operations as of the beginning of the fiscal year. The prior-year figures were restated. In addition, the assets and liabilities of the discontinued operations were reclassified to a disposal group (assets or liabilities of disposal groups). Depreciation of noncurrent assets and the use of the equity method are suspended as of the date when the disposal group is initially presented. The statement of cash flows was not restated. The activities of discontinued operations are not allocated to any reportable segment in financial reporting.

For more information, see Note 2.5 from page 209 onward and Note 4 from page 211 onward

Exploration and development expenditures in the discontinued **oil and gas** business are accounted for using the successful efforts method. Under this method, costs of successful exploratory drilling as well as successful and dry development wells are capitalized.

The unit of production method at the field or reservoir level was used to depreciate assets from oil and gas production. Depreciation is generally calculated on the basis of production in the period in relation to the proven, developed reserves.

The intangible asset from the marketing contract for natural gas from the Yuzhno Russkoye natural gas field is amortized based on BASF's share of the produced and distributed volumes.

Intangible assets in the discontinued oil and gas business relate primarily to exploration and production rights. During the exploration phase, these are not subject to amortization but are tested for impairment annually. When economic success is determined, the rights are amortized in accordance with the unit of production method.

Amortization and depreciation of intangible assets and property, plant and equipment of the discontinued oil and gas business were included in the earnings of the BASF Group through September 2018.

Provisions for restoration obligations concern the filling of wells and the removal of production facilities upon the termination of production. When the obligation arises, the provision is measured at the present value of the future restoration costs. An asset of the same amount is capitalized as part of the carrying amount of the plant concerned and is depreciated along with the plant. The discount on the provision is unwound annually until the time of the planned restoration.

The assumptions regarding the long-term development of oil and gas prices are significant for impairment tests in the discontinued oil and gas business. The internal company projections are based on an empirical analysis of global oil and gas supply and demand. Short-term estimates up to three years also consider the current prices on active markets or forward transactions. In long-term estimates, assumptions were made regarding factors such as inflation, production quantities and costs as well as energy efficiency and the substitution of energy sources. Using external sources and reports, the oil and gas price estimates were regularly checked for plausibility.

A valuation model based on a field-related valuation approach is used for the Exploration & Production unit in the discontinued oil and gas business. This takes into account 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. Allowing for these parameters, the cost of capital rate after taxes varied from 6.56% to 10.63% (2017: from 7.92% to 12.85%) and before taxes from 9.62% to 30.37% (2017: from 11.32% to 36.99%).

Use of estimates and assumptions in preparing the Consolidated Financial Statements

The carrying amount of assets, liabilities and provisions, contingent liabilities and other financial obligations reported in the Consolidated Financial Statements depends on the use of estimates, assumptions and use of discretionary scope. Specific estimates or assumptions used in individual accounting or valuation methods are disclosed in their respective sections. They are based on the circumstances and estimates on the balance sheet date and thus affect the amounts of income and expenses shown for the reporting periods presented. These assumptions primarily relate to the determination of discounted cash flows in the context of impairment tests and purchase price allocations; the useful lives of property, plant and equipment and intangible assets; the carrying amount of shareholdings; and the measurement of provisions for items such as employee benefits, warranties, trade discounts, environmental protection and taxes. Although uncertainty is appropriately incorporated in the valuation factors, actual results can differ from these estimates.

For planning purposes in 2019, BASF assumes an oil price of $70/bbl (Brent) and for gas of approximately €19/MWh (roughly $7/mmBtu).

Impairment tests on assets are carried out whenever certain triggering events indicate potential impairment. External triggering events include, for example, changes in customer industries, technologies used and economic downturns. Internal triggering events for an impairment test include lower product profitability, planned restructuring measures or physical damage to assets. Impairment tests are based on a comparison of the carrying amount and the recoverable amount. The recoverable amount is the higher of fair value less costs to sell and the value in use. As a rule, value in use is determined using the discounted cash flow method. The estimation of cash flows and the assumptions used consider all information available on the respective balance sheet date on the future development of the operating business. Actual future developments may vary. Impairment testing relies upon the cash-generating unit's long-term earnings forecasts, which are based on macroeconomic trends. The weighted average cost of capital (WACC) based on the capital asset pricing model plays an important role in impairment testing. It comprises a risk-free rate, the market risk premium and the spread for the credit risk. Additional important assumptions are the forecasts for the detailed planning period and the terminal growth rates used.

For more information, see Note 14 from page 228 onward

An impairment is recognized if the recoverable amount of the asset is lower than the carrying amount. The impaired asset (excluding goodwill) is written down by the amount of the difference between these amounts.

The goodwill impairment test is based on cash-generating units. At BASF, these largely correspond to the business units, or in individual cases the divisions. If there is a need for a valuation allowance, the existing goodwill is, if necessary, completely written off as a first step. If there is further need for a valuation allowance, this is allocated to the remaining assets of the cash-generating unit. Goodwill impairments are reported under other operating expenses.

2 Scope of consolidation

2.1 Changes in scope of consolidation

In 2018, a total of 331 companies were included, either partly or wholly, in the scope of consolidation for the Consolidated Financial Statements (2017: 294). Of these, 42 companies were first-time consolidations (2017: 10). Since the beginning of 2018, a total of five companies (2017: 10) were deconsolidated due to divestiture, merger, liquidation or immateriality.

First-time consolidations in 2018 comprised:
- 22 acquired companies with headquarters in Europe (11; one of those is in Germany), North America (two), South America, Africa, Middle East (six) and Asia Pacific (three)
- three newly established companies with headquarters in Europe (two; none of which in Germany) and Asia Pacific (one)
- 17 companies that had not been consolidated at the time of initial inclusion in the Consolidated Financial Statements in Europe (five; two of those in Germany), North America (eight), South America, Africa, Middle East (two) and Asia Pacific (two)

Of the 42 companies that were consolidated in the Consolidated Financial Statements for the first time in 2018, 35 companies were included for the first time due to the addition of significant parts of Bayer's seed and non-selective herbicide business (13) and its vegetable seed business (22) as acquired, new or initially consolidated entities.

First-time consolidations in 2017 comprised:
- Five acquired companies with headquarters in Europe and North America
- One newly established company with headquarters in Asia Pacific
- One newly established company with headquarters in South America, Africa, Middle East
- Three companies with headquarters in Europe that had not been consolidated at the time of initial inclusion in the Consolidated Financial Statements

Although BASF does not hold majority shares in ZAO Gazprom YRGM Trading, whose assets and liabilities are part of the disposal group, BASF is entitled to the earnings of the company due to profit distribution arrangements. As a result, the company is fully consolidated in the Group Consolidated Financial Statements.

A list of the companies included in the Consolidated Financial Statements and a list of all companies in which BASF SE has a shareholding as required by section 313(2) of the German Commercial Code (HGB) is provided in the list of shares held.

For more information, see Note 3 on page 211
For more information, see basf.com/en/corporategovernance

Scope of consolidation

	Europe	of which Germany	North America	Asia Pacific	South America, Africa, Middle East	2018	2017
As of January 1	**153**	**56**	**43**	**71**	**27**	**294**	**294**
of which proportionally consolidated	6	–	–	2	–	8	8
First-time consolidations	18	3	10	6	8	42	10
of which proportionally consolidated	–	–	–	–	–	–	–
Deconsolidations	1	–	1	2	1	5	10
of which proportionally consolidated	–	–	–	–	–	–	–
As of December 31	**170**	**59**	**52**	**75**	**34**	**331**	**294**
of which proportionally consolidated	6	–	–	2	–	8	8

Overview of impact of changes to the scope of consolidation (excluding acquisitions and divestitures)

	2018		2017	
	Million €	%	Million €	%
Sales	**2**	**0.0**	**2**	**0.0**
Noncurrent assets	2	0.0	(7)	0.0
of which property, plant and equipment	79	0.4	1	0.0
Current assets	(8)	0.0	1	0.0
of which cash and cash equivalents	–	–	(1)	0.0
Assets	**(6)**	**0.0**	**(6)**	**0.0**
Equity	(1)	0.0	3	0.0
Noncurrent liabilities	1	0.0	8	0.0
of which financial indebtedness	–	–	–	–
Current liabilities	(6)	0.0	(17)	0.1
of which financial indebtedness	–	–	–	–
Total equity and liabilities	**(6)**	**0.0**	**(6)**	**0.0**
Other financial obligations	–	–	–	–

2.2 Joint Operations

Proportionally consolidated joint operations include, in particular:
– Ellba C.V., Rotterdam, Netherlands, which is jointly operated with Shell for the production of propylene oxide and styrene monomer
– AO Achimgaz, Novy Urengoy, Russia, which is jointly operated with Gazprom for the production of natural gas and condensate and is part of the discontinued oil and gas business
– BASF DOW HPPO Production B.V.B.A., Antwerp, Belgium, which is jointly operated with The Dow Chemical Company for the production of propylene oxide

BASF holds a 50% share in each of these companies and controls them jointly with the respective partner. The companies sell their products directly to the partners. The partners ensure ongoing financing of the companies by purchasing the production. The companies were therefore classified as joint operations in accordance with IFRS 11.

A majority of the activities in the discontinued oil and gas business are conducted through joint activities and not in separate companies. This primarily relates to activities in Germany, Norway and Argentina, which are reported as joint operations pursuant to IFRS 11.

2.3 Joint ventures and associated companies

BASF has a shareholding in a material joint venture. BASF-YPC Company Ltd., Nanjing, China, is operated by BASF together with its partner, Sinopec, at the Verbund site in Nanjing. BASF's share equals 50%.

Financial information on BASF-YPC Company Ltd., Nanjing, China (100%)

Million €	2018	2017
Balance sheet		
Noncurrent assets	1,110	1,254
Current assets	932	908
of which marketable securities, cash and cash equivalents	201	231
Assets	**2,042**	**2,162**
Equity	1,691	1,756
Noncurrent liabilities	29	124
of which financial indebtedness	28	122
Current liabilities	322	282
of which financial indebtedness	92	30
Total equity and liabilities	**2,042**	**2,162**
Statement of income		
Sales revenue	2,764	2,761
Depreciation and amortization	206	207
Interest income	5	5
Interest expenses	6	9
Income taxes	112	159
Income after taxes	343	473
Carrying amount according to the equity method as of the beginning of the year	**879**	**881**
Proportional income after taxes	171	236
Proportional change of other comprehensive income	(6)	(59)
Total comprehensive income	**165**	**177**
Capital measures/dividends/changes in the scope of consolidation/other adjustments	(197)	(179)
of which dividends	(197)	(179)
Other adjustments to income and expenses	–	–
Carrying amount according to the equity method as of the end of the year	**847**	**879**

W & G Infrastruktur Finanzierungs-GmbH, Kassel, Germany, (BASF interest: 50%), a material joint venture in 2017, was reclassified to assets of disposal groups.

Non-material joint ventures accounted for using the equity method include, in particular:
– Heesung Catalysts Corporation, Seoul, South Korea, which is operated jointly with the partner Heesung (BASF interest: 50%)
– N.E. Chemcat Corporation, Tokyo, Japan, which is operated jointly with the partner Sumitomo Metal Mining Co. Ltd. (BASF interest: 50%)

Non-material joint ventures accounted for using the equity method (BASF interest)

Million €

	2018	2017
Carrying amount according to the equity method as of the beginning of the year	1,509	823
Proportional income after taxes[1]	106	197
Proportional change of other comprehensive income	16	(27)
Total comprehensive income	**122**	**170**
Capital measures/dividends/changes in the scope of consolidation/other adjustments[2]	(1,054)	528
Other adjustments to income and expenses[1]	(24)	(12)
Carrying amount according to the equity method as of the end of the year	**553**	**1,509**

1 This item includes accumulated effects from the discontinued business in the amount of €12 million in 2018 (€70 million in 2017).
2 In 2018, the amount of €939 million was transferred to the assets of the oil and gas disposal group.

The material associated company in 2017, Joint Stock Company Achim Trading, Moscow, Russia (BASF interest: 18.01%, economic share: 25.01%), was transferred to the assets of disposal groups.

Non-material associated companies accounted for using the equity method include, in particular:
– Stahl Lux 2 S.A., Luxembourg (BASF interest: 16.6%) is classified as an associated company as BASF can exercise significant influence over the company due to the fact that its approval is required for certain relevant board resolutions
– Yara Freeport LLC, Wilmington, Delaware (BASF interest: 32%)
– CIMO Compagnie industrielle de Monthey S.A., Monthey, Switzerland (BASF interest: 50%)
– BASF Huntsman Shanghai Isocyanate Investment B.V., Arnheim, Netherlands (BASF interest: 50%)

Non-material associated companies accounted for using the equity method (BASF interest)

Million €

	2018	2017
Carrying amount according to the equity method as of the beginning of the year	2,327	2,943
Proportional income after taxes[3]	115	151
Proportional change of other comprehensive income	11	(31)
Total comprehensive income	**126**	**120**
Capital measures/dividends/changes in the scope of consolidation/other adjustments[4]	(1,650)	(735)
Other adjustments to income and expenses[3]	–	(1)
Carrying amount according to the equity method as of the end of the year	**803**	**2,327**

3 This item includes effects from discontinued operations in the amount of €87 million in 2018 (€178 million in 2017).
4 In 2018, the amount of €1,613 million was transferred to the assets of the oil and gas disposal group.

2.4 Acquisitions and divestitures

Acquisitions

In 2018, BASF acquired the following activities:
– On March 7, 2018, BASF closed the agreement to form BASF TODA America LLC (BTA), Iselin, New Jersey, for battery materials. BTA is a cooperative venture between BASF and TODA; BASF holds a majority share in and control over BTA. With the Battle Creek site in Michigan and the site contributed by BASF in Elyria, Ohio, the new company took over production of high energy cathode active materials for e-mobility applications. The transaction strengthens the Catalysts division's battery materials business.
– On August 1, 2018, BASF closed the acquisition of a range of businesses and assets from Bayer to complement its own activities in crop protection, biotechnology and digital farming. At the same time, the transaction marked BASF's entry into the seeds, non-selective herbicides and nematicide seed treatments businesses. The assets acquired included Bayer's global glufosinate-ammonium business, commercialized under the Liberty®, Basta® and Finale® trademarks, as well as its seed businesses for key field crops in selected markets. The transaction also covered Bayer's trait research and breeding capabilities for these crops. BASF acquired the manufacturing sites for glufosinate-ammonium production and formulation in Germany, the United States and Canada, seed breeding facilities in the Americas and Europe as well as trait research facilities in the United States and Europe. BASF also closed the acquisition of Bayer's global vegetable seeds business, which mainly operates under the trademark Nunhems®, on August 16, 2018. The acquired vegetable seed business comprises 24 crops and about 2,600 varieties. It also includes R&D breeding systems with more than 100 breeding programs in over 15 cultures. This strengthens BASF's Agricultural Solutions division. The purchase price amounted to a total of €7.4 billion and may be subject to further purchase price adjustments.

The following table provides the preliminary fair values of the assets and liabilities acquired from Bayer.

Preliminary purchase price allocation for the acquisition of assets and liabilities from Bayer

Million €	Fair values as of date of acquisition
Goodwill	1,253
Other intangible assets	4,285
Property, plant and equipment	1,404
Investments accounted for using the equity method	–
Other financial assets	–
Deferred taxes	65
Other receivables and miscellaneous assets	2
Noncurrent assets	**7,009**
Inventories	887
Accounts receivable, trade	61
Other receivables and miscellaneous assets	169
Marketable securities	–
Cash and cash equivalents	69
Current assets	**1,186**
Total assets	**8,195**
Provisions for pensions and similar obligations	34
Other provisions	240
Deferred taxes	353
Financial indebtedness	–
Other liabilities	9
Noncurrent liabilities	**636**
Accounts payable, trade	18
Provisions	58
Tax liabilities	5
Financial indebtedness	–
Other liabilities	57
Current liabilities	**138**
Borrowing costs	**774**
Total purchase price	**7,421**

The purchase price allocations consider all the facts and circumstances prevailing as of the respective dates of acquisition that were known prior to the preparation of these Consolidated Financial Statements. In accordance with IFRS 3, should further facts and circumstances become known within the 12-month measurement period, the purchase price allocation will be adjusted accordingly.

Goodwill of €1,253 million resulted in particular from sales synergies. The businesses acquired from Bayer contributed €586 million to sales and minus €256 million to income from operations in 2018. If Bayer's businesses and assets had been included in BASF's Consolidated Financial Statements for the first time as of January 1, 2018, sales revenue would have totaled €2,027 million and income from operations minus €129 million. This pro forma data serves the purpose of comparability; it does not necessarily provide the values that would have resulted had the transaction occurred as of January 1, 2018. Furthermore, they are not a forecast of future developments or results. The majority of total goodwill is tax deductible.

– Wintershall Middle East GmbH acquired a 10% stake in Abu Dhabi National Oil Company's (ADNOC) Ghasha concession in the United Arab Emirates (UAE) on November 25, 2018. The Hail, Ghasha, Dalma and other ultra-sour gas and condensate fields are located in the Al Dhafra region off the coast of the Golf Emirate. The acquisition in the discontinued oil and gas business marks Wintershall's entry into natural gas and condensate production in Abu Dhabi.

In 2017, BASF acquired the following activities:

- Effective January 1, 2017, BASF took over the western European Construction Chemicals business from the Henkel group with the trade names Thomsit® and Ceresit® for floor and tile-laying systems as well as sealants for professional users. This strengthened BASF's portfolio in the construction chemicals business of the PCI Group, which belongs to the Construction Chemicals division.
- On February 7, 2017, BASF acquired the formerly private company, Rolic AG, headquartered in Allschwil, Switzerland. The company develops and sells ready-to-use formulations and functional film products for the display and security documents as well as barrier materials and films. With the acquisition, BASF broadened its technology know-how and product portfolio of display materials. The largest part of the activities was integrated into the Dispersions & Pigments division and a smaller part into the Coatings division.
- On May 24, 2017, BASF acquired ZedX Inc., Bellefonte, Pennsylvania. The company develops agronomic weather, crop and pest models that can rapidly translate data into insights for more efficient agricultural production. The integration of the business into the Agricultural Solutions division strengthens BASF's activities in the area of digital agriculture.
- On September 4, 2017, BASF completed the acquisition of GRUPO Thermotek, a leading manufacturer of waterproofing systems in Mexico with headquarters in Monterrey, Mexico. The acquisition strengthened the Construction Chemicals division's sales channels and its product portfolio, especially in Mexico. The transaction includes trademarks such as Thermotek® and Chovatek®.

The purchase prices for businesses acquired in 2018 and the purchase price adjustments for acquisitions from 2017 totaled €7,600 million. Payments amounted to €7,431 million in 2018. The purchase price allocations were carried out in accordance with IFRS 3. Goodwill resulted in the amount of €1,261 million.

The following overview shows the effects of acquisitions in 2018 and 2017 on the Consolidated Financial Statements. When acquisitions resulted in the transfer of assets or the assumption of additional liabilities, these are shown as a net impact.

Effects of acquisitions and changes in the preliminary purchase price allocations

	2018		2017	
	Million €	**%[1]**	**Million €**	**%[1]**
Goodwill	1,261	13.7	97	1.0
Other intangible assets	4,279	58.3	138	3.3
Property, plant and equipment	1,425	6.9	8	.
Financial assets	–	–	3	0.1
Other noncurrent assets	67	2.1	(3)	(0.1)
Noncurrent assets	**7,032**	**16.2**	**243**	**0.5**
Current assets	**1,324**	**3.1**	**18**	**0.1**
of which cash and cash equivalents	69	3.0	5	0.1
Assets	**8,356**	**9.7**	**261**	**0.3**
Equity	**10**	**–**	**–**	**–**
Noncurrent liabilities	**634**	**2.3**	**40**	**0.1**
of which financial indebtedness	–	–	–	–
Current liabilities	**281**	**1.2**	**66**	**0.4**
of which financial indebtedness	–	–	–	–
Total equity and liabilities	**925**	**1.1**	**106**	**0.1**
Payments made for acquisitions	**7,431**		**155**	

1 Proportional share in relation to the BASF Group

Divestitures

In 2018, BASF sold the following activities:

- Shares in the Aguada Pichana Este concession in Argentina were sold on January 23, 2018. The sale pertained to the discontinued oil and gas business.
- On January 31, 2018, BASF's production site for styrene butadiene-based paper dispersions in Pischelsdorf, Austria was sold to Synthomer Austria GmbH, a subsidiary of the British specialty chemicals manufacturer Synthomer plc. The styrene acrylic dispersions that were produced in Pischelsdorf were not included in the sale. They were bundled with the businesses in Ludwigshafen, Germany. The sale was made in connection with the concentration of paper dispersions production in Europe at the sites in Ludwigshafen and Hamina, Finland, which is designed to strengthen the Dispersions & Pigments division.

In 2017, BASF sold the following activities:

- On February 28, 2017, BASF sold its inorganic specialties business to Edgewater Capital Partners LP, Cleveland, Ohio. The transaction comprised the production site in Evans City, Pennsylvania, and the product lines for special alcoholates, boranes and alkali metals manufactured there in the Intermediates division.
- On July 17, 2017, BASF sold its bleaching clay and mineral absorbents businesses to EP Minerals LLC, based in Reno, Nevada. The divestiture affected one global business unit in the Catalysts division and comprises a production site as well as a bleaching clay mine in Mississippi and the mineral rights sublease for a mine in Arizona. 66 employees transferred to EP Minerals LLC.
- On September 29, 2017, BASF completed the combination of the global leather chemicals business in the Performance Chemicals division with the Stahl group. The transaction comprised the global leather chemicals business, as well as the leather chemicals production site in L'Hospitalet, Spain. Around 210 jobs were affected worldwide, 110 of which in Asia. Under the terms of the agreement, BASF received a 16% minority interest in the Stahl group as well as a payment; this resulted in special income. Furthermore, in the medium to long term, BASF will supply Stahl with significant volumes of leather chemicals.
- On September 30, 2017, BASF concluded the sale of its production site for electrolytes in Suzhou, China, to Shenzhen Capchem Technology Co. Ltd., based in Shenzhen, China. The site was allocated to the Catalysts division.

The following overview shows the effects of the divestitures conducted in 2018 and 2017 on the Consolidated Financial Statements. The sales line item shows the year-on-year decline resulting from divestitures. The impact on equity related mainly to gains and losses from divestitures.

Effects of divestitures

	2018		2017	
	Million €	**%[1]**	**Million €**	**%[1]**
Sales	**(157)**	**(0.3)**	**(460)**	**(0.8)**
Noncurrent assets	**(21)**	**–**	**93**	**0.2**
of which property, plant and equipment	(15)	(0.1)	(50)	(0.2)
Current assets	**(39)**	**(0.1)**	**(48)**	**(0.2)**
of which cash and cash equivalents	–	–	–	–
Assets	**(60)**	**(0.1)**	**45**	**0.1**
Equity	**48**	**0.1**	**239**	**0.7**
Noncurrent liabilities	**(1)**	**–**	**(13)**	**.**
of which financial indebtedness	–	–	–	–
Current liabilities	**–**	**–**	**(4)**	**.**
of which financial indebtedness	–	–	–	–
Total equity and liabilities	**47**	**0.1**	**222**	**0.3**
Payments received from divestitures	**107**		**177**	

1 Proportional share in relation to the BASF Group

Agreed transactions

- On September 18, 2017, BASF signed an agreement with the Solvay group on the acquisition of Solvay's global polyamide business, subject to the approval of the relevant antitrust authorities. The E.U. Commission approved the acquisition of the polyamide business, subject to certain conditions, on January 18, 2019. These conditions require the sale of parts of the original transaction volume to a third party. Specifically, this refers to Solvay's production plants and innovation competencies in the engineering plastics field in Europe. The sale process has already begun. The approval process is pending in China. The transaction is expected to close in the second half of 2019, as soon as all remaining conditions are met. This includes the divestiture of businesses and assets to a third party. BASF plans to integrate the polyamide business into the Performance Materials and Monomers divisions. Before being adjusted to reflect the antitrust-related changes to the scope of the transaction, the purchase price on a cash and debt-free basis and excluding other adjustments would have been €1.6 billion. If the transaction is not concluded, the agreement provides for, subject to certain conditions, a payment of €150 million from BASF to Solvay.
- On May 3, 2018, BASF and Solenis announced that they had signed an agreement on the combination of BASF's paper and water chemicals business with Solenis. The affected assets and liabilities were reclassified to a disposal group. BASF and Solenis closed the transaction on January 31, 2019.

