Science For A Better Life

Annual Report 2016

Augmented Version

Fiscal 2016:

Another record year for Bayer – good progress with the acquisition of Monsanto

- Group sales €46.8 billion (Fx & portfolio adj. +3.5%)
- Substantial sales and earnings increases at Pharmaceuticals
- Consumer Health grows with competition
- Crop Science successful in a difficult market environment
- EBITDA before special items €11.3 billion (+10.2%)
- Net income €4.5 billion (+10.2%)
- Core earnings per share €7.32 (+7.3%)
- Operating cash flow €8.3 billion (+20.8%)
- Forecast for 2017: further growth in sales and earnings

Cover picture: The digitization of farming aims to support the efficient and sustainable use of resources. Our cover shows Charles Godoy on his farm near the town of Catalão in Brazil. He monitors his fields on a daily basis so that he can react quickly to problems.

You can read more in the Magazine section of this Annual Report beginning on page 9.

Key Data

€ million	2015	2016	Change from 2015 (%)
Bayer Group			
Sales	46,085	46,769	+1.5
EBITDA[1]	9,573	10,785	+12.7
EBITDA before special items[1]	10,256	11,302	+10.2
EBITDA margin before special items[1]	22.3%	24.2%	
EBIT[1]	6,241	7,042	+12.8
EBIT before special items[1]	7,060	8,130	+15.2
Income before income taxes	5,236	5,887	+12.4
Net income (from continuing and discontinued operations)	4,110	4,531	+10.2
Earnings per share (from continuing and discontinued operations) (€)[1]	4.97	5.44	+9.5
Core earnings per share (from continuing operations) (€)[1]	6.82	7.32	+7.3
Net cash provided by operating activities (from continuing and discontinued operations)	6,890	9,089	+31.9
Net financial debt	17,449	11,778	– 32.5
Capital expenditures as per segment table	2,511	2,578	+2.7
Bayer AG			
Total dividend payment	2,067	2,233	+8.0
Dividend per share (€)	2.50	2.70	+8.0
Innovation			
Research and development expenses	4,274	4,666	+9.2
Ratio of R&D expenses to sales – Pharmaceuticals (%)	16.0	17.0	
Ratio of R&D expenses to sales – Crop Science (%)	10.7	11.7	
Employees in research and development	14,753	15,229	+3.8
Employees			
Number of employees[2] (Dec. 31)	116,600	115,200	–1.2
Personnel expenses (including pension expenses) (€ million)	11,176	11,357	+1.6
Proportion of women in senior management (%)	28	29	
Proportion of employees with health insurance (%)	96	98	
Fluctuation (voluntary / total) (%)	5.0 / 13.9	4.6 / 12.3	
Hours of vocational and ongoing training per employee	20.0	22.1	+10.5
Safety & Environmental Protection			
Recordable Incident Rate (RIR) for Bayer employees	0.42	0.39	–7.1
Loss of Primary Containment Incident Rate (LoPC-IR)[3]	0.22	0.32	+45.5
Total energy consumption (terajoules)	83,182	84,494	+1.6
Energy efficiency (MWh/t)[4]	6.34	6.77	+6.8
Total greenhouse gas emissions (CO_2 equivalents in million t)[5]	9.71	9.87	+1.6
Specific greenhouse gas emissions (CO_2 equivalents in t / manufactured sales volume in t), according to the market-based method[6]	1.69	1.54	– 8.9
Hazardous waste generated (thousand t)	541	547	+1.1
Water use (million m^3)	346	330	– 4.6

2015 figures restated; figures for 2012-2014 as last reported

[1] For definitions of the indicators see Chapter 2.4

[2] Employees calculated as full-time equivalents (FTEs)

[3] Number of incidents per 200,000 working hours in which chemicals leak from their primary container, such as pipelines, pumps, tanks or drums

[4] Quotient of total energy consumption and manufactured sales volume; Life Sciences only

[5] Direct emissions from power plants, waste incinerators and production plants and indirect emissions from external supplies of electricity, steam and refrigeration (according to the market-based method); portfolio-adjusted in accordance with the GHG Protocol

[6] Life Sciences without Currenta

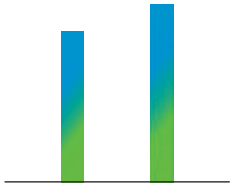
At a Glance

Sales[1]

+3.5%[2]

EBITDA Before Special Items[1]

+10.2%

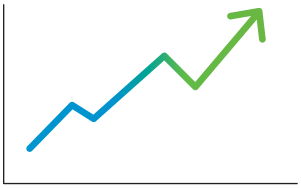


Net Income[1]

+10.2%

Core Earnings per Share[1]

+7.3%



Supplier Management[3]

98%

of all strategically important suppliers evaluated since 2012

Investment in Research and Development

€4.7 billion

+ 9.2% compared with 2015

Specific Greenhouse Gas Emissions[4]

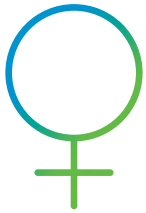
– 18% since 2012

Work-Related Accidents

–7.1%

Proportion of Women in Senior Management

29%



[1] Change from 2015; 2015 figures restated [2] Currency- and portfolio-adjusted [3] Life Sciences [4] Life Sciences without Currenta

Chairman's Letter

Innovation is our core competence

Dear Stockholders and friends of Bayer:

I am pleased to present to you Bayer's annual report for fiscal 2016. It has been a very exciting and intensive year – for me personally as well because I became Chairman of the Board of Management in May.