  For more information, see Note 2.5 from page 209 onward and Note 35 on page 268
- On September 27, 2018, BASF and the LetterOne group signed a definitive transaction agreement to merge their oil and gas businesses. The merger is intended to form an independent European exploration and production company with international operations.

  For more information, see Note 2.5 from page 209 onward

2.5 Discontinued operations/disposal groups

Discontinued operations

As of the binding agreement between BASF and LetterOne to merge their respective activities on September 27, 2018, the oil and gas business is presented as a discontinued operation.

For more information, see Note 1.4 from page 192 onward

The joint venture that will result from the merger will operate under the name Wintershall DEA. Although BASF will receive a majority stake in Wintershall DEA, the agreement stipulates joint control. With this transaction, the formation of a leading independent European oil and gas company is being pursued. BASF expects to close the transaction in the first half of 2019. Until closing, Wintershall and DEA will continue to operate as independent companies.

BASF's oil and gas activities are bundled in the Wintershall Group. Wintershall, headquartered in Kassel, Germany, focuses on exploration and production in oil and gas-rich regions in Europe, North Africa, Russia, South America and the Middle East. Wintershall is also active in the transport of natural gas in Europe with BASF's Russian partner Gazprom.

Impairments were not recorded for the discontinued oil and gas business on the date of reclassification to "held for sale" or at the end of the reporting period.

The amounts in the following tables illustrate the consolidated contribution of discontinued operations.

Earnings from discontinued operations are as follows:

Statement of Income from discontinued operations

Million €	2018	2017
Sales revenue	**4,094**	**3,252**
Cost of sales	(2,024)	(2,338)
Gross profit on sales	**2,070**	**914**
Selling expenses	(94)	(80)
General administrative expenses	(68)	(82)
Research and development expenses	(26)	(45)
Other operating income and expenses	(248)	(20)
Income from companies accounted for using the equity method	99	248
EBIT	**1,733**	**935**
Financial result	(19)	(17)
Income before income taxes	**1,714**	**918**
Income taxes	(885)	(158)
Income after income taxes	**829**	**760**
of which attributable to noncontrolling interests	(61)	(41)
Net income	**768**	**719**
Earnings per share from discontinued operations €	**0.83**	**0.78**
Amortization of intangible assets and depreciation of property, plant and equipment (until September 30, 2018)	617	1,024
of which impairments and reversals of impairments (until September 9, 2018)	–	(79)

Of other comprehensive income after taxes attributable to BASF SE shareholders totaling minus €608 million (2017: minus €1,268 million), minus €102 million (2017: minus €327 million) related to discontinued operations and minus €506 million (2017: minus €941 million) to continuing operations.

Discontinued operations accounted for the following amounts in BASF's Statement of Cash Flows:

Cash flows from discontinued operations

Million €

	2018	2017
Cash flows from operating activities	1,554	1,835
Cash flows from investing activities	(1,011)	(920)
Cash flows from financing activities	(346)	(387)
Total	**197**	**528**

The carrrying amounts of the balance sheet items of the discontinued operations are presented in the following table "Disposal groups as of December 31, 2018."

Groups of assets and liabilities held for sale (disposal groups)

On May 3, 2018, BASF and Solenis announced that they had signed an agreement on the combination of BASF's paper and water chemicals business with Solenis. The relevant assets and liabilities were reclassified to a disposal group. No impairments were recognized for the disposal group for the paper and water chemicals business on the date of reclassification to "hold to sell" or at the end of the reporting period. The business was allocated to the Performance Chemicals division until the transaction closed on January 31, 2019.

The values for the disposal groups are presented in the following table.

Other comprehensive income included minus €1,174 million for the oil and gas disposal group as of December 31, 2018. The paper and water chemicals business disposal group did not contribute to other comprehensive income.

Disposal groups as of December 31, 2018

Million €

	Paper and water chemicals business	Oil and gas business	Total
Balance sheet			
Goodwill	39	1,572	1,611
Other intangible assets	10	724	734
Property, plant and equipment	312	6,959	7,271
Investments accounted for using the equity method	–	2,565	2,565
Other financial assets	–	2	2
Deferred tax assets	–	128	128
Other receivables and miscellaneous assets	–	896	896
Noncurrent assets	**361**	**12,846**	**13,207**
Inventories	158	136	294
Accounts receivable, trade	–	614	614
Other receivables and miscellaneous assets	–	273	273
Marketable securities	–	–	–
Cash and cash equivalents	–	219	219
Current assets	**158**	**1,242**	**1,400**
Assets of the disposal group	**519**	**14,088**	**14,607**
Provisions for pensions and similar obligations	3	307	310
Other provisions	–	1,605	1,605
Deferred tax liabilities	–	1,637	1,637
Financial indebtedness	–	499	499
Other liabilities	–	217	217
Noncurrent liabilities	**3**	**4,265**	**4,268**
Accounts payable, trade	–	342	342
Provisions	–	72	72
Tax liabilities	–	228	228
Financial indebtedness	–	10	10
Other liabilities	–	833	833
Current liabilities	**–**	**1,485**	**1,485**
Liabilities of the disposal group	**3**	**5,750**	**5,753**
Net assets	**516**	**8,338**	**8,854**

3 BASF Group list of shares held pursuant to section 313(2) of the German Commercial Code (HGB)

The list of consolidated companies and the complete list of all companies in which BASF SE holds shares as required by section 313(2) HGB and information on the exemption of subsidiaries from accounting and disclosure obligations are an integral component of the audited Consolidated Financial Statements submitted to the electronic Federal Gazette (Bundesanzeiger). The list of shares held is also published online.

For more information, see basf.com/en/corporategovernance

4 Reporting by segment and region

In 2018, BASF's business was conducted by 13 divisions in five segments until a binding agreement between BASF and LetterOne was signed on September 27, 2018, to merge their oil and gas activities; from that date until the end of the year, business was conducted by 12 divisions in four segments. The divisions are allocated to the segments based on their business models.

BASF adjusted its segment structure as part of its updated strategy. The changes effective as of January 1, 2019, affect all segments except the Agricultural Solutions segment. Since then, the 12 divisions are allocated to six segments. The composition of a number of divisions has changed as well. The propylene oxide and propylene glycol business will be transferred from the Petrochemicals division to the Monomers division. The superabsorbents business will be allocated to the Petrochemicals division rather than the Care Chemicals division. The styrene, polystyrene and styrene-based foams business, which previously fell mainly under Performance Materials and a small part under Other, will be bundled in Petrochemicals.

The new segment structure will enable an even more differentiated steering of the businesses, taking into account market-specific requirements and the competitive environment. It will further increase the transparency of the segments' results and highlight the importance of the Verbund and value chains to business success. The aggregation of the segments based on business models reflects the divisions' focal points, their customer groups, the focus of their innovations, their investment relevance and sustainability aspects.

The **Chemicals** segment comprises the classic chemicals business with basic chemicals and intermediates. It continues to form the core of BASF's Production Verbund and contributes to the organic growth of BASF's key value chains. Customers include the chemical and plastics industries as well as internal outlets. The segment's competitiveness will be augmented through technological leadership and operational excellence. The Chemicals segment was composed of the Petrochemicals, Monomers and Intermediates divisions until December 31, 2018. As of January 1, 2019, the Monomers division is allocated to the new Materials segment.

The **Performance Products** segment consisted of the Dispersions & Pigments, Care Chemicals, Nutrition & Health and Performance Chemicals divisions until the end of 2018. They focus on tailor-made solutions enabling customers to improve the application properties of their products and optimize production processes, for example. Close customer contact and meeting the demanding requirements of a wide range of industries were crucial to business success.

The divisions in this segment were separated into two segments as of January 1, 2019.

- The new **Industrial Solutions** segment comprises the Dispersions & Pigments division and the Performance Chemicals division. This segment develops and markets ingredients and additives for industrial applications such as polymer dispersions, pigments, resins, electronic materials, antioxidants and admixtures. Its customers come from key industries such as automotive, plastics and electronics.
- The new **Nutrition & Care** segment combines the Care Chemicals and Nutrition & Health divisions. This segment produces ingredients for consumer products in the area of nutrition, cleaners and personal care. Its customers include food and feed producers as well as the pharmaceutical, cosmetics, and the detergent and cleaner industries.

Until the end of 2018, the **Functional Materials & Solutions** segment bundled industry and customer-specific system solutions, services and innovative products, especially for the automotive, electronics, chemical and construction sectors, as well as applications for household, sports and leisure. An in-depth understanding of applications, the development of innovations in close cooperation with customers, and adaptation to different regional needs were key success factors. The segment was made up of the Catalysts, Construction Chemicals, Coatings, and Performance Materials divisions. The divisions of this segment were allocated to two new segments as of January 1, 2019:

– The new **Materials** segment consists of the Performance Materials division and the Monomers division, formerly pertaining to the Chemicals segment. This segment offers advanced materials and their precursors for new applications and systems. Its product portfolio includes isocyanates and polyamides as well as inorganic basic products and specialties for plastics and plastics processing in various industries.
– The new **Surface Technologies** segment comprises the Catalysts, Coatings and Construction Chemicals divisions. It offers a platform for chemical surface solutions. Its product spectrum includes catalysts and battery materials for the automotive and chemical industries, surface treatments, colors and coatings as well as cement modifications and construction materials.

The **Agricultural Solutions** segment comprises the Agricultural Solutions division, which was previously known as Crop Protection and was renamed after the acquisition of significant businesses from Bayer and the associated expansion of its portfolio. As an integrated provider of crop protection and seeds, Agricultural Solutions will continue to grow, primarily organically through innovation, and through targeted portfolio enhancement. Its portfolio comprises fungicides, herbicides, insecticides and biological crop protection products, as well as seeds and seed treatment products. Furthermore, Agricultural Solutions offers farmers innovative solutions, including those based on digital technologies, combined with practical advice.

Activities that are not allocated to any of the continued operating divisions continue to be recorded under **Other**. These include other businesses such as commodity trading, engineering and other services, rental income and leases, steering the BASF Group by corporate headquarters, and cross-divisional corporate research. Cross-divisional corporate research, which includes plant biotechnology research, works on long-term topics of strategic importance to the BASF Group. Furthermore, it focuses on the development of specific key technologies, which are of central importance for the divisions.

Earnings from currency translation that are not allocated to the segments are also reported under Other, as are earnings from the hedging of raw materials prices and foreign currency exchange risks. Furthermore, gains and losses from the long-term incentive (LTI) program are reported here.

Discontinued operations and all remaining activities after divestiture not previously reported under Other are reported under Other as of January 1, 2019. The latter includes, for example, participating interests accounted for using the equity method or supply obligations assumed in the context of divestitures. Reclassification affects the remaining activities for the leather and textile chemicals business, previously recorded in the Performance Products segment, and the remaining activities for the industrial coatings business, previously recorded in the Functional Materials & Solutions segment. Furthermore, the following will also be reported here in the future: remanent fixed costs resulting from organizational changes or restructuring; function and region-related restructuring costs not allocated to a division; idle capacity costs from internal human resource platforms.

Since the signing of the binding agreement between BASF and LetterOne to merge their oil and gas activities, the former Oil & Gas division has been reported as a **discontinued oil and gas business**. The segment of the same name was dissolved. The assets and liabilities of the oil and gas business were reclassified to a disposal group as of the end of the third quarter of 2018. Since then, they are included in Other.

The oil and gas business focuses on exploration and production in oil and gas-rich regions in Europe, North Africa, Russia, South America and the Middle East. It benefits from strong partnerships and its technological expertise. In Europe, it is also active in the transport of natural gas together with its Russian partner Gazprom.

For more information on the discontinued oil and gas business, see Note 2.5 from page 209 onward

The same accounting rules are used for segment reporting as those used for the Group, which are presented in Note 1. Transfers between the segments are generally executed at adjusted market-based prices, taking into account the higher cost efficiency and lower risk of intragroup transactions. Assets, as well as their depreciation and amortization, are allocated to the segments based on economic control. Assets used by more than one segment are allocated based on the percentage of usage. Assets not used by the segments are reported under Other.

Sales by operating division[1]

Million €

	2018	2017
Petrochemicals	6,904	6,389
Monomers	6,464	6,963
Intermediates	3,133	2,979
Chemicals	**16,501**	**16,331**
Dispersions & Pigments	5,292	5,398
Care Chemicals	4,913	5,079
Nutrition & Health	1,696	1,844
Performance Chemicals	3,911	3,896
Performance Products	**15,812**	**16,217**
Catalysts	7,469	6,658
Construction Chemicals	2,456	2,412
Coatings	3,856	3,969
Performance Materials	7,654	7,706
Functional Materials & Solutions	**21,435**	**20,745**
Fungicides	2,287	2,357
Herbicides	2,436	2,371
Insecticides	670	663
Functional Crop Care	463	305
Seeds & Traits	300	–
Agricultural Solutions	**6,156**	**5,696**
Other	**2,771**	**2,234**
BASF Group	**62,675**	**61,223**

1 Indications and sectors are given for the Agricultural Solutions segment, which comprises just one operating division.

Income from operations (EBIT) of Other

Million €

	2018	2017
Costs for cross-divisional corporate research	(414)	(379)
Costs of corporate headquarters	(249)	(224)
Other businesses	38	81
Foreign currency results, hedging and other measurement effects	327	88
Miscellaneous income and expenses	(193)	(257)
Income from operations of Other	**(491)**	**(691)**

Income from operations of Other increased by €200 million year on year from minus €691 million to minus €491 million. The **costs for cross-divisional corporate research** increased by €35 million to €414 million, and the **costs of corporate headquarters** were €25 million higher at €249 million. Income from **other businesses** fell by €43 million to €38 million. The line item **foreign currency results, hedging and other measurement effects** increased by €239 million to €327 million. This was due to an increase of €195 million to €262 million from the release of provisions for the LTI program. The line item **miscellaneous income and expenses** amounted to minus €193 million compared with minus €257 million in the previous year.

Assets of Other

Million €

	Dec. 31, 2018	Dec. 31, 2017
Assets of businesses included in Other	2,134	2,007
Financial assets	570	606
Deferred tax assets	2,342	2,118
Cash and cash equivalents/marketable securities	2,644	6,547
Defined benefit assets	63	70
Other receivables/prepaid expenses	1,902	2,328
Operating assets of the former Oil & Gas segment (2017) and of the oil and gas business disposal group (2018)[1]	12,570	11,967
Other assets of the oil and gas business disposal group[1]	1,518	–
Assets of Other	**23,743**	**25,643**

1 For more information, see Note 2.5 from page 209 onward

Segments 2018

Million €

	Chemicals	Performance Products	Functional Materials & Solutions	Agricultural Solutions	Other[2]	BASF Group
Sales	16,501	15,812	21,435	6,156	2,771	62,675
Intersegmental transfers	6,105	498	837	58	2	7,500
Sales including transfers	22,606	16,310	22,272	6,214	2,773	70,175
Research and development expenses	129	394	412	679	414	2,028
Income from companies accounted for using the equity method	196	22	43	–	8	269
Income from operations	3,360	1,338	1,235	591	(491)	6,033
Assets	13,264	14,903	17,654	16,992	23,743	86,556
of which goodwill	55	2,079	3,773	3,236	68	9,211
other intangible assets	104	895	1,878	4,441	25	7,343
property, plant and equipment	7,837	4,875	4,554	2,660	854	20,780
investments accounted for using the equity method	1,000	360	410	–	433	2,203
Liabilities	4,104	5,421	4,587	3,080	33,255	50,447
Additions to intangible assets and property, plant and equipment (including acquisitions)	1,325	765	872	7,110	663	10,735
Amortization and depreciation of intangible assets and property, plant and equipment	1,072	867	682	394	735	3,750
of which impairments and reversals of impairments	29	10	5	7	2	53

2 Other includes assets and liabilities as well as amortization of intangible assets and depreciation of property, plant and equipment of the discontinued oil and gas business. For more information, see Note 2.5 from page 209 onward. Until reclassification to the disposal group, additions to intangible assets and property, plant and equipment (including acquisitions) of the discontinued oil and gas business, also included in Other, amounted to €468 million in 2018.

Segments 2017

Million €

	Chemicals	Performance Products	Functional Materials & Solutions	Agricultural Solutions	Other[1]	BASF Group
Sales	16,331	16,217	20,745	5,696	2,234	61,223
Intersegmental transfers	6,063	506	805	36	(3)	7,407
Sales including transfers	22,394	16,723	21,550	5,732	2,231	68,630
Research and development expenses	128	395	431	507	382	1,843
Income from companies accounted for using the equity method	257	(1)	49	–	18	323
Income from operations	4,208	1,510	1,545	1,015	(691)	7,587
Assets	13,233	14,432	17,364	8,096	25,643	78,768
of which goodwill	56	2,078	3,718	1,929	1,572	9,353
other intangible assets	103	1,048	2,045	208	837	4,241
property, plant and equipment	7,497	5,000	4,163	1,366	7,232	25,258
investments accounted for using the equity method	1,026	369	393	–	2,927	4,715
Liabilities	4,461	5,419	4,385	1,768	27,979	44,012
Additions to intangible assets and property, plant and equipment (including acquisitions)	1,149	800	1,056	185	1,174	4,364
Amortization and depreciation of intangible assets and property, plant and equipment	1,166	917	706	267	1,146	4,202
of which impairments and reversals of impairments	129	53	28	2	(72)	140

1 Other includes assets and liabilities as well as amortization of intangible assets and depreciation of property, plant and equipment of the discontinued oil and gas business. For more information, see Note 2.5 from page 209 onward. Additions to intangible assets and property, plant and equipment (including acquisitions) of the discontinued oil and gas business, also included in Other, amounted to €988 million in 2017.

Regions 2018

Million €

		Europe	of which Germany	North America	Asia Pacific	South America, Africa, Middle East	BASF Group
Location of customer							
Sales		26,546	6,965	16,143	14,646	5,340	62,675
Share	%	42.3	11.1	25.8	23.4	8.5	100.0
Location of company							
Sales		28,502	18,113	16,659	13,886	3,628	62,675
Sales including interregional transfers[1]		35,805	24,083	19,161	14,872	4,006	73,844
Income from companies accounted for using the equity method		36	10	0	233	–	269
Income from operations		3,210	1,140	802	1,820	201	6,033
Assets		45,562	23,739	22,079	13,576	5,339	86,556
of which intangible assets		7,281	3,874	7,308	1,499	466	16,554
property, plant and equipment		9,231	6,357	6,286	4,416	847	20,780
investments accounted for using the equity method		637	289	122	1,444	–	2,203
Additions to intangible assets and property, plant and equipment (including acquisitions)		5,317	3,674	4,461	585	372	10,735
Amortization of intangible assets and depreciation of property, plant and equipment including impairments and reversals of impairments		2,031	1,180	990	479	250	3,750

1 The sum of sales including interregional transfers for all the regions can differ from the sum of sales including intersegmental transfers for all the segments, as the segments are viewed globally, and therefore shipments and services between regions within the same segment are not classified as transfers.

Regions 2017

Million €

		Europe	of which Germany	North America	Asia Pacific	South America, Africa, Middle East	BASF Group
Location of customer							
Sales		26,507	7,159	15,357	14,343	5,016	61,223
Share	%	43.3	11.7	25.1	23.4	8.2	100.0
Location of company							
Sales		28,045	18,663	15,937	13,658	3,583	61,223
Sales including interregional transfers[1]		35,243	24,452	18,570	14,534	3,890	72,237
Income from companies accounted for using the equity method		23	5	9	291	–	323
Income from operations		4,090	1,838	1,236	2,209	52	7,587
Assets		43,924	24,631	16,201	13,547	5,096	78,768
of which intangible assets		7,167	2,736	4,428	1,499	500	13,594
property, plant and equipment		13,876	7,019	5,281	4,337	1,764	25,258
investments accounted for using the equity method		3,153	989	115	1,447	–	4,715
Additions to intangible assets and property, plant and equipment (including acquisitions)		2,455	1,228	958	711	240	4,364
Amortization of intangible assets and depreciation of property, plant and equipment including impairments and reversals of impairments		2,399	1,234	1,011	516	276	4,202

1 The sum of sales including interregional transfers for all the regions can differ from the sum of sales including intersegmental transfers for all the segments, as the segments are viewed globally, and therefore shipments and services between regions within the same segment are not classified as transfers.

In the United States, sales to third parties in 2018 amounted to €14,775 million (2017: €13,909 million) according to location of companies and €14,062 million (2017: €13,127 million) according to location of customers. In the United States, intangible assets, property, plant and equipment, and investments accounted for using the equity method amounted to €12,958 million compared with €9,279 million in the previous year.

In China, sales to third parties in 2018 amounted to €7,595 million (2017: €5,976 million) according to location of companies and €6,731 million (2017: €6,676 million) according to location of customers. In China, intangible assets, property, plant and equipment, and investments accounted for using the equity method amounted to €4,162 million compared with €4,206 million in the previous year.

Notes to the Statement of Income

5 Earnings per share

Earnings per share

		2018	2017
Income after taxes from continuing operations	million €	4,150	5,592
of which noncontrolling interests	million €	211	233
Income after taxes and noncontrolling interests from continuing operations	**million €**	**3,939**	**5,359**
Income after taxes from discontinued operations	million €	829	760
of which noncontrolling interests	million €	61	41
Income after taxes and noncontrolling interests from discontinued operations	**million €**	**768**	**719**
Income after taxes	million €	4,979	6,352
of which noncontrolling interests	million €	272	274
Income after taxes and noncontrolling interests	**million €**	**4,707**	**6,078**
Weighted average number of outstanding shares	1.000	918,479	918,479
Earnings per share			
from continuing operations	€	4.29	5.84
diluted	€	4.28	5.83
from discontinued operations	€	0.83	0.78
diluted	€	0.83	0.78
from continuing and discontinued operations	€	5.12	6.62
diluted	€	5.11	6.61

In accordance with IAS 33, a potential dilutive effect must be considered in the **diluted earnings per share** for those BASF shares that will be granted in the future as part of BASF's "plus" share program. This applies regardless of the fact that the necessary shares are acquired on the market by third parties on behalf of BASF and that there are no plans to issue new shares. The dilutive effect of the issue of "plus" shares amounted to €0.01 in 2018 (2017: €0.01).

6 Functional costs

Under the cost of sales method, functional costs incurred by the operating functions are determined on the basis of cost center accounting. The functional costs particularly contain the personnel costs, depreciation and amortization accumulated on the underlying final cost centers as well as allocated costs within the cost accounting cycle. Operating expenses that cannot be allocated to the functional costs are reported as other operating expenses.

For more information on other operating expenses, see Note 8 from page 220 onward

Cost of sales

Cost of sales includes all production and purchase costs of the company's own products as well as merchandise that has been sold in the period, particularly plant, energy and personnel costs.

Selling expenses

Selling expenses primarily include marketing and advertising costs, freight costs, packaging costs, distribution management costs, commissions and licensing costs.

General administrative expenses

General and administrative expenses primarily include the costs of the central units, the costs of managing business units and divisions, and costs of general management, the Board of Executive Directors and the Supervisory Board.

Research and development expenses

Research and development expenses include the costs resulting from research projects as well as the necessary license fees for research activities.

For more information on research and development expenses by segment, see Note 4 from page 211 onward

7 Other operating income

Other operating income

Million €

	2018	2017
Income from the adjustment and release of provisions recognized in other operating expenses	86	73
Revenue from miscellaneous activities	158	168
Income from foreign currency and hedging transactions as well as from the measurement of LTI options	412	177
Income from the translation of financial statements in foreign currencies	7	32
Gains on divestitures and the disposal of noncurrent assets	88	284
Reversals of impairment losses on noncurrent assets	3	24
Income from the reversal of valuation allowances for business-related receivables	65	36
Other	996	775
Other operating income	**1,815**	**1,569**

Income from the adjustment and release of provisions recognized in other operating expenses was largely related to risks from lawsuits and damage claims, closures and restructuring measures, employee obligations, and various other individual items as part of the normal course of business. Provisions were reversed or adjusted if, based on the circumstances on the balance sheet date, utilization was no longer expected, or expected to a lesser extent.

For more information, see Note 8 from page 220 onward

Revenue from miscellaneous activities primarily included income from rentals, catering operations, cultural events and logistics services.

Income from foreign currency and hedging transactions as well as from the measurement of LTI options pertained to the foreign currency translation of receivables and payables as well as of currency derivatives and other hedging transactions. Of material significance in 2018 was income recorded from the release of provisions for the long-term incentive (LTI) program in the amount of €262 million (2017: income of €67 million).

Income from the translation of financial statements in foreign currencies contained gains from the translation of companies whose local currency is different from the functional currency.

Gains on divestitures and the disposal of noncurrent assets related in the amount of €21 million to the sale of the production site for styrene butadiene-based paper dispersions in Pischelsdorf, Austria in 2018 and in the amount of €195 million to the transfer of the leather chemicals business to the Stahl group in 2017. Income of €14 million resulted from real estate divestitures in several countries (2017: €72 million).

Reversals of impairment losses on noncurrent assets totaled €3 million in 2018 (2017: €24 million).

Income from the reversal of valuation allowances for business-related receivables resulted both from the reversal of valuation allowances for settled customer receivables for which a valuation allowance had been recorded previously as well as from adjusted expectations regarding default on individual customer receivables.

Other income included government grants and government assistance from several countries amounting to €43 million in 2018 and €26 million in 2017. These were primarily due to grants for research projects and regional business development in China.

Further income resulted from refunds and compensation payments in the amount of €569 million in 2018 and €447 million in 2017. In 2018, these mainly included insurance refunds for the damages caused by the fires at the citral plant in Ludwigshafen, Germany and at the North Harbor in Ludwigshafen, Germany, for which there were insurance refunds in 2017 as well. Moreover, income in both years was related to gains from precious metal trading, refunds of consumption taxes and a number of additional items.

8 Other operating expenses

Other operating expenses

Million €	2018	2017
Restructuring and integration measures	412	359
Environmental protection and safety measures, costs of demolition and removal, and project costs not subject to mandatory capitalization	343	353
Amortization, depreciation and impairments of noncurrent assets	72	221
Costs from miscellaneous revenue-generating activities	151	155
Expenses from foreign-currency and hedging transactions as well as from the measurement of LTI options	166	130
Losses from the translation of financial statements in foreign currencies	40	49
Losses from divestitures and the disposal of noncurrent assets	36	106
Expenses from the addition of valuation allowances for business-related receivables	77	70
Expenses for derecognition of obsolete inventory	246	220
Other	822	919
Other operating expenses	**2,365**	**2,582**

Expenses from **restructuring and integration measures** in 2018 were mainly expenses in the amount of €99 million for the integration of significant parts of Bayer's seed and non-selective herbicide business as well as its vegetable seed business, which were acquired in August 2018. These expenses totaled €10 million in the previous year. In both years, expenses also arose in connection with the preparation of the acquisition of Solvay's global polyamide business and the acquisition of global surface technology provider, Chemetall, in 2016.

Restructuring expenses resulted from site closures in North America in the amount of €13 million and from outsourcing computer centers in the amount of €11 million in 2018. In the previous year, expenses of €15 million were incurred in the Construction Chemicals division for restructuring in Europe, and €27 million for the outsourcing of computer centers. Further expenses in the amount of €20 million were incurred for restructuring measures in the Care Chemicals division in 2018 and €12 million in the previous year. Additionally, expenses were recognized in the amount of €17 million in connection with global restructuring measures in the Coatings division in 2018. Expenses were recognized in the Catalysts division in the amount of €16 million due largely to the restructuring of the global emissions catalysts business and the restructuring of the licensed battery materials business.

Expenses arose from **environmental protection and safety measures, costs of demolition and removal, and project costs not subject to mandatory capitalization** pursuant to IFRS. Expenses for demolition, removal and project planning totaled €245 million in 2018 and €252 million in 2017. In both years, these mainly related to the Ludwigshafen site. Further expenses of €55 million in 2018 and €54 million in 2017 arose from the addition to environmental provisions. In both years, these concerned several discontinued sites in North America.

Amortization, depreciation and impairments of noncurrent assets amounted to €72 million in 2018. The impairments resulted primarily from discontinued investment projects. Impairments last year were related primarily to the Chemicals, Functional Materials & Solutions and Performance Products segments.

Costs from miscellaneous revenue-generating activities relate to the items presented in other operating income.

For more information, see Note 7 from page 219 onward

Expenses from foreign currency and hedging transactions as well as from the measurement of LTI options related to foreign currency translation of receivables and payables as well as changes in the fair value of currency derivatives and other hedging transactions. In comparison with the previous year, the increase in currency translation losses was mainly due to the devaluation of the currencies in Argentina and Brazil.

For more information, see Note 7 from page 219 onward

Losses from divestitures and the disposal of noncurrent assets totaling €26 million in 2018 were related to the planned merger of the paper and water chemicals business with Solenis. Losses from portfolio measures in North America totaled €70 million last year. Further expenses of €19 million were incurred in 2017 in connection with the divestiture of the global industrial coatings business to the AkzoNobel Group in December 2016.

In both years, expenses under **Other** included expenses for litigation, for REACH, for Group management, for Corporate Citizenship, for the provision of services, and for activities related to the BASF 4.0 project. Expenses in the amount of €79 million were recognized for a product liability case in the Chemicals segment in 2017.

9 Income from companies accounted for using the equity method

Income from companies accounted for using the equity method

Million €	2018	2017
Proportional income after taxes	279	328
of which Joint ventures	250	297
Associated companies	29	31
Other adjustments to income and expenses	(10)	(5)
of which Joint ventures	(9)	(4)
Associated companies	(1)	(1)
Income from companies accounted for using the equity method	**269**	**323**

Income from companies accounted for using the equity method decreased by a total of €54 million in 2018 primarily due to lower earnings at BASF-YPC Company Ltd., Nanjing, China.

10 Financial result

Financial result

Million €

	2018	2017
Dividends and similar income	22	19
Income from the disposal of shareholdings	13	4
Income from profit transfer agreements	1	3
Income from tax allocation to shareholdings	–	1
Income from other shareholdings	**36**	**27**
Expenses from loss transfer agreements	(54)	(40)
Write-downs on/losses from the sale of shareholdings	(24)	(17)
Expenses from other shareholdings	**(78)**	**(57)**
Net income from shareholdings	**(42)**	**(30)**
Interest income from cash and cash equivalents	160	165
Interest and dividend income from securities and loans	14	12
Interest income	**174**	**177**
Interest expenses	**(540)**	**(492)**
Interest result	**(366)**	**(315)**
Net interest income from overfunded pension plans and similar obligations	2	2
Income from the capitalization of borrowing costs	30	37
Miscellaneous financial income	–	–
Other financial income	**32**	**39**
Write-downs on/losses from securities and loans	(22)	(1)
Net interest expense from underfunded pension plans and similar obligations	(133)	(169)
Net interest expense from other long-term personnel obligations	–	(1)
Unwinding the discount on other noncurrent liabilities	(5)	(9)
Miscellaneous financial expenses	(209)	(219)
Other financial expenses	**(369)**	**(399)**
Other financial result	**(337)**	**(360)**
Financial result	**(745)**	**(705)**

Net income from shareholdings decreased from minus €30 million to minus €42 million due primarily to higher expenses from loss transfer agreements. One factor was that BASF Digital Farming GmbH was included for the first time in 2018.

The **interest result** fell by €51 million year on year, from minus €315 million to minus €366 million, as a result of higher interest expenses. The increase in interest expenses was mainly due to the higher financial debt, particularly commercial papers.

In comparison with 2017, **income from the capitalization of borrowing costs** declined due to the startup of major investment projects in the United States.

Write-downs/losses from securities and loans increased due to higher valuation allowances on loans and to losses from fair value measurement of securities.

The **net interest expense from underfunded pension plans and similar obligations** decreased in comparison with the previous year as a result of the reduced net defined benefit liability as of December 31, 2017. The net interest expense for the respective fiscal year is based on the discount rate and the defined benefit obligation at the beginning of the year.

The decline in **other financial expenses** was primarily attributable to interest on income taxes.

11 Income taxes

In Germany, a uniform corporate income tax rate of 15.0% as well as a solidarity surcharge of 5.5% thereon are levied on all distributed and retained earnings. In addition to corporate income tax, income generated in Germany is subject to a trade tax that varies depending on the municipality in which the company is represented. Due to a constant rate of assessment for Ludwigshafen, Germany, in 2018, the weighted average trade tax rate was 14.1% (2017: 14.1%). The 30% rate used to calculate deferred taxes for German Group companies remained unchanged in 2018. The income of foreign Group companies are assessed using the tax rates applicable in their respective countries. These are also generally used to calculate deferred taxes to the extent that tax rate adjustments for the future have not yet been enacted.

Tax expense

Changes in valuation allowances on deferred tax assets for tax loss carryforwards resulted in income of €1 million in 2018 and of €6 million in 2017. Other taxes included real estate taxes and other comparable taxes totaling €110 million in 2018 and €101 million in 2017.

The BASF Group tax rate amounted to 21.5% in 2018 (2017: 18.7%). The tax rate reductions resulting primarily from the tax reform in Belgium led to deferred tax income of €17 million in 2018. The reduced tax rates resulting from the tax reforms in the United States, Belgium, France, Germany and Argentina led to deferred tax income of €426 million in 2017, of which €379 million in the United States.

Tax expense

Million €	2018	2017
Current tax expense	**1,255**	**1,506**
Corporate income tax, solidarity surcharge and trade taxes (Germany)	386	414
Foreign income tax	1,072	1,173
Taxes for prior years	(203)	(81)
Deferred tax expense (+)/income (–)	**(117)**	**(216)**
From changes in temporary differences	(57)	239
From changes in tax loss carryforwards/unused tax credits	(40)	(34)
From changes in the tax rate	(18)	(426)
From valuation allowances on deferred tax assets	(2)	5
Income taxes	**1,138**	**1,290**
Other taxes as well as sales and consumption taxes	232	230
Tax expense	**1,370**	**1,520**

Reconciliation of income taxes and the effective tax rate

	2018		2017	
	Million €	**%**	**Million €**	**%**
Income before income taxes	5,288	–	6,882	–
Expected tax based on German corporate income tax rate (15%)	794	15.0	1,032	15.0
Solidarity surcharge	15	0.3	18	0.3
German trade tax	145	2.7	288	4.2
Foreign tax rate differential	420	7.9	498	7.2
Tax-exempt income	(24)	(0.5)	(19)	(0.3)
Nondeductible expenses	64	1.2	62	0.9
Income of companies accounted for using the equity method (Income after taxes)	(40)	(0.7)	(48)	(0.7)
Taxes for prior years	(203)	(3.8)	(81)	(1.2)
Deferred tax liabilities for the future reversal of temporary differences associated with shares in participating interests	5	0.1	(1)	0.0
Changes in the tax rate	(18)	(0.3)	(426)	(6.2)
Other	(20)	(0.4)	(33)	(0.5)
Income taxes/effective tax rate	**1,138**	**21.5**	**1,290**	**18.7**

Deferred taxes result from temporary differences between tax balances and the measurement of assets and liabilities according to IFRS as well as from tax loss carryforwards and unused tax credits. The remeasurement of all the assets and liabilities associated with acquisitions according to IFRS 3 has resulted in significant deviations between fair values and the values in the tax accounts. This primarily leads to deferred tax liabilities.

Deferred taxes

Deferred tax assets and liabilities 2018

Million €

	January 1, 2018, net	Effects recognized in income	Effects recognized in equity (OCI)	Business combinations	Other	Recognized in equity	December 31, 2018, net	Deferred tax assets	Deferred tax liabilities
Intangible assets	(1,184)	40	(5)	(272)	156	–	(1,265)	94	1,359
Property, plant and equipment	(2,464)	(126)	(1)	6	1.609	–	(976)	115	1,091
Financial assets	(39)	52	0	–	(1)	–	12	60	48
Inventories and accounts receivable	(69)	(62)	38	(40)	(70)	–	(203)	272	475
Provisions for pensions	1,986	2	122	13	26	–	2,149	2,657	508
Other provisions and liabilities	975	146	(1)	6	(493)	–	633	738	105
Tax loss carryforwards	222	36	0	0	(53)	–	205	205	–
Other	(40)	29	0	0	11	–	0	83	83
Deferred tax assets (liabilities) before netting	**(613)**	**117**	**153**	**(287)**	**1,185**	**–**	**555**	**4,224**	**3,669**
Netting	–	–	–	–	–	–	–	(1,882)	(1,882)
Deferred tax assets (liabilities) after netting	**(613)**	**117**	**153**	**(287)**	**1,185**	**–**	**555**	**2,342**	**1,787**

Deferred tax assets and liabilities 2017

Million €

	Deferred tax assets	Deferred tax liabilities
Intangible assets	77	1,261
Property, plant and equipment	171	2,635
Financial assets	10	49
Inventories and accounts receivable	363	432
Provisions for pensions	2,603	617
Other provisions and liabilities	1,131	156
Tax loss carryforwards	222	–
Other	42	82
Netting	(2,501)	(2,501)
Total	**2,118**	**2,731**

Undistributed earnings of subsidiaries resulted in temporary differences of €14,088 million in 2018 (2017: €10,490 million) for which deferred tax liabilities were not recognized, as they are either not subject to taxation on payout or they are expected to be reinvested for an indefinite period of time.

Changes in valuation allowances on deferred tax assets amounted to €91 million in 2018, compared with €92 million in 2017. Of this figure, €23 million in 2018 (2017: €24 million) pertained to tax loss carryforwards.

Tax loss carryforwards

The regional distribution of tax loss carryforwards is as follows:

Tax loss carryforwards

Million €

	Tax loss carryforwards		Deferred tax assets	
	2018	2017	2018	2017
Germany	–	–	–	–
Foreign	1,143	1,485	205	222
Total	**1,143**	**1,485**	**205**	**222**

Tax loss carryforwards exist in all regions, especially in South America, Asia and Europe. Tax losses in Germany may be carried forward indefinitely. In foreign countries, tax loss carryforwards are in some cases only possible for a limited period of time. The bulk of the tax loss carryforwards will expire in Europe by 2019 and in Asia by 2023. No deferred tax assets were recognized for tax loss carryforwards of €371 million in 2018 (2017: €804 million).

Tax liabilities

Tax obligations primarily include assessed income taxes and other taxes as well as estimated income taxes not yet assessed for the current year. Tax obligations amounted to €695 million as of December 31, 2018 (December 31, 2017: €1,119 million).

12 Noncontrolling interests

Noncontrolling interests

Million €	2018	2017
Noncontrolling interests in profits	292	299
Noncontrolling interests in losses	(20)	(25)
Total	**272**	**274**

The year-on-year decrease in **noncontrolling interests in profits** in 2018 was mainly due to lower TDI and MDI sales prices and margins at Shanghai BASF Polyurethane Company Ltd., Shanghai, China.

Following a negative earnings contribution in 2017, noncontrolling interests in profits were recorded for BASF TODA Battery Materials, LLC, Tokyo, Japan in 2018 after expansion of its production capacities. The company therefore contributed significantly to the decrease in **noncontrolling interests in losses**.

For more information on noncontrolling interests in consolidated companies, see Note 21 on page 239

13 Personnel expenses and employees

Personnel expenses

The BASF Group spent €10,659 million on wages and salaries, social security contributions and expenses for pensions and assistance in 2018 (2017: €10,610 million). This amount included personnel expenses from the disposal group for the oil and gas business in the amount of €276 million (2017: €268 million). The increase in personnel expenses is due primarily to the higher average number of employees resulting from the acquisition of significant parts of Bayer's business and to the higher level of wages and salaries. Particularly the year-on-year higher release of provisions for the long-term incentive (LTI) program as well as currency effects had a countereffect.

Personnel expenses

Million €	2018	2017
Wages and salaries	8,470	8,471
Social security contributions and assistance expenses	1,459	1,434
Pension expenses	730	705
Personnel expenses	**10,659**	**10,610**

Number of employees

As of December 31, 2018, the number of employees rose to 122,404 employees compared with 115,490 employees as of December 31, 2017. That includes 2,017 employees in the disposal group for the oil and gas business as of December 31, 2018 (December 31, 2017: 1,985 employees).

The increase in the number of employees is due primarily to the acquisition of significant businesses from Bayer in August 2018. As a result, the number of employees rose by more than 4,500 employees.

The number of employees in the BASF Group was distributed over the regions as follows:

Number of employees as of December 31

	2018	2017
Europe	75,188	71,653
of which Germany	55,839	54,020
North America	20,069	18,295
Asia Pacific	19,303	18,256
South America, Africa, Middle East	7,844	7,286
BASF Group	**122,404**	**115,490**
of which apprentices and trainees	3,174	3,103
temporary staff	3,226	2,550

Employees from joint operations are included in the number of employees as of the year-end relative to BASF's share in the company. These had a total of 526 employees (2017: 472 employees).

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

Average number of employees

	2018	2017
Europe	73,067	71,043
of which Germany	54,749	53,390
North America	19,051	17,871
Asia Pacific	18,713	18,132
South America, Africa, Middle East	7,540	7,287
BASF Group	**118,371**	**114,333**
of which apprentices and trainees	2,819	2,793
temporary staff	3,120	2,691

Employees from joint operations are included in the average number of employees relative to BASF's share in the company. On average, these had a total of 492 employees (2017: 437 employees).

BASF Group's average number of employees for 2018 includes 2,021 employees from the disposal group for the oil and gas business (2017: 1,982 employees).

Notes to the Balance Sheet

14 Intangible assets

BASF's **goodwill** is allocated to 23 cash-generating units (2017: 24), which are defined either on the basis of business units or at a higher level.

Annual impairment testing was performed in the fourth quarter on the basis of the cash-generating units. Recoverable amounts were determined in most cases using the value in use. This was based on plans approved by company management and their respective cash flows, generally for the next five years. For the period thereafter, a terminal value was calculated using a forward projection from the last detailed planning year as a perpetual annuity. 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 and industry-specific sources.

The required discounting of cash flows for impairment testing is calculated using 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 were conducted assuming a weighted average cost of capital rate after taxes of between 5.83% and 6.90% (2017: between 5.69% and 8.2%). This corresponds to a weighted average cost of capital rate before taxes of between 7.0% and 8.5% (2017: between 7.13% and 11.31%).

After determining the recoverable amount for the cash-generating units, it was established that reasonable possible deviations from the key assumptions would not lead to the carrying amounts of 22 units exceeding their respective recoverable amounts. This is not the case for goodwill for the Pigments unit in the Dispersions & Pigments division.

In 2018, the recoverable amount for Pigments exceeded the carrying amount by €192 million. The weighted average cost of capital rate after taxes used for impairment testing was 5.84% (2017: 6.05%). The recoverable amount would equal the unit's carrying amount if the weighted average cost of capital rate increased by 0.74 percentage points (2017: by 0.04 percentage points) or if income from operations of the last detailed planning year – as the basis for the terminal value – were 14.39% lower (2017: 0.81% lower).

Goodwill of cash-generating units

Million €

	2018		2017	
Cash-generating unit	**Goodwill**	**Growth rate[1]**	**Goodwill**	**Growth rate[1]**
Agricultural Solutions division	3,236	2.0%	1,929	2.0%
Catalysts division (excluding battery materials)	1,298	2.0%	1,285	2.0%
Construction Chemicals division	753	2.0%	732	2.0%
Personal Care Ingredients in the Care Chemicals division	518	2.0%	499	2.0%
Pigments in the Dispersions & Pigments division	403	1.5%	389	1.5%
Surface Treatment in the Coatings division	1,500	2.0%	1,490	2.0%
Exploration & Production[2]	–	–	1,504	–
Other cash-generating units	1,503	0.0–2.0%	1,525	0.0–2.0%
Goodwill as of December 31	**9,211**		**9,353**	

1 Growth rates used in impairment tests to determine terminal values in accordance with IAS 36
2 Reclassification of goodwill from oil and gas business to the disposal group minus €1,572 million

Development of intangible assets 2018

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							
As of January 1, 2018	4,722	1,150	1,879	116	411	9,477	17,755
Changes in the scope of consolidation	–	–	–	–	–	–	–
Additions	1	35	36	36	47	–	155
Additions from acquisitions	364	1,054	2,725	–	136	1,261	5,540
Disposals	(174)	(8)	(73)	(1)	(32)	(6)	(294)
Transfers	2	–	(29)	1	21	–	(5)
Transfers to disposal groups	(862)	(413)	(15)	–	(35)	(1,722)	(3,047)
Currency effects	(15)	21	52	–	5	201	264
As of December 31, 2018	4,038	1,839	4,575	152	553	9,211	20,368
Accumulated amortization							
As of January 1, 2018	2,301	479	954	81	222	124	4,161
Changes in the scope of consolidation	–	–	–	–	–	–	–
Additions	279	49	168	14	85	–	595
Disposals	(173)	(5)	(72)	(1)	(26)	–	(277)
Transfers	–	–	–	0	(1)	–	(1)
Transfers to disposal groups	(370)	(151)	(13)	–	(26)	(128)	(688)
Currency effects	6	4	9	–	1	4	24
As of December 31, 2018	2,043	376	1,046	94	255	0	3,814
Net carrying amount as of December 31, 2018	**1,995**	**1,463**	**3,529**	**58**	**298**	**9,211**	**16,554**

1 Including licenses to such rights and values

In addition to goodwill, **intangible assets** include acquired and internally generated intangible assets. Intangible assets include rights of the Oil & Gas segment, which are amortized using the unit of production method, until the date of reclassification to the disposal group.

Additions refer primarily to software licenses purchased or internally developed software applications. Additions also include concessions for the search and production of oil and gas in Brazil.