I would like to thank the entire Board of Management, which started working in its new constellation at the start of last year, for its commitment to the company. Creating an integrated organizational structure and appointing the heads of the divisions to the Board of Management have proven to have been the right steps at the right time. We have a very good management team that works extremely well together.

I would also like to thank the members of the Supervisory Board for our trust-based cooperation and all our employees, who displayed great commitment and personal dedication in making 2016 another successful year for Bayer.

In 2016, we again substantially raised both sales and earnings and thus posted a new record for our operating performance. Group sales increased by a currency- and portfolio-adjusted 3.5 percent to €46.8 billion and clean EBITDA rose by 10.2 percent to €11.3 billion. Core earnings per share advanced by 7.3 percent to €7.32.

At Pharmaceuticals, sales rose by an encouraging 8.7 percent on a currency- and portfolio-adjusted basis, with our five key growth products again making a significant contribution to growth. Xarelto™, Eylea™, Xofigo™, Stivarga™ and Adempas™ posted combined sales of €5.4 billion, compared with €4.2 billion in 2015. We raised our assessment of the combined peak annual sales potential of these five products from our previous estimate of at least €7.5 billion to more than €10 billion.

Adjusted for currency and portfolio effects, sales at Consumer Health advanced by 3.5 percent. This division posted substantial gains in Latin America and Asia / Pacific in particular.

Despite a weak market environment, Crop Science sales matched the prior-year level. Seeds expanded business significantly and Environmental Science also posted gratifying sales gains. Animal Health grew sales by a currency- and portfolio-adjusted 4.8 percent.

Covestro remains fully consolidated on account of our continued majority interest of around 64 percent at present. This business posted currency- and portfolio-adjusted sales on a level with the prior year. We are very pleased with the way Covestro has developed since its stock market listing in October 2015. It confirms that separating the two enterprises was the right move for both of them. Thanks to its very good business performance, Covestro has successfully established a good position on the capital market in its first year of independence; Bayer has excellent growth perspectives resulting from its focus on the

Bayer CEO Werner Baumann

Life Sciences. It remains our intention to divest our entire interest in Covestro in the medium term.

A particular highlight of 2016 was the agreed acquisition of Monsanto, which is intended to further strengthen Bayer as a Life Science company and create substantial additional value in the long term for you, our

stockholders, through more innovation, stronger growth and greater efficiency. The two businesses are highly complementary, both in terms of their geographical fit and their product portfolios.

It is a good step for Bayer as a whole since the two companies' combined expertise will improve our ability to help address one of the most urgent issues of our time: how to feed the some ten billion people who are expected to be living on our planet by 2050.

Together with Monsanto, we would be better able to provide farmers worldwide with a product offering that is tailored to their needs and offers them genuine added value: from the right choice of seeds through seed treatment to controlling weeds, pests and plant diseases. With regard to the increasing digitization of farming, Monsanto will give us valuable expertise.

We are confident that we will be granted all the necessary antitrust clearances enabling us to close the transaction before the end of 2017. The acquisition is to be financed through a mix of debt and equity. In November 2016, we successfully placed mandatory convertible notes as a first equity measure in this connection.

Despite the large investment being made to acquire Monsanto, we will continue to pursue organic growth in Pharmaceuticals, Consumer Health and Animal Health. The necessary funding will also be available for investments at our sites as well as for smaller acquisitions and in-licensing.

It goes without saying that this applies to research and development as well. In 2016, we again increased R&D spending in the Life Science areas to €4.4 billion. And we are planning a further increase in the current fiscal year because innovation is our core competence. In the Life Science areas in particular, there is great demand for new products

and solutions. For example, better treatments are needed for conditions such as cancer and cardiovascular disease. Likewise, solutions are required to achieve the necessary increase in agricultural productivity and feed the growing world population. In addition, investments in self-care are designed to keep our aging population healthy and contribute to the sustainability of public health care systems around the world.

Our investments in research together with targeted in-licensing are the basis for our long-term growth – as shown by the projects which have made it into our development pipelines. At Pharmaceuticals, for example, we estimate the combined peak annual sales potential of six promising product candidates in the mid- to late-stage pipeline to be at least €6 billion. And the combined peak sales potential of Bayer's crop protection and seed technology pipelines should total more than €5 billion from products that have been or will be brought to market between 2015 and 2020.

Today, any company wishing to remain at the cutting edge of scientific and technological development needs excellent partners. For this reason, we maintain a network of collaborations and strategic alliances with leading universities, public research institutes, partner companies and start-ups. Last year, for example, we concluded a cooperation agreement with Danish company FaunaPhotonics. Together we are seeking to develop novel sensor solutions which will improve farmers' ability to monitor the development of pest populations and thus control pests more effectively.