Additions from acquisitions amounted to €5,540 million in 2018. Key acquisitions, the acquisition of significant parts of Bayer's seed and non-selective herbicide businesses and vegetable seed business, as well as the acquisition of Toda America LLC's battery materials business led to a €1,257 million increase in **goodwill**. A further addition to goodwill amounting to €4 million arose from a retroactive purchase price payment for the acquisition in 2017 of GRUPO Thermotek based in Monterrey, Mexico. Further additions to intangible assets in connection with the key acquisitions mentioned above amounted to €4,279 million. These related predominantly to know-how, patents and production technologies in the amount of €2,725 million; product rights, licenses and trademarks in the amount of €1,054 million, as well as distribution, supply and similar rights in the amount of €364 million.

Disposals of intangible assets amounting to €294 million were largely attributable to the derecognition of fully amortized assets. The sale of shares in the Aguada Pichana Este concession in Argentina and the divestiture of the production site for styrene butadiene-based paper dispersions in Pischelsdorf, Austria led to a €6 million disposal of goodwill.

Transfers to disposal groups related mainly to the reclassification of intangible assets from the oil and gas business as of September 30, 2018 and, to a lesser extent, from the paper and water chemicals business to the disposal groups.

In 2018, additions to **accumulated amortization** contained impairments of €4 million. This mainly pertained to impairments of non-strategic know-how, patents and production technologies in the Functional Materials & Solutions segment and, to a lesser extent, to the amortization of unused software licenses and discontinued IT projects. Reversals of impairments of €2 million included in additions to accumulated amortization had a countereffect. These related primarily to distribution rights in the Functional Materials & Solutions segment and to a higher valuation of emissions rights due to increased fair market values. Until September 30, 2018, they also included amortization of rights belonging to the Oil & Gas segment in the amount of €29 million, which were amortized in accordance with the unit of production method.

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							
As of January 1, 2017	5,051	1,339	1,958	92	435	10,214	19,089
Changes in the 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)
As of December 31, 2017	4,722	1,150	1,879	116	411	9,477	17,755
Accumulated amortization							
As of January 1, 2017	2,168	435	882	72	229	141	3,927
Changes in the 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)
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

In addition to goodwill, acquired and internally generated intangible assets, **intangible assets** included rights belonging to the Oil & Gas segment in 2017, which were 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 rose by €79 million as a result of the following key acquisitions: Rolic AG headquartered in Allschwil, Switzerland; GRUPO Thermotek headquartered in Monterrey, Mexico; Henkel group's western European construction chemicals business; and ZedX Inc. in Bellefonte, Pennsylvania. A further addition to **goodwill** amounting to €18 million arose primarily from a retroactive purchase price payment for the acquisition of Chemetall in the previous year.

Further additions to intangible assets in connection with these transactions 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 included in **product rights, licenses and trademarks** had a net carrying amount of €234 million in 2017. These authorize the holder to search for and produce oil and gas in specific 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 fully amortized software as well as the sale of the production site for electrolytes in Suzhou, China, the sale of the bleaching clay and mineral adsorbents businesses, and the transfer of the global leather chemicals business to the Stahl group. Goodwill of €28 million was derecognized in connection with this.

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, **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. This was offset by reversals of impairments totaling €7 million. These related primarily to distribution rights in the Functional Materials & Solutions segment.

15 Property, plant and equipment

Machinery and technical equipment contained oil and gas deposits, including related wells, production facilities and further infrastructure, which were depreciated according to the unit of production method. The following table presents the development of property, plant and equipment including these assets until the oil and gas business was transferred to the disposal group.

Development of property, plant and equipment 2018

Million €

	Land, land rights and buildings	Machinery and technical equipment	Of which depreciation according to the unit of production method	Miscellaneous equipment and fixtures	Construction in progress	Total
Cost						
As of January 1, 2018	11,169	50,558	7,940	4,387	4,799	70,913
Changes in the scope of consolidation	77	5	–	2	1	85
Additions	192	679	109	216	2,528	3,615
Additions from acquisitions	650	634	–	64	77	1,425
Disposals	(71)	(407)	–	(171)	(52)	(701)
Transfers	300	1,159	–	190	(1,657)	(8)
Transfers to disposal groups	(245)	(10,899)	(8,170)	(108)	(1,883)	(13,135)
Currency effects	84	602	121	36	92	814
As of December 31, 2018	12,156	42,331	–	4,616	3,905	63,008
Accumulated depreciation						
As of January 1, 2018	6,065	36,110	4,329	3,264	216	45,655
Changes in the scope of consolidation	4	–	–	2	–	6
Additions	354	2,409	498	358	34	3,155
Disposals	(45)	(372)	–	(164)	(52)	(633)
Transfers	(3)	(7)	–	–	–	(10)
Transfers to disposal groups	(81)	(6,118)	(4,923)	(87)	(196)	(6,482)
Currency effects	48	458	96	27	4	537
As of December 31, 2018	6,342	32,480	–	3,400	6	42,228
Net carrying amount as of December 31, 2018	**5,814**	**9,851**	**–**	**1,216**	**3,899**	**20,780**

Additions to property, plant and equipment arising from investment projects amounted to €3,615 million in 2018. Investments were made at the following sites in particular: Ludwigshafen, Germany; Antwerp, Belgium; Shanghai, China; Geismar, Louisiana; and Freeport, Texas. Material investments included the acetylene plant currently under construction as well as plants for the production of catalysts in Ludwigshafen, Germany. In addition, additions included renovations to the steam cracker and the construction of a new propane tank in Antwerp, Belgium. Other investments included the construction of oil and gas facilities and wells in Europe and South America.

Government grants for funding investment measures reduced asset additions by €26 million.

Acquisitions led to an increase in property, plant and equipment in the amount of €1,425 million, primarily from the acquisition of significant parts of Bayer's seed and non-selective herbicide businesses and its vegetable seed business.

In 2018, impairments of €52 million and reversals of impairments of €1 million were included in **accumulated depreciation**. The impairments were primarily attributable to construction in progress resulting from discontinued investment projects in North America.

Disposals of property, plant and equipment included the sale of production plants for oleochemical surfactants in Mexico and the production site for styrene butadiene-based paper dispersions in Pischelsdorf, Austria.

For more information on divestitures, see Note 2.4 from page 205 onward

Transfers related mainly to the reclassification of operation-ready assets from construction in progress to other asset categories.

Currency effects raised property, plant and equipment by €277 million and resulted mainly from the appreciation of the U.S. dollar against the euro.

Development of property, plant and equipment 2017

Million €

	Land, land rights and buildings	Machinery and technical equipment	Of which depreciation according to the unit of production method	Miscellaneous equipment and fixtures	Construction in progress	Total
Cost						
As of January 1, 2017	11,257	49,893	7,180	4,437	5,989	71,576
Changes in the 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)
As of December 31, 2017	11,169	50,558	7,940	4,387	4,799	70,913
Accumulated depreciation						
As of January 1, 2017	5,969	35,655	3,711	3,308	231	45,163
Changes in the 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)
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 refer to the acetylene plant currently under construction as well as plants for the production of catalysts in Ludwigshafen, Germany. Additions also included 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 made at the following sites in particular: Ludwigshafen, Germany; Antwerp, Belgium; Shanghai, China; Freeport, Texas; Geismar, Louisiana; and Port Arthur, Texas.

Government grants for funding 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 former Oil & Gas segment, which were more than offset by reversals of impairments in the same segment. These primarily concerned construction in progress. Overall, 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 absorbents 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 205 onward

Transfers pertained mainly to the transfer of 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 against the euro.

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

Additions included capital increases amounting to €55 million in 2018. In 2017, additions were mainly attributable to the combination of the global leather chemicals business with the Stahl group. In this connection, BASF received a 16.6% share in Stahl Lux 2 S.A., Luxembourg.

In addition to the net income of investments accounted for using the equity method, dividend distributions and other comprehensive income of the companies, transfers included €2,552 million from the reclassification of investments accounted for using the equity method to assets of the disposal group for the oil and gas business. For one investment in the Chemicals segment accounted for using the equity method, the carrying amount was impaired by €7 million in 2018.

For a detailed overview of income from companies accounted for using the equity method, see Note 9 on page 221

Investments accounted for using the equity method

Million €

	2018	2017
As of January 1	4,715	4,647
Changes in the scope of consolidation	–	(50)
Additions	55	223
Disposals	(10)	(82)
Transfers[1]	(2,571)	120
Currency effects	14	(143)
Net carrying amount as of December 31	**2,203**	**4,715**

1 This item includes effects from the discontinued oil and gas business in the amount of €99 million in 2018 (2017: €248 million).

Other financial assets

Million €

	Dec. 31, 2018	Dec. 31, 2017
Other shareholdings	453	482
Long-term securities	117	124
Other financial assets	**570**	**606**

17 Inventories

Inventories

Million €

	Dec. 31, 2018	Dec. 31, 2017
Raw materials and factory supplies	3,541	3,255
Work in progress, finished goods and merchandise	8,507	6,979
Advance payments and services in progress	118	69
Inventories	**12,166**	**10,303**

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

Cost of sales included inventories recognized as an expense amounting to €31,285 million in 2018, and €29,941 million in 2017.

Write-downs on inventory was recognized in the amount of €73 million in 2018 and reversals of write-downs in the amount of €18 million in 2017.

Of total **inventories**, €1,120 million was measured at net realizable value in 2018 and €863 million in 2017.

18 Receivables and miscellaneous assets

Other receivables and miscellaneous assets

Million €

	December 31, 2018		December 31, 2017	
	Noncurrent	Current	Noncurrent	Current
Loans and interest receivables	224	271	782	245
Derivatives with positive fair values	121	224	91	321
Receivables from finance leases	23	2	25	4
Insurance compensation receivables	0	0	0	41
Receivables from bank acceptance drafts	–	163	–	389
Miscellaneous	243	267	111	329
Other receivables and assets that qualify as financial instruments	**611**	**927**	**1,009**	**1,329**
Prepaid expenses	57	251	54	249
Defined benefit assets	63	–	70	–
Tax refund claims	107	891	125	787
Employee receivables	0	16	–	8
Precious metal trading items	–	780	–	746
Miscellaneous	48	274	74	375
Other receivables and assets that do not qualify as financial instruments	**275**	**2,212**	**323**	**2,165**
Other receivables and miscellaneous assets	**886**	**3,139**	**1,332**	**3,494**

The decrease in noncurrent **loans and interest receivables** was predominantly due to the reclassification of a loan in the amount of €325 million from Wintershall Nederland Transport and Trading B.V., Rijswijk, Netherlands, to Nord Stream 2 AG, and a loan in the amount of €140 million from W & G Transport Holding GmbH, Kassel, Germany, to W & G Infrastruktur Finanzierungs-GmbH, Kassel, Germany, to the assets of the disposal groups. In addition to the above loans, this item included, in particular, loans and interest receivables from BASF Ireland Ltd., Cork, Ireland, to finance the business expansion of Asian companies, and receivables in favor of BASF SE from BASF Pensionskasse VVaG.

The increase in 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.

As of January 1, 2018, **receivables from bank acceptance drafts** are no longer reported under trade accounts receivable, but under other operating receivables, since the remaining credit risks are toward the issuing bank and no longer the customer. Receivables from bank acceptance drafts fell by €226 million in 2018. They totaled €389 million in 2017. This amount was reclassified from trade accounts receivable to other receivables and miscellaneous assets in the Balance Sheet as of December 31, 2017.

Bank acceptance drafts are used as an alternative form of payment in China. They can be held until maturity, discounted by a bank and provided to suppliers as an endorsement in exchange for goods or services before maturity. Depending on the specific agreement, the major risks and opportunities either remain with BASF or are assumed by the counterparty. Only when the counterparty assumes the default risk is the receivable derecognized. If BASF discounts a bank acceptance draft with recourse, a liability toward the credit institution granting the discount is recognized in the amount of the payment received and held to maturity; if BASF endorses the bank acceptance draft to a supplier with recourse, neither receivables from bank acceptance drafts nor trade payables are derecognized. Bank acceptance drafts were endorsed in the amount of €8 million and not derecognized as of December 31, 2018.

Prepaid expenses in 2018 mainly included prepayments of €22 million related to operating activities compared with €62 million in 2017, as well as €83 million in prepayments for insurance in 2018 compared with €50 million in 2017. Prepayments for license costs decreased from €42 million in 2017 to €38 million in 2018.

The increase in current **tax refund claims** is largely attributable 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.

Expected losses on trade accounts receivable at BASF are calculated on the basis of internal or external customer ratings and the associated probability of default since January 1, 2018.

The following table presents the gross values and credit risks for trade accounts receivable as of December 31, 2018.

Accounts receivable, trade

Million €

Creditworthiness as of December 31, 2018	Equivalence to external rating[1]	Gross carrying amounts
High/medium credit rating	from AAA to BBB–	6,553
Low credit rating	from BB– to D	4,465

1 Standard & Poor's rating

BASF monitors the credit risk associated with counterparties with which receivables are held in the form of financial instruments. In accordance with IFRS 9, impairments for expected credit lossses on receivables are recognized based on this.

Because, pursuant to IAS 39, impairments were only recognized when objective indications for an impairment were present, initial application of IFRS 9 resulted in total additional impairments on trade accounts receivable, loan receivables and other receivables of of €34 million.

For more information in the effects of implementation of IFRS 9, see Note 1.2 from page 183 onward

Valuation allowances for receivables (financial instruments) 2018

Million €

	As of January 1, 2018	Additions	Reversals	Reclassification between stages	Translation effect	Reclassification to assets of disposal groups	As of December 31, 2018
Accounts receivable, trade	**377**	**128**	**117**	**(1)**	**(21)**	**(13)**	**353**
of which stage 2	52	45	44	(4)	(4)	(3)	42
stage 3	325	83	73	3	(17)	(10)	311
Other receivables	**88**	**11**	**9**	**0**	**0**	**(63)**	**27**
of which stage 1	6	3	4	0	0	(2)	3
stage 2	1	1	2	0	0	0	0
stage 3	81	7	3	0	0	(61)	24
Total	**465**	**139**	**126**	**(1)**	**(21)**	**(76)**	**380**

Valuation allowances for receivables 2017

Million €

	As of January 1, 2017	Additions	Reversals	Additions not recognized in income	Reversals not recognized in income	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**

At BASF, a comprehensive, global credit insurance program covers **accounts receivable, trade**. Under a global excess of loss policy, future bad debts are insured for essentially all BASF Group companies excluding joint ventures. The program has no impact on the calculation of impairments in accordance with IFRS 9. No compensation claims were incurred in either 2018 or 2017.

Payment terms are generally agreed upon individually with customers and, as a rule, are within 90 days. In 2018, valuation allowances of €128 million were recognized for trade accounts receivable, and of €117 million were reversed. In the previous year, valuation allowances of €92 million were recognized for trade accounts receivable, and of €113 million were reversed.

In 2018, valuation allowances of €11 million were recognized for **other receivables** representing financial instruments, and of €9 million were reversed. In the previous year, valuation allowances of €10 million were recognized for all other receivables, and of €6 million were reversed.

The addition and reversal of value allowances included impairments of €2 million due to a change in valuation parameters and €4 million due to foreign currency fluctuations.

Aging analysis of accounts receivable, trade

Million €

	December 31, 2017	
	Gross value	Valuation allowances
Not yet due	10,065	35
Past due less than 30 days	522	1
Past due between 30 and 89 days	115	6
Past due more than 90 days	448	307
Total	**11,150**	**349**

The gross values for receivables from bank acceptance drafts as of December 31, 2017 were removed from the aging analysis of trade accounts receivable.

Prior to adoption of IFRS 9, impairments to trade accounts receivable were calculated using amounts past due, among other things.

19 Capital, reserves and retained earnings

Authorized capital

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

The Annual Shareholders' Meeting of May 2, 2014, authorized the Board of Executive Directors, with the approval of the Supervisory Board, to increase subscribed capital by issuing new registered shares up to a total of €500 million against cash or contributions in kind until May 1, 2019. The Board of Executive Directors is authorized, with the approval of the Supervisory Board, to exclude shareholders' statutory subscription rights in the cases specified in the authorizing resolution. To date, this option has not been exercised and no new shares have been issued.

Conditional capital

By way of a resolution of the Annual Shareholders' Meeting of May 12, 2017, the Board of Executive Directors was authorized, 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 until May 11, 2022. The notional interest in the share capital attributable to the BASF shares to be issued in connection with the debt instruments issued under this authorization may not exceed 10% of the share capital.

In this connection, 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. This authorization has not been exercised to date.

Authorization of share buybacks

By way of a resolution of the Annual Shareholders' Meeting of May 12, 2017, the Board of Executive Directors was authorized to buy back shares until May 11, 2022, in accordance with section 71(1) no. 8 of the German Stock Corporation Act (AktG). 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 invitation to the shareholders to submit sales offers. This authorization has not been exercised to date.

Reserves and retained earnings

Capital reserves include 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.

Reserves and retained earnings

Million €	December 31, 2018	December 31, 2017
Legal reserves	767	678
Other retained earnings	35,932	34,148
Retained earnings	**36,699**	**34,826**

Transfers from **other retained earnings** increased **legal reserves** by €81 million in 2018 (2017: €53 million).

The acquisition of shares in companies that BASF already controls or that are included in the Consolidated Financial Statements as a joint arrangement 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 2018, as in the previous year.

Payment of dividends

In accordance with the resolution of the Annual Shareholders' Meeting on May 4, 2018, BASF SE paid a dividend of €3.10 per share from the retained profit of the 2017 fiscal year. With 918,478,694 qualifying shares, this represented total dividends of €2,847,283,951.40. The remaining €282,560,220.29 in retained profits was recorded under retained earnings.

20 Other comprehensive income

Unrealized gains/losses from currency translation

Translation adjustments decreased by €139 million year on year. The change arose primarily from the appreciation of the U.S. dollar relative to the euro. This was offset in particular by the development of the Russian ruble.

Cash flow hedges

Hedging future cash flows at Nord Stream AG, Zug, Switzerland, which is accounted for using the equity method, led to a decrease of €11 million in 2018 and a decrease of €17 million in 2017.

For more information on cash flow hedge accounting, see Note 27.4 from page 258 onward

Remeasurement of defined benefit plans

Other comprehensive income fell €980 million before taxes in 2018 and rose €1,073 million before taxes in 2017 due to changes in the value of plan assets.

For more information on the remeasurement of defined benefit plans, see Note 22 from page 240 onward

21 Noncontrolling interests

Noncontrolling interests

		December 31, 2018		December 31, 2017	
		Equity interest		Equity interest	
Group company	**Partner**	**%**	**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]	141	49.98[1]	71
BASF India Ltd., Mumbai, India	free float	26.67	42	26.67	39
BASF PETRONAS Chemicals Sdn. Bhd., Shah Alam, Malaysia	PETRONAS Chemicals Group Berhad, Kuala Lumpur, Malaysia	40.00	193	40.00	198
BASF TOTAL Petrochemicals LLC, Port Arthur, Texas	Total Petrochemicals & Refining USA, Inc., Houston, Texas	40.00	302	40.00	243
Shanghai BASF Polyurethane Company Ltd., Shanghai, China	Shanghai Hua Yi (Group) Company, Shanghai, China, and SINOPEC Assets Management Corporation, Bejing, China	30.00	178	30.00	199
BASF TODA Battery Materials, LLC, Tokyo, Japan	TODA KOGYO CORP., Hiroshima, Japan	34.00	35	34.00	26
BASF Shanghai Coatings Co. Ltd., Shanghai, China	Shanghai Huayi Fine Chemical Co., Ltd, Shanghai, China	40.00	59	40.00	57
Other			105		86
Total			**1,055**		**919**

1 Partners' equity interest in W & G Transportation Holding GmbH and OPAL Gastransport GmbH & Co. KG: 50.03%; voting rights and share 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, for a number of years now, been almost exclusively offered defined contribution plans for future years of service.

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 financing of pension commitments and the portfolio structure of 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, in the United States, in the United Kingdom and in Switzerland – 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 pursuant to IAS 19. Furthermore, there are qualitative and quantitative restrictions on allocating plan assets to certain asset categories. This could result in annual fluctuations in employer contributions, financing requirements and the assumption of obligations in favor of the pension funds to comply with 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 discount rates 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 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 provide 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 execution 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 plan, which is financed by employer and employee contributions 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 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 benefit plan 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 financed primarily 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.

Effective 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 were 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 are based on the results of an actuarial valuation. Furthermore, there are unfunded pension plans that are not subject to ERISA requirements.

Additional similar obligations arise from plans that assume the healthcare costs and life insurance premiums of retired employees and their dependents. Such plans have been closed to new entrants since 2007. In addition, the amount of the benefits for such plans has been 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 plan assets. The pension plans are accounted for as defined benefit plans, as the obligatory minimum pension guaranteed by law under the Swiss Pension Fund Act (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 the 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 asset allocation.

United Kingdom
Employees are granted benefits based on a defined contribution plan.

The BASF Group also maintains defined benefit plans in the United Kingdom, which have been closed for further increases based on 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
For 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 based on the following key assumptions:

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

	Germany		United States		Switzerland		United Kingdom	
	2018	2017	2018	2017	2018	2017	2018	2017
Discount rate	1.70	1.90	4.10	3.60	0.90	0.50	2.90	2.60
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	
	2018	2017	2018	2017	2018	2017	2018	2017
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

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 applied for 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 issue volume of more than 100 million units of the respective currency with a minimum rating of "AA–" to "AA+" from at least one of the following three rating agencies: Fitch, Moody's, or Standard & Poor's.

The valuation of the defined benefit obligation is generally performed 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 in 2015 for the pension obligations in Germany and in 2018 for the pension obligations in the United States.

Actuarial mortality tables (significant countries) as of December 31, 2018

Germany	Heubeck Richttafeln 2005G (modified)
United States	RP-2018 (modified) with MP-2018 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	
	2018	2017	2018	2017
Discount rate	(1,880)	(1,930)	2,140	2,200
Projected pension increase	1,190	1,240	(1,080)	(1,130)

An alternative valuation of the defined benefit obligation was performed to determine how changes in the underlying assumptions 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 €

	2018	2017
Expenses for defined benefit plans	416	402
Expenses for defined contribution plans	314	303
Expenses for pension benefits (recognized in income from operations)	**730**	**705**
Net interest expense from underfunded pension plans and similar obligations	133	175
Net interest income from overfunded pension plans	(2)	(2)
Expenses for pension benefits (recognized in the financial result)	**131**	**173**

The interest on the net defined benefit liability is recognized in the financial result. This is 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 fiscal year are taken into account when determining net interest.

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

Development of defined benefit obligation

Million €

	2018	2017
Defined benefit obligation as of January 1	26,871	27,603
Current service cost	384	400
Past service cost	32	2
Plan settlements	–	–
Interest cost	553	568
Benefits paid	(1,037)	(1,048)
Employee contributions	47	48
Actuarial gains/losses		
for adjustments relating to financial assumptions	239	1
adjustments relating to demographic assumptions	(163)	(2)
experience adjustments	(139)	(5)
Effects from acquisitions and divestitures	(374)	8
Other changes	1	124
Currency effects	237	(828)
Defined benefit obligation as of December 31	**26,651**	**26,871**

As of December 31, 2018, the weighted average duration of the defined benefit obligation amounted to 15.4 years (previous year: 15.5 years).

Development of plan assets

Million €

	2018	2017
Plan assets as of January 1	20,648	19,460
Standardized return on plan assets	422	393
Deviation between actual and standardized return on plan assets	(1,043)	1,067
Employer contributions	175	1,102
Employee contributions	47	48
Benefits paid	(913)	(919)
Effects from acquisitions and divestitures	(92)	(2)
Past service cost	–	–
Plan settlements	–	–
Other changes	(135)	106
Currency effects	171	(607)
Plan assets as of December 31	**19,280**	**20,648**

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 to be made during the year.

BASF SE disbursed pension payments that are covered by assets of BASF Pensionstreuhand e.V. Reimbursement of these pension payments by BASF Pensionstreuhand e.V. in 2018 is included in other changes in plan assets and relates to the previous year in the amount of €134 million.

The expected employer contributions for 2019 amount to approximately €600 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 net defined benefit liability

Million €

	2018	2017
Net defined benefit liability as of January 1	(6,223)	(8,143)
Current service cost	(384)	(400)
Past service cost	(32)	(2)
Interest cost	(553)	(568)
Standardized return on plan assets	422	393
Deviation between actual and standardized return on plan assets	(1,043)	1,067
Actuarial gains/losses of the defined benefit obligation	63	6
Benefits paid by unfunded plans	124	129
Employer contributions	175	1,102
Effects from acquisitions and divestitures	282	(10)
Other changes	(136)	(18)
Currency effects	(66)	221
Net defined benefit liability as of December 31	**(7,371)**	**(6,223)**
of which defined benefit assets	63	70
provisions for pensions and similar obligations	7,434	(6,293)

Regional allocation of defined benefit plans as of December 31

Million €

	Pension obligations		Plan assets		Net defined benefit liability	
	2018	2017	2018	2017	2018	2017
Germany	18,406	18,104	12,621	13,576	(5,785)	(4,528)
United States	3,745	4,053	2,448	2,687	(1,297)	(1,366)
Switzerland	1,953	2,070	1,838	1,889	(115)	(181)
United Kingdom	1,741	1,884	1,733	1,880	(8)	(4)
Other	806	760	640	616	(166)	(144)
Total	**26,651**	**26,871**	**19,280**	**20,648**	**(7,371)**	**(6,223)**

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 based on 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 for U.K. and U.S. plans.

Structure of plan assets

%	2018	2017
Equities	25	29
Debt instruments	53	52
of which for government debtors	16	16
for other debtors	37	36
Real estate	4	3
Alternative investments	16	15
Cash and cash equivalents	2	1
Total	**100**	**100**

The asset class **debt instruments** comprises promissory notes and debentures (Pfandbriefe) as well as corporate and government bonds. Government bonds primarily relate to bonds from countries with the highest credit ratings, such as the United States, the United Kingdom, Germany and Switzerland. Corporate bonds mainly comprise bonds from creditworthy debtors, although 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 observation of the development of the creditworthiness of issuers, the plan asset allocation may be adjusted in the case of a revised market assessment. **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) acquired through private placements with a market value in the amount of €394 million as of December 31, 2018, and €575 million as of December 31, 2017. 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 as of the balance sheet date contained securities issued by BASF Group companies with a market value of €9 million in 2018 and €15 million in 2017. The market value of the properties of legally independent pension funds rented to BASF Group companies amounted to €112 million on December 31, 2018, and €111 million on December 31, 2017.

Since 2010, there has been an agreement between BASF SE and BASF Pensionskasse VVaG on the granting of profit participation capital with a nominal value of €80 million, which is used to strengthen the financing of the BASF Pensionskasse VVaG. In 2017, a number of special endowments were provided to improve the funding levels of the plans. Beyond this, there were no material transactions between the legally independent pension funds and BASF Group companies in 2018 or 2017.

The funding of the plans was as follows:

Current funding situation of the pension plans as of December 31

Million €	2018		2017	
	Defined benefit obligation	Plan assets	Defined benefit obligation	Plan assets
Unfunded pension plans	2,575	–	2,814	–
Funded pension plans	24,076	19,280	24,057	20,648
Total	**26,651**	**19,280**	**26,871**	**20,648**

Defined contribution plans and government pensions

The contributions to defined contribution plans recognized in income from operations amounted to €314 million in 2018 and €303 million in 2017.

Contributions to government pension plans were €634 million in 2018 and €592 million in 2017.

23 Other provisions

Other provisions

Million €

	December 31, 2018		December 31, 2017	
		of which current		of which current
Restoration obligations	86	–	1,296	17
Environmental protection and remediation costs	638	127	600	112
Employee obligations	1,817	1,467	2,173	1,553
Obligations from sales and purchase contracts	1,261	1,253	1,080	1,070
Restructuring measures	121	98	143	119
Litigation, damage claims, warranties and similar obligations	140	85	103	48
Other	1,049	222	1,312	310
Total	**5,112**	**3,252**	**6,707**	**3,229**

Restoration obligations pertain mainly to anticipated costs for dismantling existing plants and buildings. The decrease was due primarily to the reclassification of the oil and gas business to the disposal group.

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 and phased retirement programs. The decrease was due primarily to releases for the long-term incentive program.

For more information on provisions for the long-term incentive program, see Note 30 from page 263 onward

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

Provisions for **restructuring measures** 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 obligations** 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 reclassifications to disposal groups, changes in the scope of consolidation, acquisitions, 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 2018

Million €

	January 1, 2018	Additions	Unwinding of discount	Utilization	Releases	Other changes	December 31, 2018
Restoration obligations	1,296	28	20	(17)	(3)	(1,238)	86
Environmental protection and remediation costs	600	100	1	(69)	(11)	17	638
Employee obligations	2,173	1,509	2	(1,521)	(319)	(27)	1,817
Obligations from sales and purchase contracts	1,080	1,055	–	(1,044)	(93)	263	1,261
Restructuring measures	143	35	–	(46)	(15)	4	121
Litigation, damage claims, warranties and similar obligations	103	84	–	(30)	(12)	(5)	140
Other	1,312	243	1	(294)	(160)	(53)	1,049
Total	**6,707**	**3,054**	**24**	**(3,021)**	**(613)**	**(1,039)**	**5,112**

24 Liabilities

Financial indebtedness

Million €

		Currency	Nominal value (million, currency of issue)	Effective interest rate	Carrying amounts based on effective interest method December 31, 2018	December 31, 2017
BASF SE						
Commercial Paper		USD	2,922		2,549	–
variable	Bond 2013/2018	EUR	300	variable	–	300
1.5%	Bond 2012/2018	EUR	1,000	1.51%	–	999
1.375%	Bond 2014/2019	EUR	750	1.44%	750	750
variable	Bond 2017/2019	EUR	1,250	variable	1,252	1,261
variable	Bond 2013/2020	EUR	300	variable	300	300
1.875%	Bond 2013/2021	EUR	1,000	1.47%	1,008	1,007
2.5%	Bond 2017/2022	USD	500	2.65%	435	414
1.375%	Bond 2018/2022	GBP	250	1.52%	278	–
2%	Bond 2012/2022	EUR	1,250	1.93%	1,254	1,254
0.925%	Bond 2017/2023	USD	850	0.83%	703	664
0.875%	Bond 2016/2023	GBP	250	1.06%	277	279
2.5%	Bond 2014/2024	EUR	500	2.60%	498	497
1.750%	Bond 2017/2025	GBP	300	1.87%	333	335
0.875%	Bond 2018/2025	EUR	750	0.97%	745	–
3.675%	Bond 2013/2025	NOK	1,450	3.70%	146	147
0.875%	Bond 2017/2027	EUR	1,000	1.04%	986	984
2.670%	Bond 2017/2029	NOK	1,600	2.69%	161	162
1.5%	Bond 2018/2030	EUR	500	1.625%	494	–
1.5%	Bond 2016/2031	EUR	200	1.58%	198	198
0.875%	Bond 2016/2031	EUR	500	1.01%	492	492
2.37%	Bond 2016/2031	HKD	1,300	2.37%	145	139
1.450%	Bond 2017/2032	EUR	300	1.57%	296	296

Continued on next page

Continued from last page

Financial indebtedness

Million €

		Currency	Nominal value (million, currency of issue)	Effective interest rate	Carrying amounts based on effective interest method: December 31, 2018	Carrying amounts based on effective interest method: December 31, 2017
3%	Bond 2013/2033	EUR	500	3.15%	492	491
2.875%	Bond 2013/2033	EUR	200	3.09%	198	198
4%	Bond 2018/2033	AUD	160	4.24%	96	–
1.625%	Bond 2017/2037	EUR	750	1.73%	737	736
3.25%	Bond 2013/2043	EUR	200	3.27%	199	199
1.025%	Bond 2018/2048	JPY	10,000	1.03%	79	–
3.89%	U.S. private placement series A 2013/2025	USD	250	3.92%	218	208
4.09%	U.S. private placement series B 2013/2028	USD	700	4.11%	610	582
4.43%	U.S. private placement series C 2013/2034	USD	300	4.45%	261	250
BASF Finance Europe N.V.						
0.0%	Bond 2016/2020	EUR	1,000	0.14%	997	996
3.625%	Bond 2018/2025	USD	200	3.69%	174	–
0.75%	Bond 2016/2026	EUR	500	0.88%	495	494
Ciba Specialty Chemicals Finance Luxembourg S.A.						
4.875%	Bond 2003/2018	EUR	477	4.88%	–	474
Other bonds					**588**	**547**
Bonds and other liabilities to the capital market					**18,444**	**15,653**
Liabilities to credit institutions					2,397	2,379
Financial indebtedness					**20,841**	**18,032**

Breakdown of financial indebtedness by currency

Million €

	December 31, 2018	December 31, 2017
Euro	12,358	13,326
U.S. dollar	6,160	2,922
Pound sterling	888	614
Norwegian krone	306	309
Chinese renminbi	163	127
Hong Kong dollar	145	139
Japanese yen	139	58
Turkish lira	127	65
Australian dollar	99	–
Ukrainian hryvnia	89	63
South African rand	74	73
Brazilian real	54	53
Indian rupee	48	24
Argentinian peso	44	137
Indonesian rupiah	43	43
Kazakhstani tenge	42	37
Other currencies	62	42
Total	**20,841**	**18,032**

Maturities of financial indebtedness

Million €

	December 31, 2018	December 31, 2017
Following year 1	5,509	2,497
Following year 2	1,335	2,052
Following year 3	1,178	1,845
Following year 4	2,105	1,140
Following year 5	1,155	1,781
Following year 6 and maturities beyond this year	9,559	8,717
Total	**20,841**	**18,032**

Other bonds

Other bonds consist primarily of industrial revenue and pollution control bonds issued by the BASF Corporation group that were used to finance investments in the United States. Both the weighted average interest rate of these bonds and their weighted effective interest rate amounted to 3.0% in 2018 and 3.1% in 2017. The average residual term amounted to 168 months as of December 31, 2018 (December 31, 2017: 183 months).

Liabilities to credit institutions

Liabilities to credit institutions stayed at the previous year's level. The weighted average interest rate on loans amounted to 5.6% in 2018 compared with 4.1% in 2017.

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, 2018, and as of December 31, 2017.

Other liabilities

Million €

	December 31, 2018		December 31, 2017	
	Noncurrent	Current	Noncurrent	Current
Derivatives with negative fair values	230	308	290	274
Liabilities from finance leases	91	43	99	25
Loan and interest liabilities	75	387	283	212
Advances received on orders[1]	–	903	–	564
Miscellaneous liabilities	41	565	94	1,289
Other liabilities that qualify as financial instruments	**437**	**2,206**	**766**	**2,364**
Liabilities related to social security	58	85	67	77
Employee liabilities	28	262	28	253
Liabilities from precious metal trading positions	–	34	–	17
Contract liabilities	155	31	–	–
Deferred income	23	35	197	78
Miscellaneous liabilities	4	345	37	275
Other liabilities that do not qualify as financial instruments	**268**	**792**	**329**	**700**
Other liabilities	**705**	**2,998**	**1,095**	**3,064**

1 Advances received on orders were reported as other liabilities, which do not represent financial instruments, in the previous year.

Other liabilities

The decrease in non-current **loan and interest liabilities** and in current **miscellaneous liabilities** resulted primarily from the reclassification to the disposal group for the oil and gas business. **Advances received on orders** increased due mainly to first-time incorporation of the seed business acquired from Bayer. **Contract liabilities,** which were reported for the first time with the adoption of IFRS 15 in 2018, include mainly customer payments entitling them to access to licenses over an agreed period of time. The majority of existing contracts have terms of six years. Of the contract liabilities reported as of December 31, 2018, €31 million are expected to be recognized as revenue in 2019.

For more information on financial risks and derivative instruments, see Note 27 from page 251 onward

For more information on liabilities arising from leasing contracts, see Note 28 from page 259 onward

Secured liabilities

Million €

	December 31, 2018	December 31, 2017
Liabilities to credit institutions	18	22
Accounts payable, trade	6	6
Other liabilities	166	169
Secured liabilities	**190**	**197**

Liabilities to credit institutions were secured primarily with registered land charges. **Other liabilities** include collateral for derivative instruments with negative fair values. As in the previous year, there were no secured contingent liabilities in 2018.

25 Other financial obligations

The figures listed below are stated at nominal value:

Other financial obligations

Million €

	December 31, 2018	December 31, 2017
Bills of exchange	7	9
Guarantees	75	11
Warranties	50	49
Collateral granted on behalf of third-party liabilities	1	1
Initiated investment projects	7,094	4,109
of which purchase commitments	1,249	1,045
for the purchase of intangible assets	19	16
Payment and loan commitments and other financial obligations	68	19

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, which is allocated to the disposal group. BASF's 100% contingent liability under these guarantees is partially countered by the joint venture partner's 50% guarantees in favor of BASF. Drawing on these guarantees was not foreseeable as of December 31, 2018.

Assets used under long-term leases

Assets used under long-term leases primarily concerned buildings, vehicles and transportation equipment.

For more information on liabilities arising from leasing contracts, see Note 28 from page 259 onward

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

Million €

2019	403
2020	272
2021	197
2022	140
2023	111
2024 and maturities beyond this year	359
Total	**1,482**

As of December 31, 2018, the companies allocated to the disposal group accounted for €144 million.

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, 2018, were as follows:

Obligations arising from purchase contracts

Million €

2019	8,393
2020	5,412
2021	4,424
2022	3,937
2023	2,891
2024 and maturities beyond this year	5,023
Total	**30,080**

As of December 31, 2018, the companies allocated to the disposal group accounted for €5,406 million.

Further possible obligations arising from agreements existing as of December 31, 2018 are shown under Note 2.4, Acquisitions and divestitures.

26 Risks from litigation and claims

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) agreed to complete 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 eight miles of the LPRSA. In late 2018, USEPA indicated being amenable to the CPG's approach for remediation work in the upper portion of the LPRSA. Completion of the RI/FS and an agreement with USEPA on a targeted approach for the upper portion of the LPRSA may occur in late 2019.

Between November 2014 and March 2015, a putative class action lawsuit and several additional lawsuits were filed in the United States District Court for 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. In 2018, no further developments in this proceeding occurred. 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. An oral argument took place on October 18, 2018, and the Court's decision is still outstanding.

Furthermore, BASF SE and its affiliated companies are defendants in or parties to a variety of judicial, arbitrational and/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 various 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 that 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 income taxes would have been minus €373 million as of December 31, 2018, and minus €252 million as of December 31, 2017. The effect from the items designated under hedge accounting would have increased shareholders' equity before income taxes by €33 million as of December 31, 2018 (2017: increase of €46 million). This only refers to transactions in U.S. dollars. The foreign currency risk exposure amounted to €3,185 million as of December 31, 2018, and €1,976 million as of December 31, 2017.

Exposure and sensitivity by currency

Million €

	December 31, 2018		December 31, 2017	
	Exposure	Sensitivity	Exposure	Sensitivity
USD	2,119	(236)	1,410	(143)
Other	1,066	(104)	566	(63)
Total	**3,185**	**(340)**	**1,976**	**(206)**

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 arise from changes in prevailing market interest rates, which can lead to changes in the fair value of fixed-rate instruments and in interest payments for variable-rate instruments. Interest rate swaps and combined interest rate and currency derivatives are used to hedge these risks. These risks are relevant to BASF's financing activities but are not of material significance for BASF's operating activities.

The variable interest risk exposure, which also includes fixed rate bonds maturing in the following year, amounted to minus €4.802 million as of December 31, 2018 (2017: minus €986 million). An increase in all relevant interest rates by one percentage point would have lowered income before income taxes by €43 million as of December 31, 2018, and raised income before income taxes by €4 million as of December 31, 2017. The effect from the items designated under hedge accounting would have increased shareholders' equity before income taxes by €5 million as of December 31, 2018 (2017: increase of €9 million).

Carrying amount of nonderivative interest-bearing financial instruments

Million €

	December 31, 2018		December 31, 2017	
	Fixed interest rate	Variable interest rate	Fixed interest rate	Variable interest rate
Loans	179	311	569	439
Securities	90	372	88	87
Financial indebtedness	15,597	5,244	14,703	3,329

Nominal and fair values of interest rate swaps and combined interest rate and currency swaps

Million €

	December 31, 2018		December 31, 2017	
	Nominal value	Fair value	Nominal value	Fair value
Interest rate swaps	**300**	**(7)**	**600**	**(13)**
of which payer swaps	300	(7)	600	(13)
Combined interest rate and currency swaps	**4,183**	**(103)**	**3,337**	**(175)**
of which fixed rate	4,183	(103)	3,337	(175)

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 risks from the volatility of raw materials prices. These are primarily options and swaps on crude oil, oil products and natural gas.
– In the discontinued business, margin risks 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 various 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 performed using forward contracts, which are settled by either entering into offsetting contracts or by delivering the precious metals.
– In the Agricultural Solutions division, the sales prices of products are sometimes pegged 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 carbon emissions trading, various types of carbon 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. There were no deals outstanding as of December 31, 2018, or as of December 31, 2017.

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 in conjunction with 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, 2018		December 31, 2017	
	Exposure	Value at Risk	Exposure	Value at Risk
Crude oil, oil products and natural gas	(12)	8	90	1
Precious metals	112	1	36	2
Emission certificates	–	–	–	–
Agricultural commodities	50	1	0	0
Total	**150**	**10**	**126**	**3**

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

For more information on financial risks and BASF's risk management, see the Report on Opportunities and Risks in the Management's Report from page 123 onward

Default and credit risk

Default and credit risks arise when customers and debtors do not fulfill their contractual obligations. BASF regularly analyzes the creditworthiness of the counterparties 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 financial obligations stemming from contingent liabilities not to be recognized represents the maximum default risk for BASF.

For more information on credit risks, see Note 18 from page 235 onward

Liquidity risks

BASF promptly recognizes any risks from cash flow fluctuations as part of liquidity planning. BASF has ready access to sufficient liquid funds from the 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 negative fair values and therefore represent a liability. Derivatives with positive fair values are assets and are therefore not taken into account.

Trade accounts payable are generally interest-free and due within one year. As a result, 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, 2018

Million €

	Bonds and other liabilities to the capital market	Liabilities to credit institutions	Liabilities resulting from derivative financial instruments	Miscellaneous liabilities	Total
2019	4,860	902	138	669	6,569
2020	1,557	18	22	50	1,647
2021	1,249	181	22	30	1,482
2022	2,195	139	41	25	2,400
2023	1,207	175	65	23	1,470
2024 and thereafter	9,922	979	111	33	11,045
Total	**20,990**	**2,394**	**399**	**830**	**24,613**

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**

27.3 Classes and categories of financial instruments

For trade accounts receivable, other receivables and miscellaneous assets, cash and cash equivalents, as well as trade accounts payable and other liabilities, the carrying amount approximates the fair value.

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, 2018

Million €

	Carrying amount	Total carrying amount within scope of application of IFRS 7	Valuation category in accordance with IFRS 9[2]	Fair value	of which fair value level 1[3]	of which fair value level 2[4]	of which fair value level 3[5]
Shareholdings[1]	453	453	FVTPL	34	22	12	–
Receivables from finance leases	25	25	n/a	25	–	–	–
Accounts receivable, trade	10,665	10,665	AC	10,665	–	–	–
Accounts receivable, trade	–	–	FVTPL	–	–	–	–
Derivatives – no hedge accounting	252	252	FVTPL	252	1	251	–
Derivatives – hedge accounting	93	93	n/a	93	1	92	–
Other receivables and miscellaneous assets[6]	3,570	1,083	AC	1,083	–	–	–
Other receivables and miscellaneous assets[6]	85	85	FVTPL	85	–	85	–
Securities	13	13	AC	13	–	–	–
Securities	4	4	FVTOCI	4	4	–	–
Securities	445	445	FVTPL	445	445	–	–
Cash equivalents	63	63	FVTPL	63	63	–	–
Cash and cash equivalents	2,237	2,237	AC	2,237	2,237	–	–
Total assets	**17,905**	**15,418**		**14,999**	**2,773**	**440**	**–**
Bonds	15,895	15,895	AC	16,351	–	16,351	–
Commercial papers	2,549	2,549	AC	2,549	–	–	–
Liabilities to credit institutions	2,397	2,397	AC	2,397	–	–	–
Liabilities from finance leases	134	134	n/a	134	–	–	–
Accounts payable, trade	5,122	5,122	AC	5,122	–	–	–
Derivatives – no hedge accounting	531	531	FVTPL	531	6	525	–
Derivatives – hedge accounting	7	7	n/a	7	–	7	–
Other liabilities[6]	3,031	1,971	AC	1,971	–	–	–
Total liabilities	**29,666**	**28,606**		**29,062**	**6**	**16,883**	**–**

1 In general, only significant shareholdings are measured at fair value. All insignificant shareholdings are measured at cost. Fair value level 1 is applied to publicly listed shareholdings. Level 2 is applied to shareholdings for which valuation is based on parameters observable in the market to the greatest extent possible. These may be adjusted to reflect valuation-relevant characteristics of the respective shareholding in the fair value.
2 AC: amortized cost; FVTOCI: fair value through other comprehensive income; FVTPL: fair value through profit or loss; a more detailed description of the categories can be found in Note 1.2 from page 183 onward.
3 Fair value was determined based on quoted, unadjusted prices on active markets.
4 Fair value was determined based on parameters for which directly or indirectly quoted prices on active markets were available.
5 Fair value was determined based on parameters for which there was no observable market data.
6 Does not include separately shown derivatives or receivables and liabilities from finance leases. If miscellaneous receivables are valued at fair value through profit or loss, their valuation is generally based on parameters observable on the market. These are adjusted to reflect valuation-relevant characteristics of the respective assets in the fair value.

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	of which which fair value level 1[3]	of which which fair value level 2[4]	of which 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 – hedge accounting	72	72	n/a	72	–	72	–
Other receivables and miscellaneous 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	–	16,406	–
Commercial papers	–	–	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 – hedge accounting	13	13	n/a	13	–	13	–
Other liabilities[6]	3,471	2,442	AmC	2,442	–	–	–
Total liabilities	**27,162**	**26,133**		**26,886**	**36**	**16,934**	**–**

1 The difference between carrying amount and fair value results from shareholdings measured at cost, for which the fair value could not be reliably determined (2017: €482 million).
2 Afs: available for sale; LaR: loans and receivables; aFVtPL: at fair value through profit or loss; AmC: amortized cost; Htm: held to maturity; a more detailed description of the categories can be found in Note 1.2 from page 183 onward.
3 Fair value was determined based on quoted, unadjusted prices on active markets.
4 Fair value was determined based on parameters for which directly or indirectly quoted prices on active markets were available.
5 Fair value was determined based on parameters for which there was no observable market data.
6 Not including separately shown derivatives as well as receivables and liabilities from finance leases. Payments received for orders were reported as other liabilities that do not represent financial instruments in the BASF 2017 report. These liabilities were then added to financial instruments.