Another example is the joint venture named BlueRock Therapeutics we established with Versant Ventures with combined funding of US$225 million to develop stem cell therapies for curing a range of diseases. BlueRock Therapeutics is the second large investment made by the Bayer Lifescience Center, which has the mission to rapidly uncover, encourage and unlock fundamental scientific breakthroughs in medicine and agriculture.

We are aware that our employees are the basis for everything we do. It is their creativity, knowledge and commitment which shape Bayer's performance ability. We therefore invest a great deal of effort in recruiting and retaining the best employees for Bayer. To this end, we provide an attractive working environment and have built a creative corporate culture that is characterized by diversity and internationality, customer focus, experimentation, collaboration and trust.

Another reason our people enjoy working for Bayer is because they know that sustainability and social responsibility are firmly anchored in our corporate culture. We have committed to upholding the basic tenets of sustainable development and the Ten Principles of the United Nations Global Compact. Each year, we contribute to society through our wide-ranging humanitarian commitment and social sponsorship activities. One example of this is our range of initiatives aimed at supporting refugees living in Germany. At our sites in Leverkusen and Berlin, we have established projects to prepare young refugees for subsequent vocational training.

Our commitment to social responsibility is also shown through our daily collaboration with smallholder farmers across the world. We support them through numerous initiatives, especially in Africa and Asia. Our expertise helps them to grow more food and market their produce more effectively – thus generating a higher income.

As you can see, Bayer is making good progress in every respect. However, we need a reliable regulatory environment if we are to remain successful in the long term. To this end, legislators will have to make clever decisions focused on growth and prosperity. We need a Europe that is flourishing and fit for the future so we will have to inject new strength

into the European ideal. The debate on how to achieve this has only just begun. We view it as a matter of course that we as a company should actively, openly and transparently contribute to the discourse on important social and political issues.

On behalf of the entire Board of Management, I would like to thank you – our valued stockholders – for the continuing confidence you have placed in Bayer.

Sincerely,

Werner Baumann
Chairman of the Board of Management of Bayer AG

Magazine

Innovation is a cornerstone of Bayer's success and critical to achieving our mission of "Science For A Better Life." Through our innovations, we are helping to solve the major challenges of our time. With a view to further strengthening Bayer's culture of innovation, we have identified four Focus Behaviors: customer focus, collaboration and experimentation – all underpinned by trust.

Customer Focus

Experimentation

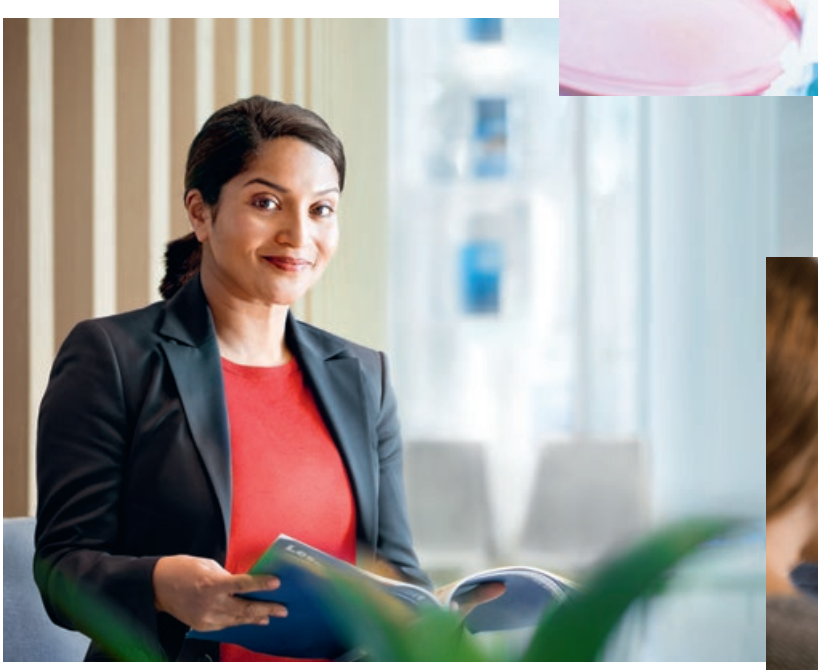
Focus on Innovation

Trust

Collaboration

Experimen-tation

Passion to innovate: research scientist Lara Kuhnke from Bayer's Pharmaceuticals Division in a Berlin laboratory.



Trust

Patient Prasanna Oommen trusts her physician and Bayer's innovative medicines.

Customer Focus

Düsseldorf pharmacist Petra Jeremias advises a customer.

Collaboration

Working toward a common goal:
Jose-Miguel Robles-Turiel from Bayer's Crop Science Division and colleague Mira Begic in a meeting.

Research issues have become so complex that no one scientist alone is able to resolve them.

Dr. Ruth Wellenreuther, alliance manager at the DKFZ

Fighting cancer

Oncology research at Bayer is committed to improving the lives of cancer patients. Bayer's researchers are working together with external partners to develop new therapeutic approaches to this disease.

You will find a video of the two Heidelberg-based cancer researchers in our Online Annual Report at www.bayer.com/ar-cancer

We develop therapies that enable the patient's body to detect cancer cells and then defeat them itself.

Dr. Rafael Carretero, cancer researcher at Bayer

In the Heidelberg laboratory run jointly by Bayer and the German Cancer Research Center (DKFZ): Alliance manager Dr. Ruth Wellenreuther (left) and Dr. Rafael Carretero (right).

Areas of oncology research at Bayer

Antibody-drug conjugates
Certain proteins occur more frequently on the surface of cancer cells than in healthy cells. Bayer researchers are developing molecules called antibody-drug conjugates which recognize these proteins. Like a Trojan horse, they dock onto the cancer cells and destroy them with a cell toxin. Antibody-thorium conjugates work in a similar way and transport radioactive thorium-227 to the cancer cells. The resulting energy-rich alpha particles destroy the cancer cells. By using different antibodies, conjugates can be developed for various tumor types.

Blocking oncogenic signaling pathways in specific tumor types
The multiplication of cancer cells is to be halted by intervening in their key molecular processes. One approach aims to block the signaling pathways which prevent cancer cell death and often result in mutations, while another approach seeks to exploit the differences in the metabolic activity of tumor cells. A third approach is investigating cancer stem cells that may result in the development of resistance mechanisms and the failure of chemotherapy and radiation therapy. And a further approach is focused on the epigenetic changes which play a role in malignant cancers. Bayer scientists are working to understand these processes better so they can reverse harmful modifications in diseased cells.

Immuno-oncology
Every day, cancer cells are formed in the human body because of a genetic predisposition or as a result of exposure to cigarette smoke, UV radiation or other environmental influences. They are usually eliminated by the immune system's cells. In certain cases, however, they can evade the immune response and become a harmful tumor. Bayer researchers are working mainly in collaboration with scientists from the DKFZ on approaches leading to a reactivation of the immune system to eliminate the tumor cells without affecting healthy nontumoral cells. The immune system's memory function may result in long-term therapeutic success.

The moment my best friend was told his mother had died is one I'll never forget. We were at school together at the time," remembers Dr. Rafael Carretero. Rafael and Francisco were like brothers. They lived close to each other in the same neighborhood in Granada, Spain, played soccer in the street and spent the summers together with their parents, either hiking in the Sierra Nevada or on the beach at La Herradura. But then Rafael experienced how his best friend's warm-hearted and cheerful mother suffered the side effects of chemotherapy and radiation therapy before dying – much too young – of breast cancer. "That hit me really hard and was one of the reasons why I decided to devote my life to fighting cancer – so that other people would be spared this fate," says the Bayer researcher.

We are working to develop innovative treatments for patients with serious diseases such as cancer in order to extend their lives and improve their quality of life.

Professor Andreas Busch, head of Drug Discovery at Bayer

Carretero is now 33, a molecular biologist and scientific manager of a laboratory run jointly by Bayer and the German Cancer Research Center (DKFZ). Its 12 employees on the sixth floor of the DKFZ's state-of-the-art building in Heidelberg, Germany, are conducting research to determine how the body's own immune system can be reactivated to combat tumor cells. This approach was also the subject of Carretero's PhD at the Hospital Universitario Virgen de las Nieves in Granada. The battle against cancer has been the common thread through his life. "We want to develop therapies that enable the patient's body to detect cancer cells and then fight them itself without harming healthy cells at the same time," he explains.

What's special about the laboratory in Heidelberg is that scientists from both Bayer and the DKFZ work side by side. "This allows us to pick up on novel research findings as early as possible so that they can be channeled into drug development," explains Dr. Ruth Wellenreuther, alliance manager at the DKFZ. "Research issues have become so complex that no one scientist alone is able to resolve them. Our scientists identify potential new drug targets, and Bayer has extensive libraries of substances and antibodies. The two

parties' respective expertises complement each other ideally, which enables us to reach our objective more quickly."

The joint laboratory is one aspect of a partnership that has been in existence since 2009. Wellenreuther was involved in developing the framework for the collaboration. "This is an alliance between equals. We clarified all the structural and legal issues right at the beginning, so when we identify a new target we can move straight on to searching for suitable active ingredients." The partnership has already been successful: The first active ingredient to treat brain tumors and leukemia has been undergoing clinical testing in patients for several months now. The substance recognizes proteins that are found only in cancer cells in a subset of patients, an approach that could enable the development of effective, patient-specific therapies.

"We are working to develop innovative treatments for patients with serious diseases such as cancer in order to extend their lives and improve their quality of life," says Professor Andreas Busch, member of the Executive Committee of Bayer's Pharmaceuticals Division and head of Drug Discovery. "Our particular strength at Bayer is that we have strong expertise in identifying active ingredients and taking them through all phases of clinical development up to and including drug approval, for the benefit of the patients."

In the battle against cancer, Bayer is pursuing three main approaches (see page 14): blocking signaling pathways that lead to uncontrolled cell division; selectively docking molecules onto cancer cells to trigger their targeted destruction; and reactivating the immune system to eliminate cancer cells itself. This latter approach is the focus of the research by Carretero and his colleagues. "Our understanding of cancer is constantly improving, but there are still plenty of unanswered questions," says Carretero, before turning his attention to the next test findings from the laboratory. "Our goal is to make cancer curable or be able to transform it into a chronic disease by providing therapeutics that keep tumor cells in check."