Offsetting of financial assets and financial liabilities as of December 31, 2018

Million €

	Offset amounts			Amounts that 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	264	(20)	244	(163)	(48)	33
Derivatives with negative fair values	483	(20)	463	(163)	(150)	150

Offsetting of financial assets and financial liabilities as of December 31, 2017

Million €

	Offset amounts			Amounts that 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)

The table "Offsetting of financial assets and financial liabilities" shows the extent to which financial assets and financial liabilities were offset in the balance sheet, as well as potential effects from the offsetting of instruments subject to a legally enforceable global netting agreement (primarily in the form of an ISDA agreement) or similar agreement. For positive fair values of combined interest rate and currency swaps, the respective counterparties provided cash collaterals in an amount comparable 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 2018 and 2017 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 gains and losses from instruments that are not designated as hedging instruments in acordance with IFRS 9.

Net gains and losses from financial instruments 2018

Million €

	Total
Financial assets measured at amortized cost	33
of which interest result	58
Financial assets at fair value through profit or loss	(45)
of which interest result	57
Financial assets at fair value through other comprehensive income	(4)
of which interest result	4
Financial liabilities measured at amortized cost	(599)
of which interest result	(450)

Net gains and losses from financial instruments 2017

Million €

	Total
Loans and receivables	(311)
of which interest result	90
Available-for-sale financial assets	(24)
of which interest result	2
Financial liabilities measured at amortized cost	249
of which interest result	(359)
Financial instruments at fair value through profit or loss	(396)

The gains and losses from the valuation of securities recognized in equity are shown in development of income and expense recognized in equity attributable to shareholders of BASF SE on page 177

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 using derivative instruments as necessary in accordance with a centrally determined strategy. Hedging is only employed for existing items from the product business, cash investments and financing as well as for planned sales, raw material purchases and capital measures. The risks from the hedged items 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 that 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, 2018	December 31, 2017
Foreign currency forward contracts	(57)	65
Foreign currency options	13	37
Foreign currency derivatives	**(44)**	**102**
of which designated hedging instruments as defined by IFRS 9 (hedge accounting)	11	34
Interest rate swaps	(7)	(13)
of which designated hedging instruments as defined by IFRS 9 (hedge accounting)	(7)	(13)
Combined interest rate and currency swaps	(103)	(175)
of which designated hedging instruments as defined by IFRS 9 (hedge accounting)	80	38
Interest derivatives	**(110)**	**(188)**
Commodity derivatives	**(39)**	**(66)**
of which designated hedging instruments as defined by IFRS 9 (hedge accounting)	1	1
Derivative financial instruments	**(193)**	**(152)**

Cash flow hedge accounting

BASF is exposed to price risks in the context of procuring naphtha. Some of the planned purchases of naphtha are hedged using swaps and options on oil and oil products. The main contractual elements of these options correspond to the characteristics of the hedged item. These hedges are not presented using cash flow hedge accounting in BASF's 2018 or 2017 financial statements.

Cash flow hedge accounting continues to be used to a minor extent for natural gas purchases exposed to commodity price risks, meaning that gains and losses from hedging instruments are initially recognized in equity. Commodity price-based options serve as hedging instruments, for which contract terms are adjusted to reflect the risks of the hedged item. Gains and losses from hedging instruments are included in cost of sales in the fiscal year in 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 2018, effective changes in the fair value of hedging instruments of €5 million (2017: €200,000) were recognized in the equity of the shareholders of BASF SE. In 2018, effective changes in the fair value of hedging instruments of €4 million were derecognized from the equity attributable to shareholders of BASF SE and recognized in other operating income (2017: €300,000). Ineffective parts required to be accounted for did not arise. In 2017, minus €100,000 was recognized as the ineffective part of value changes of the hedging instruments in other operating expenses. The change in the options' time value is separately recognized in equity and recognized in profit or loss in the year during which the hedged items matured. In 2018, a decrease in fair value of minus €2 million was recognized in equity attributable to shareholders of BASF SE, and €1 million was derecognized, increasing equity.

BASF is exposed to foreign currency risks due to planned sales in U.S. dollars. To some extent, cash flow hedge accounting is applied using currency options. The hedging rate is $1.1563 per euro. The impact on earnings from the hedged transactions will occur in 2019. In 2018, the effective change in the values of the hedges was €8 million (2017: €71 million), which was recognized in the equity of the shareholders of BASF SE. A total of €31 million (2017: €44 million) was derecognized accordingly from the equity attributable to shareholders of BASF SE and was recognized in income from foreign currency and hedging transactions. The hedges were entirely effective. The decrease in the options' time value component arising in the amount of €33 million in 2018 was recognized separately in equity as the cost of hedging and resulted in a reduction in equity. The reclassification of the accumulated changes in the time value of options to profit or loss due to the maturity of hedged items had a countering effect in the amount of €36 million.

The interest rate risk of the variable-rate bonds issued by BASF SE in 2013 was hedged using interest rate swaps, which converted the bonds into fixed-interest rate bonds with a rate of 1.45%. The key terms of the interest rate swap contracts used as hedging instruments largely correspond to the contractual elements of the hedged item. The bond and the interest rate swaps were designated in a hedging relationship. The effective changes in the fair value recognized in BASF SE shareholders' equity amounted to €4 million in 2018 (2017: €6 million). Ineffective parts required to be accounted for did not arise.

Furthermore, BASF SE's fixed-rate U.S. private placement of $1.25 billion, issued in 2013, was converted to euros using cross-currency swaps, because the private placement exposes BASF to a currency risk. The hedging interest rate was 4.13%; and the hedging foreign exchange rate was $1.3589 per euro. This hedge was designated as a cash flow hedge. Recognition of ineffective portions in profit or loss was not required. In 2018, changes in fair value of €42 million were recognized in shareholders' equity (2017: minus €125 million). In 2018, €49 million was derecognized from other comprehensive income and recorded as income in the financial result (2017: expense of €144 million in financial result).

28 Leases

Leased assets

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

Leased assets

Million €

	December 31, 2018		December 31, 2017	
	Acquisition cost	Net carrying amount	Acquisition cost	Net carrying amount
Land, land rights and buildings	91	74	22	9
Machinery and technical equipment	127	50	118	43
Miscellaneous equipment and fixtures	111	46	113	44
Total	**329**	**170**	**253**	**96**

The increase in leased assets is due primarily from the additions related to the acquisition of significant parts of Bayer's seed and non-selective herbicide businesses and its vegetable seed business.

Liabilities from finance leases

Million €

	December 31, 2018			December 31, 2017		
	Minimum lease payments	Interest portion	Leasing liability	Minimum lease payments	Interest portion	Leasing liability
Following year 1	47	4	43	32	5	27
Following year 2	28	3	25	37	5	32
Following year 3	24	3	21	22	4	18
Following year 4	17	2	15	19	3	16
Following year 5	8	1	7	12	2	10
More than 5 years	28	5	23	26	5	21
Total	**152**	**18**	**134**	**148**	**24**	**124**

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 2018 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 resulting lease commitments totaled €1,482 million in 2018 (2017: €1,410 million) and will become due in the following years:

Future minimum payments from operating lease contracts

Million €

	Nominal value of future minimum lease payments	
	Dec. 31, 2018	Dec. 31, 2017
Less than 1 year	403	362
1–5 years	720	728
More than 5 years	359	320
Total	**1,482**	**1,410**

Future minimum payments from operating lease contracts included €144 million for companies in the oil and gas disposal group as of December 31, 2018.

Future minimum lease payments from subleasing contracts based on existing agreements amounted to €10 million in 2018 (2017: €10 million).

In 2018, minimum lease payments of €494 million (2017: €407 million) were included in income from operations. In 2018, conditional lease payments of €1 million (2017: €1 million) were also included in income from operations. Furthermore, sublease payments of €4 million (2017: €3 million) were included in income from operations in 2018.

BASF as lessor

BASF acts as a lessor for finance leases to a minor extent only. Receivables on finance leases were €25 million in 2018 (2017: €29 million).

In 2018, claims arising from operating leases amounted to €166 million (2017: €93 million).

Future minimum lease payments to BASF from operating lease contracts

Million €

	Nominal value of future minimum lease payments	
	Dec. 31, 2018	Dec. 31, 2017
Less than 1 year	30	19
1–5 years	75	50
More than 5 years	61	24
Total	**166**	**93**

Other Notes

29 Statement of cash flows and capital structure management

Statement of cash flows

Cash flows from operating activities contained the following payments:

Statement of cash flows

Million €	2018	2017
Income tax payments	1,981	2,147
Interest payments	393	409
Dividends received	427	498

In 2018, interest payments comprised interest payments received of €162 million (2017: €161 million) and interest paid of €555 million (2017: €570 million).

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

In 2018, the amount of €134 million was taken from plan assets of BASF Pensionstreuhand e.V., Ludwigshafen am Rhein, Germany, for the reimbursement of pension benefits paid pertaining to 2017.

Cash flows from investing activities included €7,362 million in payments made for acquisitions (2017: €150 million).

Payments of €107 million were received for divestitures in 2018 (2017: €177 million).

Payments made for intangible assets and property, plant and equipment amounted to €3,894 million, €102 million lower than in the previous year.

Cash and cash equivalents in the amount of €2,519 million reported in the statement of cash flows as of December 31, 2018 consist of the balance sheet value (€2,300 million) and the value reclassified to the oil and gas business disposal group (€219 million). As in the previous year, cash and cash equivalents were not subject to any utilization restrictions.

For more information on cash flows from acquisitions and divestitures, see Note 2.4 from page 205 onward

For more information on the contribution of discontinued operations on BASF's Statement of Cash Flows, see Note 2.5 from page 209 onward

Reconciliation according to IAS 7

Million €	Dec. 31, 2017	Non-cash-effective changes					Dec. 31, 2018[1]
		Cash effective in cash flows from financing activities	Acquisitions/ divestitures/ changes in scope of consolidation	Currency effects	Other effects	Changes in fair value	
Financial indebtedness	18,032	3,252	–	56	11	–	21,351
Loan liabilities	376	150	7	8	–	–	541
Liabilities from finance leases	124	(35)	9	1	35[2]	–	134
Other financing-related liabilities	1,058	(281)	115	(7)	4	–	889
Financial and similar liabilities	**19,590**	**3,086**	**131**	**58**	**50**	–	**22,915**
Assets/liabilities from hedging transactions	(118)	(120)	–	–	–	303	65
Total	**19,472**	**2,966**	**131**	**58**	**50**	**303**	**22,980**

1 Contributions as of December 31, 2018 include contributions reclassified to the disposal group and therefore deviate from balance sheet values.
2 Includes additions from leasing contracts

The reconciliation breaks down the changes in financial and similar liabilities and their hedging transactions into cash-effective and non-cash-effective changes. The cash-effective changes presented above correspond to the figures in cash flows from financing activities.

Loan liabilities do not contain any interest components.

Other financing-related liabilities primarily comprise liabilities from accounts used for cash pooling with BASF companies not included in the Consolidated Financial Statements. They are reported in miscellaneous liabilities within the balance sheet item other liabilities that qualify as financial instruments.

The **assets/liabilities from hedging transactions** form part of the balance sheet item derivatives with positive or negative fair values and include only those transactions which hedge risks arising from financial indebtedness and financing-related liabilities secured by micro hedges.

For more information on receivables and miscellaneous assets, see Note 18 from page 235 onward
For more information on liabilities, see Note 24 from page 246 onward
For more information on the Statement of Cash Flows, see the Management's Report from page 55 onward

Capital structure management

The aim of capital structure management is to maintain the financial flexibility needed to further develop BASF's business portfolio and take advantage of strategic opportunities. The objectives of the company's financing policy are to ensure solvency, limit financial risks and optimize the cost of capital.

Capital structure management focuses on meeting the requirements needed to ensure unrestricted access to the capital market and a solid "A" rating. The capital structure is managed using selected financial ratios, such as dynamic debt ratios, as part of the company's financial planning.

The equity of the BASF Group as reported in the balance sheet amounted to €36,109 million as of December 31, 2018 (December 31, 2017: €34,756 million); the equity ratio was 41.7% on December 31, 2018 (December 31, 2017: 44.1%).

BASF prefers to access external financing on the capital markets. A commercial paper program is used for short-term financing, while corporate bonds are used for financing in the medium and long term. These are issued in euros and other currencies with different maturities. The goal is to create a balanced maturity profile, achieve a diverse range of investors and optimize our debt capital financing conditions.

BASF currently has the following ratings, which were were most recently confirmed by Moody's on February 15, 2019, by Standard & Poor's on January 11, 2019, and by Scope Ratings on December 11, 2018.

Ratings as of December 31, 2018

	Noncurrent financial indebtedness	Current financial indebtedness	Outlook
Moody's	A1	P-1	stable
Standard & Poor's	A	A-1	stable
Scope	A	S-1	stable

Ratings as of December 31, 2017

	Noncurrent financial indebtedness	Current financial indebtedness	Outlook
Moody's	A1	P-1	stable
Standard & Poor's	A	A-1	stable
Scope	A	S-1	stable

BASF strives to maintain a solid "A" rating, which ensures unrestricted access to financial and capital markets.

For more information on BASF's financing policy, see the Management's Report from page 54 onward

30 Share price-based compensation program and BASF incentive share program

Share price-based compensation program

The BASF Group continued its share price-based compensation program (the long-term incentive (LTI) program) in 2018. The program has been in place since 1999 and approximately 1,200 people, in particular the Board of Executive Directors and senior executives, are currently eligible to participate. It provides for the granting of virtual options, which are settled in cash when exercised.

Participation in the LTI program is voluntary. In order to take part in the program, a participant must make a personal investment: A participant must hold BASF shares amounting to 10% to 30% of his or her individual variable compensation for a two-year period from the granting of the option (holding period). The number of shares to be held is determined by the amount of variable compensation and the volume-weighted average market price for BASF shares on the first trading day after the Annual Shareholders' Meeting, which was €85.45 on May 7, 2018.

The participant receives four option rights per invested share. Each option consists of two parts, right A and right B, which may be exercised if defined thresholds have been met: The threshold of right A is met if the price of the BASF share has increased by more than 30% in comparison with the base price on the option grant date (absolute threshold). The value of right A is the difference between the market price of BASF shares on the exercise date and the base price; it is limited to 100% of the base price. If the cumulative percentage performance of BASF shares exceeds the percentage performance of the MSCI World Chemicals Index^{SM} (MSCI Chemicals), right B may be exercised (relative threshold). The value of right B is the base price of the option multiplied by twice the percentage by which the BASF share outperforms the MSCI Chemicals Index on the exercise date. It is limited to the closing price on the date of exercise less the nominal value of the BASF share. From the 2013 LTI program onward, right B may only be exercised if the price of the BASF share equals at least the base price. The options of the 2018 LTI program were granted as of July 1, 2018, and may be exercised following a two-year vesting period, between July 1, 2020, and June 30, 2026. During the exercise period, there are certain times (closed periods) during which the options may not be exercised. Each option can only be exercised in full. This means that one of the thresholds must be exceeded. If the other threshold is not exceeded and the option is exercised, the other option right lapses. A participant's maximum gain from exercising an option is limited to five times the original individual investment starting with the 2013 LTI program. The maximum gain from exercising an option is limited to 10 times the original individual investment for programs from previous years. Option rights are nontransferable and are forfeited if the option holders no longer work for the BASF Group or have sold part of their individual investment before the expiry of the two-year vesting period. They remain valid in the case of retirement. For the members of the Board of Executive Directors, the long-term orientation of the program is significantly strengthened compared with the conditions applying to the other participants. The members of the Board of Executive Directors are required to participate in the LTI program with at least 10% of their actual annual variable compensation. In view of this binding personal investment (in the form of BASF shares), an extended holding period of four years applies. Members of the Board of Executive Directors may only exercise their options four years after they have been granted at the earliest (vesting period).

The 2011 to 2017 programs were structured in a similar way to the 2018 LTI program.

The models used in the valuation of the option plans are based on the arbitrage-free valuation model according to Black-Scholes. The fair values of the options are determined using the binomial model.

Fair value of options and parameters used as of December 31, 2018

		LTI program of the year	
		2018	2017
Fair value	€	10.5	6.25
Dividend yield	%	5.3	5.3
Risk-free interest rate	%	0.00	(0.12)
Volatility BASF share	%	25.32	23.22
Volatility MSCI Chemicals	%	15.97	14.14
Correlation BASF share price : MSCI Chemicals	%	78.27	75.24

The stated fair values and the valuation parameters relate to the 2018 and 2017 LTI programs. The fair value calculation was based on the assumption that options will be exercised in a manner dependent on their potential gains. For the programs from preceding years, corresponding fair values and valuation parameters were determined/used.

Volatility was determined on the basis of the monthly closing prices over a historical period corresponding to the remaining term of the options.

The number of options granted amounted to 2,010,720 in 2018 (2017: 1,461,113).

As a result of a resolution by the Board of Executive Directors in 2002 to settle option rights in cash, all outstanding option rights under the 2011 to 2018 LTI programs were valued at fair value as of December 31, 2018. A proportionate provision is recognized for programs in the vesting period. The LTI provision decreased from €347 million as of December 31, 2017, to €56 million as of December 31, 2018, due to lower fair values of the outstanding option rights. The utilization of provisions amounted to €22 million in 2018 (2017: €49 million). Income arising from the release of provisions amounted to €268 million in 2018 (2017: €68 million). Of this amount, €6 million was attributable to the disposal group for the discontinued oil and gas business in 2018 (2017: €1 million).

The exercisable options had no intrinsic value as of December 31, 2018; their total intrinsic value as of December 31, 2017 was €145 million.

BASF incentive share program

The "plus" incentive share program was introduced in 1999 and is currently available to employees in Germany, other European countries and Mexico. Simultaneous participation in both the "plus" program and the LTI program is not permitted.

Employees who participate in BASF's "plus" incentive share program acquire shares in BASF from their variable compensation. For every 10 BASF shares purchased in the program, a participant receives one BASF share at no cost after one, three, five, seven and ten years of holding these shares. As a rule, the first and second block of ten shares entitles the participant to receive one BASF share at no extra cost in each of the next 10 years.

The right to receive free BASF shares lapses if a participant sells the individual investment in BASF shares, if the participant stops working for a Group company or one year after retirement. The number of free shares to be granted has developed as follows:

Number of free shares to be granted

Shares	2018	2017
As of January 1	2,811,447	2,849,723
Newly acquired entitlements	693,125	570,465
Bonus shares issued	(477,395)	(479,111)
Lapsed entitlements	(99,334)	(129,630)
As of December 31	2,927.843	2,811.447

The free shares to be provided by the company are measured at the fair value on the grant date. Fair value is determined on the basis of the BASF share price, taking into account the present value of dividends, which are not paid during the term of the program. The weighted-average fair value on the grant date amounted to €85.45 for the 2018 program, and €86.02 for the 2017 program.

The fair value of the free shares to be granted is recognized as an expense with a corresponding increase in capital reserves over the term of the program.

Personnel expenses of €32 million were recorded in 2018 for BASF's "plus" incentive share program (2017: €28 million).

31 Compensation of the Board of Executive Directors and Supervisory Board

Compensation of the Board of Executive Directors and Supervisory Board

Million €

	2018	2017
Non-performance-related and performance-related cash compensation of the Board of Executive Directors	14.3	24.8
Fair value of options granted to the Board of Executive Directors in the fiscal year as of grant date	4.5	2.7
Total compensation of the Board of Executive Directors	**18.8**	**27.5**
Service costs for members of the Board of Executive Directors	6.3	7.0
Compensation of the Supervisory Board	3.3	3.3
Total compensation of former members of the Board of Executive Directors and their surviving dependents[1, 2]	(4.4)	7.6
Pension provisions for former members of the Board of Executive Directors and their surviving dependents	159.5	144.3
Guarantees assumed for members of the Board of Executive Directors and the Supervisory Board	–	–

1 Total compensation of former members of the Board of Executive Directors includes compensation for Dr. Kurt Bock before pension benefits in the amount of approximately €1.1 million.
2 Compensation for Dr. Harald Schwager and Margret Suckale for their active membership on the Board of Executive Directors in 2017 is included under total compensation of former members of the Board of Executive Directors in the amount of approximately €1.0 million each.

The annual variable compensation in effect until the end of 2017 was replaced as of 2018 with a forward-looking performance bonus that is geared to sustainable corporate development and has a three-year deferral component. The performance bonus is based on the performance of the Board of Executive Directors as a whole and the return on capital employed (ROCE) of the BASF Group. Subject to certain conditions, ROCE is adjusted for special items from acquisitions and divestitures. The conditions for the adjustment of ROCE were not met in 2018.

Until December 31, 2017, performance-related compensation of the Board of Executive Directors was based on the return on assets adjusted for special effects, as well as the performance of the Board of Executive Directors as a whole. Return on assets corresponds to income before income taxes plus interest expenses as a percentage of average assets.

The members of the Board of Executive Directors were granted 210,228 option rights under the long-term incentive (LTI) program in 2018. The market valuation of the option rights of active and former members of the Board of Executive Directors resulted in income totaling €28.5 million in 2018 (2017: €5.8 million).

For more information on the compensation of members of the Board of Executive Directors, see the Compensation Report from page 146 onward

For more information on the members of the Supervisory Board and Board of Executive Directors, including their memberships on other boards, see page 142 onward

32 Related party transactions

A related party is a natural person or legal entity that can exert influence on the BASF Group or over which the BASF Group exercises control, joint control or a significant influence. In particular, related parties include nonconsolidated subsidiaries, joint ventures and associated companies.

The following tables show the volume of business with related parties that are included in the Consolidated Financial Statements at amortized cost or accounted for using the equity method. The values include sales, receivables, other receivables, liabilities and other liabilities with respect to the disposal groups and/or discontinued operations.

Since the transfer of the leather chemicals business to the Stahl group as of September 29, 2017, BASF holds a minority interest in the parent company of the Stahl group, over which it can exercise significant influence. Sales, trade accounts receivable and other liabilities resulting from transactions with the Stahl group since then are included in the tables below in the values for associated companies for 2018 and 2017.

Sales and trade accounts receivable from and trade accounts payable to related parties mainly included business with own products and merchandise, agency and licensing businesses, and other operating businesses.

Sales from joint ventures with BASF Group companies amounted to €543 million in 2018, and €598 million in 2017. Sales from associated companies with companies in the BASF Group amounted to €626 million in 2018, and €481 million in 2017.

Sales to related parties

Million €

	2018	2017
Nonconsolidated subsidiaries	530	413
Joint ventures	583	379
Associated companies	380	307

Trade accounts receivable from/trade accounts payable to related parties

Million €

	Accounts receivable, trade		Accounts payable, trade	
	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
Nonconsolidated subsidiaries	175	136	101	77
Joint ventures	91	69	75	75
Associated companies	78	71	42	29

Other receivables from/liabilities to related parties

Million €

	Other receivables		Other liabilities	
	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
Nonconsolidated subsidiaries	247	172	190	180
Joint ventures	284	306	432	734
Associated companies	70	73	271	236

Other receivables and liabilities primarily arose from financing activities, from accounts used for cash pooling, outstanding dividend payments, profit and loss transfer agreements, and other finance-related and operating activities and transactions.

Both the increase in other receivables from nonconsolidated subsidiaries and the decrease in other liabilities to joint ventures in 2018 were due mainly to other finance-related receivables and/or liabilities.

The outstanding balances toward related parties were generally not secured and settled in cash.

The balance of valuation allowances for other receivables from nonconsolidated subsidiaries increased from €74 million as of December 31, 2017 to €76 million as of December 31, 2018. Of this amount, €2 million was recognized as an expense in 2018 (2017: €1 million).

The balance of valuation allowances for trade accounts receivable from associated companies decreased from €9 million as of December 31, 2017 to €8 million as of December 31, 2018.

There were obligations from guarantees and other financial obligations at BASF in favor of nonconsolidated subsidiaries in the amount of €6 million as of December 31, 2018 (December 31, 2017: €5 million), and in favor of associated companies in the amount of €17 million as of December 31, 2018 (December 31, 2017: €23 million).

Obligations arising from purchase contracts with joint ventures amounted to €3 million as of December 31, 2018 and €3 million as of December 31, 2017.

As of December 31, 2018, the present value of the outstanding minimum rental payments for an office building including a parking area payable by BASF SE to BASF Pensionskasse VVaG for the nonterminable basic rental period to 2029 amounted to €52 million.

There were no reportable related party transactions with members of the Board of Executive Directors or the Supervisory Board and their related parties in 2018.

For more information on subsidiaries, joint ventures and associated companies, see the BASF Group list of shares held on page 211

For more information on other financial obligations in favor of joint ventures, see Note 25 from page 249 onward

For more information about defined benefit plants, the division of risk between Group companies, see Provisions for pensions and similar obligations, from page 240 onward

For more information on the members of the Board of Executive Directors and the Supervisory Board, see Management and Supervisory Boards and Compensation Report from page 142 onward

33 Services provided by the external auditor

BASF Group companies used the following services from KPMG:

Services provided by the external auditor

Million €	2018	2017
Annual audit	21.1	18.6
of which domestic	8.2	6.4
Audit-related services	0.7	0.4
of which domestic	0.5	0.1
Tax consultation services	0.3	0.2
of which domestic	0.1	0.1
Other services	–	0.1
of which domestic	–	–
Total	**22.1**	**19.3**

The services provided by the external auditor mainly include services for the annual audit, and to a lesser extent, confirmation services, tax consultation services and other services.

The line item annual audit relates to expenses for the audit of the Consolidated Financial Statements of the BASF Group, the legally required financial statements of BASF SE and of the subsidiaries and joint operations included in the Consolidated Financial Statements as well as the voluntary audit of subgroups and combined financial statements. Tax consultation services refer primarily to fees for completion of unfinished tax returns. Fees for other services primarily include project-related audits in connection with regulatory demands as well as other confirmation services.

34 Declaration of Conformity with the German Corporate Governance Code

Declaration pursuant to section 161 of the German Stock Corporation Act (AktG)

The annual Declaration of Conformity with the German Corporate Governance Code according to section 161 AktG was signed by the Board of Executive Directors and the Supervisory Board of BASF SE in December 2018 and is published online.

For more information, see basf.com/en/corporategovernance

35 Non-adjusting post-balance sheet date events

On January 31, 2019, BASF and Solenis concluded the transfer of BASF's paper and water chemicals business to Solenis that had been announced in May 2018. BASF gained a share of 49% in Solenis as of February 1, 2019. 51% of the shares will be held by funds managed by Clayton, Dubilier & Rice and senior management. The transaction covered production facilities and plants pertaining to BASF's paper and water chemicals business in Bradford and Grimsby, United Kingdom, Suffolk, Virginia, Altamira, Mexico, Ankleshwar, India and Kwinana, Australia. The BASF Paper and Water Chemicals business unit's production plants that are tightly integrated in the Verbund in Ludwigshafen, Germany, and in Nanjing, China, will remain with BASF, supplying the joint company with products and raw materials based on medium and long-term supply agreements. BASF's paper coating chemicals portfolio was not part of the transaction. As of the closing of the transaction, BASF's share of Solenis' income after taxes will be accounted for using the equity method due to BASF's significant influence, and included in EBIT of the BASF Group, presented in Other.

Chapter 5 pages 269–278

5

Supplementary Information Oil and Gas Business

Supplementary Information on the Oil and Gas Business (Unaudited)

The following provides supplementary information on the Exploration & Production business of the discontinued oil and gas business. In the absence of detailed disclosure rules in this area under the International Financial Reporting Standards (IFRS), the presentation is based on the FASB standard Extractive Activities – Oil and Gas (Topic 932), which is a further development of SFAS 69. In the following sections, the determination of the amounts complies with the metrics set out by IFRS that underlie the BASF Group Consolidated Financial Statements: Operating income from oil and gas-producing activities; Period expenditures for acquisition, exploration and development of oil and gas deposits; Capitalized costs relating to oil and gas producing activities; and Capitalized exploration drilling: suspended well costs. Despite its presentation as a discontinued operation, the main accounting and consolidation methods for the oil and gas business are unchanged compared with the previous year. The definition of companies accounted for using the equity method also follows the approach of the Consolidated Financial Statements. The cash flow from the Yuzhno Russkoye project is shown in the fully consolidated company responsible for marketing the gas.

According to Topic 932, the current economic conditions were considered in the determination of oil and gas reserves as well as the standardized calculation of discounted net cash flows. The prices used are valued at the average price calculated from the prices on the first day of the month for the past 12 months. Expected proven reserves and the resulting future net cash flows can vary significantly from the current estimates. Furthermore, the realized prices and costs and the actual cash flows resulting therefrom may differ from the estimate in amount and distribution over time. Therefore, the values presented should not be interpreted as a prediction of future cash flows, nor in their sum as the current value of the company.

Furthermore, different prices, costs and volume estimates are used for operational decisions as well as for the preparation of the Consolidated Financial Statements. Therefore, the reserves and net cash flows shown are not comparable with statements and values in the Consolidated Financial Statements.

According to the requirements in Topic 932, regions with more than a 15% share of total reserves must be shown separately. Therefore, the regions in the supplementary information differ from those presented in the Consolidated Financial Statements. Aside from the countries Germany and Russia, this includes the regions: Rest of Europe; North Africa/Middle East; as well as South America.

The regions include the following countries with operating activities:

Region	Exploration & Production	Exploration
Rest of Europe	United Kingdom, the Netherlands, Norway, Denmark	
North Africa/Middle East	Libya	Abu Dhabi
South America	Argentina	Brazil

Oil and gas reserves

Proven oil and gas reserves are the volumes of crude oil, natural gas and condensate that, according to the geological, engineering and economic conditions prevailing at the balance sheet date, can be produced in future years. Accordingly, reserve estimates based on this data could be materially different from the volumes that are ultimately recovered. To reduce uncertainties, BASF works together with independent, internationally recognized reserve auditors to perform recurring reserves audits of its major crude oil and natural gas fields.

The tables on the following pages show the company's estimated proven and proven developed reserves as of December 31, 2017, and 2018, as well as changes attributable to production or other factors.

Oil 2018

Consolidated and equity-accounted companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group	Of which at equity
Proven developed and undeveloped oil reserves as of January 1, in million barrels (MMbbl)	**34**	**136**	**218**	**82**	**8**	**478**	**82**
Revisions and other changes	6	(43)	10	3	5	(19)	(3)
Extensions and discoveries	–	10	–	–	–	10	–
Purchase/sale of reserves	–	–	63	–	–	63	63
Production	6	21	15	10	2	54	10
Proven reserves as of December 31	**34**	**82**	**276**	**75**	**11**	**478**	**132**
of which equity-accounted companies	–	1	69	62	–	132	132
Proven developed reserves as of December 31	**29**	**58**	**161**	**68**	**10**	**326**	**61**
of which equity-accounted companies	–	–	6	55	–	61	61

Gas 2018

Consolidated and equity-accounted companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group	Of which at equity
Developed and undeveloped gas reserves as of January 1, in million barrels of oil equivalent (MMBOE)	**19**	**124**	**907**	**8**	**140**	**1,198**	**466**
Revisions and other changes	1	–	171	(1)	8	179	138
Extensions and discoveries	–	8	–	–	–	8	3
Purchase/sale of reserves	–	–	125	–	–	125	125
Production	3	13	77	–	24	117	57
Proven reserves as of December 31	**17**	**119**	**1,126**	**7**	**124**	**1,393**	**675**
of which equity-accounted companies	–	7	661	7	–	675	675
Proven developed reserves as of December 31	**17**	**103**	**536**	**6**	**104**	**766**	**221**
of which equity-accounted companies	–	5	210	6	–	221	221

Oil 2017

Consolidated and equity-accounted companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group	Of which at equity
Proven developed and undeveloped oil reserves as of January 1, in million barrels (MMbbl)	**36**	**127**	**184**	**86**	**7**	**440**	**89**
Revisions and other changes	4	29	49	3	3	88	1
Extensions and discoveries	–	–	–	–	–	–	–
Purchase/sale of reserves	–	–	–	–	–	–	–
Production	6	20	15	7	2	50	8
Proven reserves as of December 31	**34**	**136**	**218**	**82**	**8**	**478**	**82**
of which equity-accounted companies	–	2	4	76	–	82	82
Proven developed reserves as of December 31	**33**	**111**	**166**	**72**	**8**	**390**	**72**
of which equity-accounted companies	–	–	4	68	–	72	72

Gas 2017

Consolidated and equity-accounted companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group	Of which at equity
Developed and undeveloped gas reserves as of January 1, in million barrels of oil equivalent (MMBOE)	**23**	**111**	**885**	**9**	**154**	**1,182**	**520**
Revisions and other changes	(1)	21	97	(1)	10	126	3
Extensions and discoveries	–	4	–	–	–	4	–
Purchase/sale of reserves	–	–	–	–	–	–	–
Production	3	12	75	–	24	114	57
Proven reserves as of December 31	**19**	**124**	**907**	**8**	**140**	**1,198**	**466**
of which equity-accounted companies	–	7	451	8	–	466	466
Proven developed reserves as of December 31	**19**	**55**	**622**	**8**	**114**	**818**	**305**
of which equity-accounted companies	–	6	291	8	–	305	305

Operating income from oil and gas-producing activities

Operating income represents only those revenues and expenses directly associated with oil, condensate and gas production. This partly results in significant differences to the figures shown for the discontinued oil and gas business. Significant deviations exist in sales revenues that do not include sales from merchandise and services as well as the financing and corporate overhead costs not included there. The depreciation and amortization that was suspended in BASF's Consolidated Financial Statements from the date of classification as a discontinued operation is also taken into account. Income taxes were computed using currently applicable local income tax rates.

2018

Million €

Fully consolidated companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group
Sales crude oil (including condensate and LPG)	289	1,025	121	89	98	1,622
Sales natural gas	71	384	391	–	480	1,326
Local duties (royalties, export, etc.)	54	–	–	–	89	143
Net revenue (less duties)	**306**	**1,409**	**512**	**89**	**489**	**2,805**
Production costs	113	256	30	8	118	525
Exploration expenses and technology	7	58	7	7	50	129
Depreciation, amortization and impairments	91	687	18	4	166	966
Other	4	(9)	17	8	(24)	(4)
Operating income before taxes	**91**	**417**	**440**	**62**	**179**	**1,189**
Income taxes	26	266	95	52	64	503
Operating income after taxes	**65**	**151**	**345**	**10**	**115**	**686**
Net income of equity-accounted companies	**–**	**(7)**	**32**	**–**	**–**	**25**

2017

Million €

Fully consolidated companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group
Sales crude oil (including condensate and LPG)	249	766	116	50	80	1,261
Sales natural gas	67	298	263	–	438	1,066
Local duties (royalties, export, etc.)	47	–	–	–	79	126
Net revenue (less duties)	**269**	**1,064**	**379**	**50**	**439**	**2,201**
Production costs	118	231	33	10	158	550
Exploration expenses and technology	6	82	15	22	24	149
Depreciation, amortization and impairments	101	587	20	10	154	872
Other	(1)	16	25	8	(163)	(115)
Operating income before taxes	**45**	**148**	**286**	**–**	**266**	**745**
Income taxes	13	47	64	18	94	236
Operating income after taxes	**32**	**101**	**222**	**(18)**	**172**	**509**
Net income of equity-accounted companies	**–**	**79**	**49**	**4**	**–**	**132**

Period expenditures for acquisition, exploration and development of oil and gas deposits

Period expenditures include all amounts incurred in connection with the acquisition, exploration or development of oil and gas deposits, regardless of whether these were capitalized or expensed.

2018

Million €

Fully consolidated companies	**Germany**	**Rest of Europe**	**Russia**	**North Africa/ Middle East**	**South America**	**Total Group**
Acquisition expenditures	–	–	–	134	1	135
For proven reserves	–	–	–	–	1	1
For unproven reserves	–	–	–	134	–	134
Exploration and technology expenditures	11	83	9	10	78	191
Development expenditures	120	490	64	5	141	820
Total expenditures	**131**	**573**	**73**	**149**	**220**	**1,146**
Total expenditures for equity-accounted companies	**–**	**42**	**68**	**16**	**–**	**126**

2017

Million €

Fully consolidated companies	**Germany**	**Rest of Europe**	**Russia**	**North Africa/ Middle East**	**South America**	**Total Group**
Acquisition expenditures	–	–	–	–	–	–
For proven reserves	–	–	–	–	–	–
For unproven reserves	–	–	–	–	–	–
Exploration and technology expenditures	6	49	12	33	31	131
Development expenditures	57	645	75	3	134	914
Total expenditures	**63**	**694**	**87**	**36**	**165**	**1,045**
Total expenditures for equity-accounted companies	**–**	**21**	**18**	**(5)**	**–**	**34**

Capitalized costs relating to oil and gas producing activities

Capitalized costs represent total expenditures on proven and unproven oil and gas deposits including the related accumulated depreciation and amortization.

2018

Million €

Fully consolidated companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group
Proven oil and gas reserves	1,050	6,783	1,370	151	1,892	11,246
Unproven oil and gas reserves	55	211	–	269	358	893
Equipment and miscellaneous	943	4	–	–	–	947
Total gross assets	**2,048**	**6,998**	**1,370**	**420**	**2,250**	**13,086**
Accumulated depreciation, amortization and impairments	(1,505)	(3,313)	(388)	(209)	(1,363)	(6,778)
Total net assets	**543**	**3,685**	**982**	**211**	**887**	**6,308**
Investments in equity-accounted companies	**–**	**297**	**1,144**	**97**	**–**	**1,538**

2017

Million €

Fully consolidated companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group
Proven oil and gas reserves	1,029	5,866	1,530	140	1,757	10,322
Unproven oil and gas reserves	34	301	–	132	412	879
Equipment and miscellaneous	888	6	–	–	–	894
Total gross assets	**1,951**	**6,173**	**1,530**	**272**	**2,169**	**12,095**
Accumulated depreciation, amortization and impairments	(1,436)	(2,487)	(391)	(195)	(1,193)	(5,702)
Total net assets	**515**	**3,686**	**1,139**	**77**	**976**	**6,393**
Investments in equity-accounted companies	**–**	**307**	**1,130**	**97**	**–**	**1,534**

Capitalized exploration drilling: suspended well costs

Exploratory drilling costs are capitalized until the drilling of the well is complete. If hydrocarbon resources are found whose commercial development is possible, the costs continue to be capitalized as construction in progress, subject to further appraisal activity that may include the drilling of further wells. Management evaluates all such capitalized costs at least once a year from both a technical and economic perspective to confirm the continued intent to develop or otherwise extract value from the discovery. If this is no longer the case, the relevant costs are written off. If proven reserves of oil or natural gas are determined and development is sanctioned, however, the relevant expenses are transferred within property, plant and equipment to machinery and technical equipment. Impairments for unsuccessful exploration wells are recognized in exploration expenses.

The following table indicates the changes in capitalized exploration drilling.

The last row shows the year-end value for equity-accounted companies.

Capitalized exploration drilling

Million €

Fully consolidated companies	2018	2017
As of January 1	**303**	**411**
Additions to exploration drilling of the year	46	32
Capitalized exploration drilling charged to expense	(25)	(34)
Reclassification of successful exploration drilling	(20)	(75)
Translation effect	7	(31)
As of December 31	**311**	**303**
Equity-accounted companies as of December 31	**123**	**164**

The following table provides an overview of the capitalization period, amounts capitalized for exploration drilling, and the number of suspended exploration wells.

Capitalized exploration drilling

Million €

Fully consolidated companies	2018	2017
Wells for which drilling is not complete	**10**	**4**
Wells capitalized less than one year	32	35
Wells capitalized more than one year	269	264
Total	**311**	**303**
Number of exploration wells in construction in progress	**29**	**31**
Number of exploration wells in construction in progress at equity-accounted companies as of December 31	**20**	**23**

Standardized measure of discounted future net cash flows relating to proven oil and gas reserves

The following information was determined based on the provisions of the standard Extractive Activities – Oil and Gas (Topic 932) published by FASB. Based on this, a standardized measure of discounted future net cash flows with the relevant revenues, costs and income tax rates is to be made. The proven reserves are valued at the average price calculated from the prices on the first day of the month for the past business year. The values thus determined are discounted at a 10% annual discount rate.

Standardized measure of discounted future net cash flows 2018

Million €

Consolidated and equity-accounted companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group	Of which at equity
Future revenues	1,818	8,243	10,197	4,599	2,562	27,419	5,890
Future production/development costs	1,540	4,683	3,278	921	1,055	11,477	2,109
Future income taxes	28	1,823	1,459	3,285	311	6,906	3,014
Future net cash flows, not discounted	**250**	**1,737**	**5,460**	**393**	**1,196**	**9,036**	**767**
10% discount rate	(36)	297	2,601	140	282	3,284	587
Standardized measure of discounted future net cash flows	**286**	**1,440**	**2,859**	**253**	**914**	**5,752**	**180**
of which equity-accounted companies	–	1	65	114	–	180	180

Standardized measure of discounted future net cash flows 2017

Million €

Consolidated and equity-accounted companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group	Of which at equity
Future revenues	1,538	9,543	6,556	3,476	3,362	24,475	3,561
Future production/development costs	1,486	4,767	1,786	1,173	1,562	10,774	1,426
Future income taxes	(22)	2,589	966	2,089	491	6,113	2,002
Future net cash flows, not discounted	**74**	**2,187**	**3,804**	**214**	**1,309**	**7,588**	**133**
10% discount rate	(96)	379	1,544	38	285	2,150	(1)
Standardized measure of discounted future net cash flows	**170**	**1,808**	**2,260**	**176**	**1,024**	**5,438**	**134**
of which equity-accounted companies	–	(27)	26	135	–	134	134

Summary of changes in standardized measure of discounted future net cash flows 2018

Million €

Consolidated and equity-accounted companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group	Of which at equity
As of January 1	**170**	**1,808**	**2,260**	**176**	**1,024**	**5,438**	**134**
Sales of oil and gas produced, net of production costs in the current period	(192)	(1,211)	(590)	(159)	(374)	(2,526)	(110)
Net changes in prices and production costs at balance sheet date	239	846	775	811	(123)	2,548	619
Net changes from extensions, discoveries and improved recovery, less related costs	–	12	–	–	–	12	21
Revisions of previous reserves estimates	62	(694)	191	122	(2)	(321)	22
Investments in the period	59	525	94	13	140	831	48
Changes in estimated investments in future periods	(30)	(439)	(24)	7	30	(456)	(29)
Purchase/sale of reserves	–	–	34	–	–	34	34
Net change in income taxes	(34)	254	(146)	(871)	97	(700)	(703)
Accretion of discount	12	340	265	154	122	893	144
Other	–	(1)	–	–	–	(1)	–
Standardized measure of discounted future net cash flows as of December 31	**286**	**1,440**	**2,859**	**253**	**914**	**5,752**	**180**
of which equity-accounted companies	–	1	65	114	–	180	180

Summary of changes in standardized measure of discounted future net cash flows 2017

Million €

Consolidated and equity-accounted companies	Germany	Rest of Europe	Russia	North Africa/ Middle East	South America	Total Group	Of which at equity
As of January 1	**68**	**1,020**	**2,131**	**104**	**1,147**	**4,470**	**82**
Sales of oil and gas produced, net of production costs in the current period	(151)	(868)	(488)	(104)	(282)	(1,893)	(94)
Net changes in prices and production costs at balance sheet date	242	1,410	474	205	(74)	2,257	143
Net changes from extensions, discoveries and improved recovery, less related costs	–	–	–	–	–	–	–
Revisions of previous reserves estimates	46	973	248	90	105	1,462	72
Investments in the period	67	652	79	–	134	932	7
Changes in estimated investments in future periods	(41)	286	(278)	(27)	(187)	(247)	(44)
Purchase/sale of reserves	–	–	–	–	–	–	–
Net change in income taxes	(61)	(1,779)	(145)	(227)	41	(2,171)	(163)
Accretion of discount	–	115	239	135	140	629	131
Other	–	(1)	–	–	–	(1)	–
Standardized measure of discounted future net cash flows as of December 31	**170**	**1,808**	**2,260**	**176**	**1,024**	**5,438**	**134**
of which equity-accounted companies	–	(27)	26	135	–	134	134

Chapter 6 pages 279–289

6 Overviews

Ten-Year Summary

Million €

	2009	2010	2011	2012[2]	2013[3]	2014	2015	2016	2017	2018
Sales and earnings										
Sales	50,693	63,873	73,497	72,129	73,973	74,326	70,449	57,550	61,223[1]	62,675
Income from operations (EBIT)	3,677	7,761	8,586	6,742	7,160	7,626	6,248	6,275	7,587[1]	6,033
Income before income taxes	3,079	7,373	8,970	5,977	6,600	7,203	5,548	5,395	6,882[1]	5,288
Income after taxes from continuing operations	–	–	–	–	–	–	–	–	5,592	4,150
Income after taxes from discontinued operations	–	–	–	–	–	–	–	–	760	829
Income after taxes	1,655	5,074	6,603	5,067	5,113	5,492	4,301	4,255	6,352	4,979
Net income	1,410	4,557	6,188	4,819	4,792	5,155	3,987	4,056	6,078	4,707
Income from operations before depreciation and amortization (EBITDA)	7,388	11,131	11,993	10,009	10,432	11,043	10,649	10,526	10,765[1]	9,166
EBIT before special items	4,852	8,138	8,447	6,647	7,077	7,357	6,739	6,309	7,645[1]	6,353
EBIT after cost of capital	(226)	3,500	2,551	1,164	1,768	1,368	194	1,136	2,902[1]	825
Capital expenditures, depreciation and amortization										
Additions to property, plant and equipment and intangible assets	5,972	5,304	3,646	5,263	7,726	7,285	6,013	7,258	4,364	10,735
of which property, plant and equipment	4,126	3,294	3,199	4,084	6,428	6,369	5,742	4,377	4,028	5,040
Depreciation and amortization of property, plant and equipment and intangible assets	3,711	3,370	3,407	3,267	3,272	3,417	4,401	4,251	4,202	3,750
of which property, plant and equipment	2,614	2,667	2,618	2,594	2,631	2,770	3,600	3,691	3,586	3,155
Number of employees										
At year-end	104,779	109,140	111,141	110,782	112,206	113,292	112,435	113,830	115,490	122,404
Annual average	103,612	104,043	110,403	109,969	111,844	112,644	113,249	111,975	114,333	118,371
Personnel expenses	**7,107**	**8,228**	**8,576**	**8,963**	**9,285**	**9,224**	**9,982**	**10,165**	**10,610**	**10,659**
Research and development expenses	**1,398**	**1,492**	**1,605**	**1,732**	**1,849**	**1,884**	**1,953**	**1,863**	**1,843**[1]	**2,028**

1 Figures for 2017 were restated with the presentation of the oil and gas activities as discontinued operations. For more information, see the Consolidated Financial Statements from page 200 onward.
2 We have applied International Reporting Standards IFRS 10 and 11 as well as International Accounting Standard 19 (revised) since January 1, 2013. Figures for 2012 have been restated; no restatement was made for 2011 and earlier.
3 Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group.