8.2 million

people died of cancer in 2012, according to the World Health Organization (WHO). In the same year, 14.1 million people were newly diagnosed with cancer.

5 years

In 2012, according to WHO, 32.6 million people worldwide had been living with cancer for five years.
Source: International Agency for Research on Cancer, World Health Organization

Dr. Rafael Carretero (left) from Bayer in conversation with Dr. Ruth Wellenreuther and Dr. Stefan Pusch from the German Cancer Research Center in Heidelberg, Germany.

Allergies – a common disorder

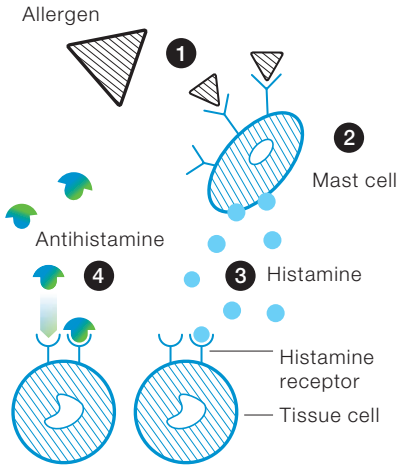
Between 10 and 20 percent of people worldwide (with regional variations) have upper respiratory allergies, the symptoms of which often impact their daily lives. Bayer markets well-known and easy-to-use products to effectively relieve these allergy symptoms.

Lulu knows she shouldn't be on the sofa. "Get down from there!" commands Jennifer T. Lulu understands straight away. The black bulldog mix with the trusting eyes knows she has done something wrong and shoots a guilty glance at her owner before exiting the room. All that remains on the sofa are black dog-hairs, and until a few years ago this would have been a major problem. Jennifer is allergic to dogs and cats.

It took her a while to realize this. When she was a student at New York University, she caught a cold – or at least, she thought that was what she had. The symptoms suggested as much, but they refused to go away even after several weeks. An internist in Manhattan correctly diagnosed the then 22-year-old's condition: Her immune system overreacts to normally harmless substances. Like many other sufferers, she is allergic to pollen and animal hair. "Finally I knew what was going on. But it was also a shock. I grew up spending tons of time outdoors with my German Shepherd, a Yorkshire Terrier and a Labrador. Now I could no longer even visit friends who had pets."

Jennifer quite simply doesn't have time for allergies. The single mother lives with her daughters Molly (9) and Lindsey (6) about an hour by car from New York City. The 42-year-old's days are tightly scheduled. The alarm clock rings shortly before 7. Mom makes breakfast, gets her daughters ready for school and then goes jogging or heads over to her gym or her yoga school, both of which are only a few minutes away. "I don't have time for long drives." Then she starts work in her office adjacent to her kitchen. Jennifer is vice president of an association that helps students repay their loans. Her clients attend colleges on the East Coast of the United States, from Maine to Maryland. Once a month, she travels to the association's headquarters in the Midwest.

Allergies and their treatment with antihistamines



An allergy is a hypersensitive reaction of the body's immune system to ordinarily harmless substances known as allergens. The immune system responds to these substances as if they were dangerous. They trigger a defense reaction by the body to, for example, pollen protein. Following initial contact with the allergen, the body develops corresponding antibodies.

1 – If an allergen comes into contact with the body again, it is recognized by the mast cells of the body's defense system, which are found especially in the mucous membranes.
2 – Already sensitized by the initial contact, the mast cells have formed large numbers of special receptors for the allergen. Mast cells release histamine, which serves as a messenger for the surrounding tissue.
3 – Histamine then docks onto the receptors in the tissue cells, which then trigger the immune response. The body reacts with allergy symptoms.
4 – Antihistamines like loratadine, the active substance in Claritin™, block histamine from docking onto its receptors, thereby hindering the cascade triggered by allergens.

Regular relaxation: as often as possible Jennifer T. attends a yoga class with instructor Fiona.

Despite her very busy professional life, Jennifer is also a class mom at her daughters' school and a Girl Scout Daisy Troop leader. She lives an active life despite her allergies – and now she has Lulu, a two-year-old crossbreed she got from an animal sanctuary. "I want my daughters to grow up with a pet. Dogs provide unconditional love and teach us how to take responsibility. That's important to me."

For Jennifer, spring is a particularly difficult time. "I used to have to sneeze all the time, my nose would run." She tried out lots of things to control her allergy symptoms. "Then I started using Claritin™. It's exactly right for me. I can be there for my children and I can do my job and live my life without my allergies holding me back."

"We know the symptoms that affect allergy sufferers: itchy, watery eyes, sneezing, a runny or itchy nose. They can have an enormous impact on their daily routine and quality of life," says Jay Kolpon, Global Category Business Unit Leader, Allergy. "We want to relieve sufferers from these symptoms. Our purpose is to enable them to embrace life with all their senses. Jennifer's story is a wonderful example of how our products help people live a better life."

Family time in the garden: Jennifer with daughters Molly (right) and Lindsey (left) on their climbing tree – Lulu the dog often joins in (photo at left).

Our video shows how Bayer's nonprescription medicines help patients lead an active life: www.bayer.com/allergy

Round the clock

Bayer's Claritin™ family of products is available in more than 100 countries worldwide. Claritin™ is the market leader in the world's largest OTC market, the United States. Indications and trademarks vary from country to country. In the United States, Claritin™ provides 24-hour nondrowsy relief from runny nose, sneezing, itchy, watery eyes, and itchy nose or throat, helping sufferers to actively enjoy their daily lives both indoors and outdoors. Claritin-D™ 12- and 24-hour products relieves the same symptoms as Claritin™, plus nasal congestion and sinus congestion and pressure.

Allergies are on the rise

Up to 30 percent of all adults suffer from allergic rhinitis according to the World Allergy Organization and these figures are set to rise.

Best-selling product

Claritin™ is the Consumer Health Division's best-selling brand globally.

Consumer Health can look back on a long tradition in the self-care market. It began in 1899 with the launch of Aspirin™, Bayer's world-renowned iconic brand.

Smart fields

The world's population is growing, but the amount of farmland available per head is shrinking. Agricultural productivity will have to increase if we want to safeguard our food supply in the long term. Digitalization in farming can help us deploy our resources efficiently and sustainably, enabling farmers to get the best out of their fields with minimal environmental impact.

Agriculture is in the grip of a revolution. Modern farmers are using digital information to optimize harvest yields. All of this information is stored in a cloud so it can be accessed by farmers on the move. The photo shows farm manager Ediney Afonso Dias in a soybean field in Brazil.

Humming quietly, the drone hovers over the field, the lens of its camera surveying the ground below it. Not 200 meters away, a twin-engined Piper stands in its hangar. The propeller plane is much faster, but the drone is better for this job. The remote-controlled aircraft's camera delivers high-resolution images from every corner of the soy fields, much better than the Piper could. If a problem comes up, Ediney Afonso Dias can react immediately. The Brazilian agronomist can then take targeted action to control weeds, fungal diseases and pests without having to treat the entire field. "Cutting-edge, sustainable agriculture needs lots of accurate information," says Dias. "Now we don't have to use crop protection agents on large areas when only certain sections are affected. That's good for us farmers and for the environment."

Dias, a graduate of the Universidade Estadual de Goiás in Brazil, has been working on Francisco and Charles Godoy's farm near the town of Catalão in the South American country for four years. A look at his office reveals the 24-year-old's structured approach to farm management. On the walls are whiteboards for each of the ten farms belonging to the Agricola Godoy company, which have a total area of 12,500 hectares. Each farm is divided into plots. For each plot, Dias has noted in detail how the soil was prepared for sowing, which soybean variety was planted, and what fertilizers and crop protection products have been deployed. The information on the walls is the roadmap for a successful harvest in 2017.

Dias' desk overlooks the barn used to store the harvest, which is currently still empty as the big harvesters wait for their turn to get to work. Everything is well prepared for achieving ambitious objectives. Dias plans to increase this harvest's yield by around five percent, without having to use any additional farmland. "Our

The soybean plants look healthy to Joao Miguel (right) and Daniel Tablas, Bayer's representative in Catalão, Brazil. The farm plans to increase yields using modern technologies.

70%

New technologies and the internet will make it possible to increase agricultural productivity by up to 70 percent through 2050 (Beecham Research).

225 million

In 2024, 27 billion interconnected devices will be in use worldwide in the most varied of applications. 225 million will be used in agriculture (Machina Research).

Farm manager Ediney Afonso Dias (photo left) in his office. Data are transmitted to the on-board systems of tractors controlled by GPS technology (below). The photo at right shows Francisco Godoy (2nd from left), his son Charles (right) and his grandsons Charles Francisco and José Victor next to his twin-engined Piper.

A video demonstrating the use of new technologies on Charles Godoy's farm in Brazil can be found at www.bayer.com/farming

objective is to increase productivity from 66 to 68 or 70 bags per hectare," he explains. An important goal, given that the amount of agricultural land available per head worldwide is falling while the global population is growing.

New digital technologies can enhance efficiency. "We monitor our fields every day so that we can quickly intervene if there is a need for action," says Charles Godoy, who is in charge of the farm's operational business and 40 employees. The 43-year-old has been passionate about farming ever since he was 12. "In the old days, we would simply drive through the fields in the tractor and pull out any weeds. Now we can use data from satellites and drones to boost our productivity."

Infrared images, for example, provide information about the status of the plants. Healthy plants have a higher chlorophyll content and appear red in the images. In addition to the satellites and drones, sensors on the state-of-the-art tractors and harvesters provide vital data on soil condition and plant health. These data flow into the digital applications that Bayer is developing to help farmers around the world pursue efficient, sustainable agriculture.

"We provide information which enables farmers to rapidly take decisions tailored to each individual field," explains Tobias Menne, head of Digital Farming at Bayer. "It ranges from helping them to select the right crop variety to determining the ideal time for crop protection measures and recognizing plant stress factors at an early stage." All of this information is compiled by the farm manager and transmitted to the tractors and machinery in the fields which already today are controlled using GPS technology. The driver in the cab knows at all times exactly where an active ingredient has to be applied. This is precision agriculture, with no waste of resources. "Digital farming offers enormous opportunities," says Menne. "We can compare the current data with the values from previous growing periods, allowing farmers to react earlier to changes, initiate counter-measures in good time and thus prevent harvest losses. And it can be used by both small-scale and large operations."