Million €

		2009	2010	2011	2012[2]	2013[3]	2014	2015	2016	2017	2018
Key data											
Earnings per share	€	1.54	4.96	6.74	5.25	5.22	5.61	4.34	4.42	6.62	5.12
Adjusted earnings per share	€	3.01	5.73	6.26	5.64	5.31	5.44	5.00	4.83	6.44	5.87
Cash flows from operating activities		5,693	6,460	7,105	6,602	8,100	6,958	9,446	7,717	8,785	7,939
EBITDA margin	%	14.6	17.4	16.3	13.9	14.1	14.9	15.1	18.3	17.6[1]	14.6
Return on assets	%	7.5	14.7	16.1	11.0	11.5	11.7	8.7	8.2	9.5[1]	7.1
Return on equity after tax	%	8.9	24.6	27.5	19.9	19.2	19.7	14.4	13.3	18.9	14.1
Return on capital employed (ROCE)	%	–	–	–	–	–	–	–	–	15.4	11.4
Appropriation of profits											
Net income of BASF SE[4]		2,176	3,737	3,506	2,880	2,826	5,853	2,158	2,808	3,130	2,982
Dividend		1,561	2,021	2,296	2,388	2,480	2,572	2,664	2,755	2,847	2,939
Dividend per share	€	1.70	2.20	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20
Number of shares as of December 31	**million**	**918.5**	**918.5**	**918.5**	**918.5**	**918.5**	**918.5**	**918.5**	**918.5**	**918.5**	**918.5**

1 Figures for 2017 were restated with the presentation of the oil and gas activities as discontinued operations. For more information, see the Consolidated Financial Statements from page 200 onward.
2 We have applied International Reporting Standards IFRS 10 and 11 as well as International Accounting Standard 19 (revised) since January 1, 2013. Figures for 2012 have been restated; no restatement was made for 2011 and earlier.
3 Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group.
4 Calculated in accordance with German GAAP

Balance sheet (IFRS)

Million €	2009	2010	2011	2012[1]	2013[2]	2014	2015	2016	2017	2018
Intangible assets	10,449	12,245	11,919	12,193	12,324	12,967	12,537	15,162	13,594	16,554
Property, plant and equipment	16,285	17,241	17,966	16,610	19,229	23,496	25,260	26,413	25,258	20,780
Investments accounted for using the equity method	1,340	1,328	1,852	3,459	4,174	3,245	4,436	4,647	4,715	2,203
Other financial assets	1,619	1,953	848	613	643	540	526	605	606	570
Deferred taxes	1,042	1,112	941	1,473	1,006	2,193	1,791	2,513	2,118	2,342
Other receivables and miscellaneous noncurrent assets	946	653	561	911	877	1,498	1,720	1,210	1,332	886
Noncurrent assets	**31,681**	**34,532**	**34,087**	**35,259**	**38,253**	**43,939**	**46,270**	**50,550**	**47,623**	**43,335**
Inventories	6,776	8,688	10,059	9,581	10,160	11,266	9,693	10,005	10,303	12,166
Accounts receivable, trade	7,738	10,167	10,886	9,506	10,233	10,385	9,516	10,952	10,801[3]	10,665
Other receivables and miscellaneous current assets	3,223	3,883	3,781	3,455	3,714	4,032	3,095	3,078	3,494[3]	3,139
Marketable securities	15	16	19	14	17	19	21	536	52	344
Cash and cash equivalents	1,835	1,493	2,048	1,647	1,827	1,718	2,241	1,375	6,495	2,300
Assets of disposal groups	–	614	295	3,264	–	–	–	–	–	14,607
Current assets	**19,587**	**24,861**	**27,088**	**27,467**	**25,951**	**27,420**	**24,566**	**25,946**	**31,145**	**43,221**
Total assets	**51,268**	**59,393**	**61,175**	**62,726**	**64,204**	**71,359**	**70,836**	**76,496**	**78,768**	**86,556**

1 We have applied International Reporting Standards IFRS 10 and 11 as well as International Accounting Standard 19 (revised) since January 1, 2013. Figures for 2012 have been restated; no restatement was made for 2011 and earlier.
2 Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group
3 As of January 1, 2018, receivables from bank acceptance drafts are no longer reported under trade accounts receivable, but under the item other receivables and other assets. The 2017 figures have been restated accordingly.

Balance sheet (IFRS)

Million €	2009	2010	2011	2012[1]	2013[2]	2014	2015	2016	2017	2018
Subscribed capital	1,176	1,176	1,176	1,176	1,176	1,176	1,176	1,176	1,176	1,176
Capital reserves	3,229	3,216	3,203	3,188	3,165	3,143	3,141	3,130	3,117	3,118
Retained earnings	12,916	15,817	19,446	23,708	26,102	28,777	30,120	31,515	34,826	36,699
Other comprehensive income	156	1,195	314	(3,461)	(3,400)	(5,482)	(3,521)	(4,014)	(5,282)	(5,939)
Noncontrolling interests	1,132	1,253	1,246	1,010	630	581	629	761	919	1,055
Equity	**18,609**	**22,657**	**25,385**	**25,621**	**27,673**	**28,195**	**31,545**	**32,568**	**34,756**	**36,109**
Provisions for pensions and similar obligations	2,255	2,778	3,189	5,421	3,727	7,313	6,313	8,209	6,293	7,434
Other provisions	3,289	3,352	3,335	2,925	3,226	3,502	3,369	3,667	3,478	1,860
Deferred taxes	2,093	2,467	2,628	2,234	2,894	3,420	3,381	3,317	2,731	1,787
Financial indebtedness	12,444	11,670	9,019	8,704	11,151	11,839	11,123	12,545	15,535	15,332
Other liabilities	898	901	1,142	1,111	1,194	1,197	869	873	1,095	705
Noncurrent liabilities	**20,979**	**21,168**	**19,313**	**20,395**	**22,192**	**27,271**	**25,055**	**28,611**	**29,132**	**27,118**
Accounts payable, trade	2,786	4,738	5,121	4,502	5,153	4,861	4,020	4,610	4,971	5,122
Provisions	3,276	3,324	3,210	2,628	2,670	2,844	2,540	2,802	3,229	3,252
Tax liabilities	1,003	1,140	1,038	870	968	1,079	1,082	1,288	1,119	695
Financial indebtedness	2,375	3,369	3,985	4,094	3,256	3,545	4,074	3,767	2,497	5,509
Other liabilities	2,240	2,802	3,036	2,623	2,292	3,564	2,520	2,850	3,064	2,998
Liabilities of disposal groups	–	195	87	1,993	–	–	–	–	–	5,753
Current liabilities	**11,680**	**15,568**	**16,477**	**16,710**	**14,339**	**15,893**	**14,236**	**15,317**	**14,880**	**23,329**
Total equity and liabilities	**51,268**	**59,393**	**61,175**	**62,726**	**64,204**	**71,359**	**70,836**	**76,496**	**78,768**	**86,556**

1 We have applied International Reporting Standards IFRS 10 and 11 as well as International Accounting Standard 19 (revised) since January 1, 2013. Figures for 2012 have been restated; no restatement was made for 2011 and earlier.
2 Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group

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1 Trademarks are not registered in all countries.

Glossary

A

Associated companies
Associated companies are entities in which significant influence can be exercised over their operating and financial policies and which are not subsidiaries, joint ventures or joint operations. In general, this applies to companies in which BASF has an investment of between 20% and 50%.

B

Barrel of oil equivalent (BOE)
A barrel of oil equivalent (BOE) is an international unit of measurement for comparing the energy content of different fuels. It is equal to one barrel of crude oil, or 6,000 cubic feet (169 cubic meters) of natural gas.

Biotechnology
Biotechnology includes all processes and products that make use of living organisms, such as bacteria and yeasts, or their cellular constituents.

Breakthrough innovations
Breakthrough innovations are radically new products, applications, processes, services or business models that have a significant potential competitive advantage and a disruptive effect on the market. They can also be achieved by combining individual innovations and existing technologies to create a new, complex system. Breakthrough innovations open up new high-tech fields, markets or industries, generating value added and benefits for society.

C

Capital expenditures (capex)
We define capex as additions to property, plant and equipment excluding additions from acquisitions, IT investments, capitalized exploration, restoration obligations and right-of-use assets arising from leases.

CDP
The international nonprofit organization CDP (formerly the Carbon Disclosure Project) analyzes environmental data of companies. The CDP's indexes serve as assessment tools for investors.

CO_2 equivalents
CO_2 equivalents are units for measuring the impact of greenhouse gas emissions on the greenhouse effect. A factor known as the global warming potential (GWP) shows the impact of the individual gases compared with CO_2 as the reference value.

Commercial paper program
The commercial paper program is a framework agreement between BASF and banks regarding the issuing of debt obligations on the financial market (commercial paper). The commercial paper is issued under a rolling program for which the terms can be determined individually. This requires a good rating.

Competency Model
BASF's Competency Model is derived from our corporate strategy and our values, and translates these into specific day-to-day behavioral standards. It is applicable worldwide, creating a common framework for the conduct of all BASF employees and leaders to enable us to reach our shared goals. The eight competencies are: Drive Innovation, Collaborate for Achievement, Embrace Diversity, Communicate Effectively, Drive Sustainable Solutions, Develop Self and Others, Act with Entrepreneurial Drive, Demonstrate Customer Focus.

Compliance
Compliance is an important element of corporate governance. It refers to the company's behavior in accordance with laws, guidelines and voluntary codices.

D

Dodd-Frank Act
The Dodd-Frank Act issued in 2010 comprises accounting and disclosure obligations for publicly listed U.S. companies regarding the use of certain raw materials that come from the Democratic Republic of the Congo or its bordering countries. The companies must prove that the materials they use do not come from mines in these conflict areas. The definition of conflict minerals as per the Dodd-Frank Act includes the following materials and their derivatives: Columbitetantalite (coltan), cassiterite, wolframite and gold.

E

EBIT
Earnings before interest and taxes (EBIT): At BASF, EBIT corresponds to income from operations.

EBIT after cost of capital
EBIT after cost of capital is calculated by deducting the cost of capital from the EBIT of the segments. The cost of capital thereby reflects the shareholders' expectations regarding return (in the form of dividends or share price increases) and interest payable to creditors. If the EBIT after cost of capital has a positive value, we have earned a premium on our cost of capital.

EBITDA
Earnings before interest, taxes, depreciation and amortization (EBITDA): At BASF, EBITDA corresponds to income from operations before depreciation and amortization (impairments and reversals of impairments).

EBITDA margin
The EBITDA margin is the margin that we earn on sales from our operating activities before depreciation and amortization as a percentage of EBITDA. It is calculated as income from operations before depreciation, amortization and valuation allowances as a percentage of sales.

Eco-Efficiency Analysis
The Eco-Efficiency Analysis is a method developed by BASF for assessing the economic and environmental aspects of products and processes. The aim is to compare products with regard to profitability and environmental compatibility.

Enhanced Oil Recovery (EOR)
Enhanced oil recovery (EOR) methods, also called tertiary recovery or tertiary production methods, are used to increase the recovery factor from oil reservoirs. Different technologies are employed depending on reservoir conditions; a distinction is generally made between thermal and chemical EOR and miscible gas flooding, which makes use of gases such as carbon dioxide.

Emerging markets
We define the emerging markets as Greater China, the ASEAN countries (Brunei, Indonesia, Malaysia, Myanmar, Cambodia, Laos, the Philippines, Singapore, Thailand, Vietnam), India, Pakistan and Bangladesh; Central and South America; eastern Europe; the Middle East, Turkey and Africa.

Equity method
The equity method is used to account for shareholdings in joint ventures and associated companies. Based on the acquisition costs of the shareholding as of the acquisition date, the carrying amount is continuously adjusted to the changes in equity of the company in which the share is held.

European Water Stewardship (EWS) Standard
The European Water Stewardship (EWS) Standard enables businesses and agriculture to assess the sustainability of their water management practices. The criteria are water abstraction volumes, water quality, conservation of biodiversity and water governance. The Europe-wide standard came into force at the end of 2011 and was developed by nongovernmental organizations, governments and businesses under the direction of the independent organization European Water Partnership (EWP).

Exploration
Exploration refers to the search for mineral resources, such as crude oil or natural gas, in the Earth's crust. The exploration process involves using suitable geophysical methods to find structures that may contain oil and gas, then proving a possible discovery by means of exploratory drilling.

F

Field development
Field development is the term for the installation of production facilities and the drilling of production wells for the commercial exploitation of oil and natural gas deposits.

Formulation
Formulation describes the combination of one or more active substances with excipients like emulsifiers, stabilizers and other inactive components in order to improve the applicability and effectiveness of various products, such as cosmetics, pharmaceuticals, agricultural chemicals, paints and coatings.

Free cash flow
Free cash flow is cash provided by operating activities less payments made for property, plant and equipment and intangible assets.

G

Global Compact
In the United Nations Global Compact network, nongovernmental organizations, companies, international business and employee representatives, scientists and politicians work on aligning global business with the principles of sustainable development.

Global Product Strategy (GPS)
The Global Product Strategy aims to establish global product stewardship standards and practices for companies. The program, initiated by the International Council of Chemical Associations, strives to ensure the safe handling of chemicals by reducing existing differences in risk assessment.

Global Reporting Initiative (GRI)
The Global Reporting Initiative is a multistakeholder organization. It was established in 1997 with the aim of developing a guideline for companies' and organizations' voluntary reporting on their economic, environmental and social activities. The GRI Guidelines became global GRI Standards in 2016.

Greenhouse Gas Protocol (GHG Protocol)
The Greenhouse Gas Protocol, used by many companies in different sectors as well as nongovernmental organizations and governments, is a globally recognized standard to quantify and manage greenhouse gas emissions. The reporting standards and recommendations for implementing projects to reduce emissions are jointly developed by companies, nongovernmental organizations and governments under the guidance of the World Resources Institute and the World Business Council for Sustainable Development.

H

Health Performance Index (HPI)
The Health Performance Index is an indicator developed by BASF to provide more detailed insight into our approach to health manage-

ment. It comprises five components: confirmed occupational diseases, medical emergency drills, first aid, preventive medicine and health promotion.

I

IAS

IAS stands for International Accounting Standards (see also IFRS).

IFRS

The International Financial Reporting Standards (until 2001: International Accounting Standards, IAS) are developed and published by the International Accounting Standards Board, headquartered in London, England. The "IAS Regulation" made the application of IFRSs mandatory for listed companies headquartered in the European Union starting in 2005.

ILO Core Labor Standards

The ILO Core Labor Standards are set out in a declaration of the International Labor Organization (ILO), comprising eight conventions that set minimum requirements for decent working conditions.

ISO 9001

ISO 9001 is an international standard developed by the International Organization for Standardization (ISO) that determines minimum requirements for a quality management system for voluntary certification.

ISO 14001

ISO 14001 is an international standard developed by the International Organization for Standardization (ISO) that determines the general requirements for an environmental management system for voluntary certification.

ISO 19011

ISO 19011 is an international standard developed by the International Organization for Standardization (ISO) that also serves as a guide for auditing management systems, for example for occupational health and safety, energy, quality and environmental management.

ISO 50001

ISO 50001 is an international standard developed by the International Organization for Standardization (ISO) that determines the general requirements for an energy management system for voluntary certification.

J

Joint Arrangement

A joint arrangement refers to joint ventures and joint operations, and describes a jointly controlled arrangement of two or more parties. This arrangement exists if decisions about relevant activities require the unanimous consent of all parties sharing control.

Joint Operation

A joint operation is a joint arrangement in which the parties that share control have direct rights to the assets and liabilities relating to the arrangement. For joint operations, the proportional share of assets, liabilities, income and expenses are reported in the BASF Group Consolidated Financial Statements.

Joint Venture

A joint venture is a joint arrangement in which the parties that have joint control of a legally independent entity have rights to the net assets of that arrangement. Joint ventures are accounted for using the equity method in the BASF Group Consolidated Financial Statements.

L

Long-term incentive program (LTI)

The long-term incentive program is a share price-based compensation program primarily for senior executives of the BASF Group and members of the Board of Executive Directors. The program aims to tie a portion of the participants' annual variable compensation to the long-term, absolute and relative performance of BASF shares by making an individual investment in the company's stock.

M

Materiality analysis/material aspects

BASF uses the materiality analysis to determine the significance of sustainability topics based on internal analyses and the expectations of external stakeholders.

MDI

MDI stands for diphenylmethane diisocyanate and is one of the most important raw materials for the production of polyurethane. This plastic is used for applications ranging from the soles of high-tech running shoes and shock absorbers for vehicle engines to insulation for refrigerators and buildings.

Million British thermal unit (mmBtu)

The British thermal unit (Btu) is a unit of energy observed in the Anglo-American measuring system. It is used for indicating values such as the energy content of gas. One mmBtu (million British thermal units) is equal to approximately 1,003 cubic feet of gas or 28 cubic meters of gas.

Monitoring system

Monitoring systems and tools serve to measure and ensure the adherence to standards. One area that is monitored is our voluntary commitments, such as the adherence to human rights and internationally recognized labor standards.

MSCI World Chemicals Index

The MSCI World Chemicals Index is a stock index that includes the world's biggest chemical companies. It measures the performance of the companies in the index in their respective national currencies, thus considerably reducing currency effects.

N

Nanomaterials

The International Organization for Standardization defines nanomaterials as materials with one or more external dimensions on a nanoscale or with internal structure or surface structure on a nanoscale. For regulatory purposes, there are additional definitions for nanomaterials worldwide.

Naphtha

Naphtha is petroleum that is produced during oil refining. Heavy naphtha is the starting point for gasoline production. Light naphtha is the most important feedstock for steam crackers.

NMVOC (Nonmethane Volatile Organic Compounds)

VOCs (volatile organic compounds) are organic substances that are present in the air as gas at low temperatures. These include some hydrocarbons, alcohols, aldehydes and organic acids. NMVOCs are VOCs from which methane is excluded.

O

OHSAS 18001

The Occupational Health and Safety Assessment Series (OHSAS) includes the standard OHSAS 18001, which contains a framework for an occupational safety management system. This system can be integrated into an existing quality and environmental protection management system and certified accordingly.

P

Peak sales potential

The peak sales potential of the Agricultural Solutions pipeline describes the total peak sales generated for individual products in the research and development pipeline. Peak sales are the highest sales value to be expected from one year. The pipeline comprises innovative products that have been on the market since 2018 or will be launched on the market by 2028.

Process safety incidents (PSI)

Process safety incidents (PSI) is a worldwide harmonized industry metric used to report events involving the release of a substance or energy where this exceeds defined thresholds. BASF has used the criteria and reporting thresholds developed by the International Council of Chemical Associations (ICCA) since 2018.

Propylene oxide (PO)

Propylene oxide (PO), a very reactive compound, is generated by the oxidation of propylene and is used as basic chemical for further processing in the chemical industry.

R

REACH

REACH is a European Union regulatory framework for the registration, evaluation, authorization and restriction of chemicals, and was implemented gradually by 2018. Companies are obligated to collect data on the properties and uses of produced and imported substances and to assess any risks.

Renewable resources

The term renewable resources refers to components from biomass used for industrial purposes that originate from different sources, for example, plants and microorganisms. Among other applications, renewable resources are used as feedstock for manufacturing numerous products.

Responsible Care®

Responsible Care® refers to a worldwide initiative by the chemical industry to continuously improve its performance in the areas of environmental protection, health and safety.

Retention

Profits generated can be used in two ways: distribution to shareholders or retention within the company.

Return on assets

Return on assets describes the return we make on the average assets employed during the year and reflects this return independent of the capital structure. It is calculated as income before taxes and noncontrolling interests plus interest expenses as a percentage of average assets.

ROCE

Return on capital employed (ROCE) is a measure of the profitability of our operations. This is calculated as the EBIT generated by the segments as a percentage of the average cost of capital basis. The average cost of capital basis corresponds to the operating assets of the segments plus the customer and supplier financing not included there and is calculated using the month-end figures.

S

SEEbalance®

SEEbalance® is the SocioEcoEfficiency analysis developed by BASF. It can be used to evaluate and compare the environmental impact, costs and social aspects of products and manufacturing processes. SEEbalance® makes sustainable development measurable and manageable for companies by combining the three dimensions of sustainability – economy, environment and society – in an integrated product assessment tool.

Special items

Special items arise from the integration of acquired businesses, restructuring measures, impairments, gains or losses resulting from divestitures and sales of shareholdings, and other expenses and income that arise outside of ordinary business activities.

Spot market (cash market)
A spot market is a market where an agreed-upon deal, including delivery, acceptance and payment, occurs immediately, as opposed to forward contracts, where the delivery, acceptance and payment occurs at a point in time after the conclusion of the deal.

Steam cracker
A steam cracker is a plant in which steam is used to "crack" naphtha (petroleum) or natural gas. The resulting petrochemicals are the raw materials used to produce most of BASF's products.

Sustainable Solution Steering
We use Sustainable Solution Steering to review and guide our portfolio in terms of sustainability. The four categories – Accelerators, Performers, Transitioners and Challenged – indicate how our products and solutions already comply with sustainability requirements and how we can increase their contribution.

T

TDI
TDI stands for toluene diisocyanate and is a raw material for the production of polyurethane. It is used primarily in the automotive industry (for example, in seat cushions and interiors) and the furniture industry (for example, for flexible foams for mattresses or cushioning, or in wood coating).

Tier 1 suppliers
"Tier" is used in combination with a number (Tier 1, Tier 2, etc.) and indicates a supplier's position in the supply chain. Tier 1 suppliers are suppliers that deliver directly to producing companies. Suppliers usually work together with other suppliers, which are categorized as Tier 2, Tier 3, etc. based on their role in the value chain.

Traits
Traits are commercial plant characteristics, such as an inherent resistance to certain herbicides or an inherent defense against certain insects.

TUIS
TUIS is a German transport accident information and emergency response system jointly operated by around 130 company fire departments within the chemical industry and specialists. The member companies can be reached by the public authorities at any time and provide assistance over the telephone, expert on-site advice or special technical equipment.

V

Value chain
A value chain describes the successive steps in a production process: from raw materials through various intermediate steps, such as transportation and production, to the finished product.

Verbund
In the BASF Verbund, production facilities and technologies are intelligently networked, with high-output chemical processes that use energy and resources efficiently. The by-products of one plant serve as feedstock elsewhere, creating efficient value chains – from basic chemicals to high value-added solutions such as coatings or crop protection products. Our Verbund concept – realized in production, technologies, the market and digitalization – enables innovative solutions for a sustainable future.

W

Water stress areas
We previously defined water stress areas as areas in which water represents a scarce resource, and where people use 60% or more of the water available. The most important factors leading to water scarcity are: low precipitation, high temperatures, low air humidity, unfavorable soil properties and high water abstraction rates. From 2019 onward, we will expand our definition of water stress areas and report on regions in which 40% or more of available water is used by industry, household and agriculture.

Quarterly Statement, Q1 2019 / Annual Shareholders' Meeting 2019

May 3, 2019

Half-Year Financial Report 2019

July 25, 2019

Quarterly Statement, Q3 2019

October 24, 2019

BASF Report 2019

February 28, 2020

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Further information

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OUR COMMITMENT TO SUSTAINABILITY

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