Charles Godoy has just one goal: "I want to leave my two sons Charles Francisco and José Victor a farm that is operating to the highest technical standards." And then he will just use his plane for fun.

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To our Stockholders

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C Further Information

About this Report

This integrated Annual Report combines our financial and our sustainability reporting. Our aim is to elucidate the interactions between financial, ecological and societal factors and underline their influence on our company's long-term development, thus providing our stakeholders with comprehensive and transparent information. The consolidated financial statements of the Bayer Group as of December 31, 2016, comply with the International Financial Reporting Standards (IFRS) valid at the closing date and with the provisions of the German Commercial Code in conjunction with German financial reporting standards. With due regard to these provisions, the combined management report provides an overview of the financial position and results of operations of the Bayer Group. The Compensation Report for the Board of Management and the Supervisory Board complies with the recommendations of the German Corporate Governance Code. The consolidated financial statements and the combined management report are published in line with statutory disclosure requirements. The Bayer Group's sustainability reporting complies with the "comprehensive" option of the G4 Guidelines of the Global Reporting Initiative (GRI) and is aligned to the ten principles of the U.N. Global Compact (UNGC). The detailed GRI content index with the corresponding UNGC principles can be found in the "Further Information" section in the augmented version of the Annual Report. Online we also publish a separate PDF file with a summary of the U.N. Global Compact Progress Report based on the criteria of the Blueprint for Corporate Sustainability Leadership.

Our reporting is also aligned to international guidelines and recommendations, including those on the definition and selection of nonfinancial indicators and on reporting such as those of the OECD and the ISO 26000 standards. In selecting and measuring our key data we also take into account the recommendations of the European Federation of Financial Analysts Societies (EFFAS) in the case of nonfinancial indicators, and those of the Greenhouse Gas Protocol regarding greenhouse gas emissions. We also consider the recommendations of the World Business Council for Sustainable Development (WBCSD) and the European Chemical Industry Council (Conseil Européen de l'Industrie Chimique – CEFIC). For 2016 we will again submit a declaration of conformity with the German Sustainability Code.

GRI
G4-17,
G4-22

Data collection and reporting thresholds

We collected the data of all relevant organizational units and companies worldwide that fell within the scope of the Bayer Group's consolidated financial statements between January 1, 2016, and December 31, 2016. Covestro has established its own corporate organization that functions according to a similar system and comparable processes to those at Bayer. Facts and figures pertaining to Covestro are included in all chapters unless otherwise stated.

We mainly use SAP systems to collect financial data worldwide. We use the global SAP HR information system and the associated reporting application – the Sustainability Management Annual Reporting Tool (SMART) – to collect HR indicators and social data. All HSE (health, safety and environmental protection) performance indicators for the Group are collated in our Group-wide site information system (BaySIS). The HSE data cover all fully consolidated companies in which Bayer owns at least 50% of the shares.

Data on occupational injuries, transport accidents and environmental incidents are collected at all sites worldwide. Environmentally relevant indicators are measured at all production sites and at relevant research and development sites. In accordance with IFRS 5 (Non-current Assets Held for Sale and Discontinued Operations), financial indicators are given for continuing operations unless otherwise explicitly stated. The same applies to HR indicators and our social data. In the case of HSE indicators, the value shown is the total for the Bayer Group unless otherwise reported. In 2016, the Bayer Group amended its regions. Europe is reported together with the Middle East

GRI G4-22

and Africa. Latin America is a separate region. This reflects the regional responsibilities of the individual members of the Board of Management of Bayer AG. The prior-year figures are restated accordingly. As the indicators in this report are stated in accordance with commercial rounding principles, totals and percentages may not always be exact.

External verification

PricewaterhouseCoopers AG Wirtschaftsprüfungsgesellschaft has audited the consolidated financial statements (including the notes thereto) of Bayer AG, Leverkusen, and the combined management report for the fiscal year from January 1, 2016, to December 31, 2016, and has issued an unqualified opinion. All the online annexes that supplement the management report in the augmented online version of the Bayer Annual Report 2016 (“Annual Report 2016 – Augmented Version”) for the fiscal year from January 1 to December 31, 2016, have been reviewed by PricewaterhouseCoopers AG Wirtschaftsprüfungsgesellschaft on a limited assurance basis.

Additional information

The integrated Bayer Annual Report 2016 is available in a print version (“Annual Report 2016”) and in an augmented online version (“Annual Report 2016 – Augmented Version”). The online version contains the notes to the consolidated financial statements of the Bayer Group, along with additional information. The print version contains numbered online annexes which refer the reader to additional information in the Augmented Version. You can enter these numbers in a search mask on any page of the online Annual Report to directly access the annexes. Both versions of the Annual Report are available in PDF format for download from the Bayer website. For further guidance, the Annual Report contains references to other chapters, to (Bayer) websites and, in the Augmented Version, to GRI G4 Materiality Disclosures.

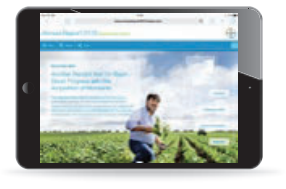
Online annexes

Cross-references within the Annual Report

References to websites

Group target

The “Annual Report 2016 – Augmented Version” can be found at www.bayer.com/AR16



The app of the “Annual Report 2016 – Augmented Version” is available on the iTunes and Google Play stores. Please search for “Bayer Integrated Reports.”

Board of Management

Erica Mann
Consumer Health

Erica Mann holds a degree in analytical chemistry and a marketing diploma from her studies in Johannesburg, South Africa. She began her career with Eli Lilly & Company and held positions at Johnson & Johnson, Lederle Laboratories and Wyeth before moving into senior management at Pfizer in the United States. She became head of Consumer Care at Bayer HealthCare in 2011. She was appointed to the Bayer Board of Management in January 2016.

Johannes Dietsch
Finance

Johannes Dietsch completed his training with Bayer as a commercial assistant and business administrator in 1984. He subsequently held various managerial positions within the company, including one in Japan. In 2002, Dietsch took over as head of the Finance Department in the Corporate Center. He became Senior Bayer Representative and CFO of Bayer in China in 2011. He was appointed to the Bayer Board of Management in September 2014.

Werner Baumann
Chairman

Werner Baumann studied economics in Aachen and Cologne, joining Bayer AG in 1988. After holding positions of increasing responsibility in Spain and the United States, he became a member of the Board of Management of Bayer HealthCare. He was appointed to the Bayer Board of Management in 2010, first as Chief Financial Officer and then as Chief Strategy and Portfolio Officer. Baumann has been Chairman of the Bayer Board of Management since May 2016.

Dieter Weinand
Pharmaceuticals

Dieter Weinand studied pharmacology, toxicology and biology in New York. After holding positions at various companies in the pharmaceutical industry including Pfizer and Bristol-Myers Squibb, he was President Global Commercialization & Portfolio Management at Otsuka Pharmaceutical Development & Commercialization Inc. in Princeton. In 2014, Weinand became head of the Pharmaceuticals Division at Bayer. He was appointed to the Bayer Board of Management in January 2016.

Dr. Hartmut Klusik*
Human Resources · Technology · Sustainability

Hartmut Klusik studied chemistry in Marburg. After gaining a Ph.D., he began his professional career at Wolff Walsrode in 1984. He transferred to crop protection production at Bayer in Brazil in 1990. Following assignments in the United States and Australia and after holding positions of increasing responsibility at Bayer CropScience, he was appointed to the Board of Management of Bayer HealthCare with responsibility for Product Supply. He was appointed to the Bayer Board of Management in January 2016.

* Labor Director

Kemal Malik
Innovation

Kemal Malik studied medicine and worked in a London hospital. After holding different positions of increasing responsibility at Bristol-Myers Squibb, he joined Bayer in 1995. In 2007, Malik became a member of the Executive Committee, head of Global Development and Chief Medical Officer of Bayer HealthCare. He was appointed to the Bayer Board of Management in February 2014.

Liam Condon
Crop Science

Liam Condon studied international marketing in Dublin and Berlin. He held various positions of increasing responsibility with the former Schering AG, Berlin, Germany, and with Bayer HealthCare in Europe and Asia, including Managing Director of Bayer HealthCare China and head of Bayer HealthCare in Germany. Condon became Chief Executive Officer of Bayer CropScience in 2012. He was appointed to the Bayer Board of Management in January 2016.

Report of the Supervisory Board

During 2016, the Supervisory Board monitored the conduct of the company's business by the Board of Management on a regular basis with the aid of detailed written and oral reports received from the Board of Management, and also acted in an advisory capacity. In addition, the Chairman of the Supervisory Board maintained a constant exchange of information with the respective Chairman of the Board of Management and with the other Management Board members. In this way the Supervisory Board was kept continuously informed about the company's intended business strategy, corporate planning (including financial, investment and human resources planning), earnings performance, the state of the business and the situation in the company and the Group as a whole.

Where Board of Management decisions or actions required the approval of the Supervisory Board, whether by law or under the Articles of Incorporation or the rules of procedure, the draft resolutions were inspected by the members at the meetings of the full Supervisory Board, sometimes after preparatory work by the committees, or approved on the basis of documents circulated to the members. The Supervisory Board was involved in decisions of material importance to the company. We discussed at length the business trends described in the reports from the Board of Management and the prospects for the development of the Bayer Group as a whole, the individual organizational units and the principal affiliated companies in Germany and abroad.

Changes on the Supervisory Board and the Board of Management

The Supervisory Board memberships of Prof. Dr. Ernst-Ludwig Winnacker and Dr. Helmut Panke ended as of midnight on April 29, 2016, the date of the Annual Stockholders' Meeting. The Annual Stockholders' Meeting elected Johanna (Hanneke) Faber and Prof. Dr. Wolfgang Plischke to succeed them.

The terms of office of the heads of the divisions newly appointed to the Board of Management in connection with the reorganization of the Bayer Group – Dieter Weinand (Pharmaceuticals), Erica Mann (Consumer Health) and Liam Condon (Crop Science) – began with effect from January 1, 2016. Dr. Hartmut Klusik (Human Resources, Technology & Sustainability) also joined the Board of Management effective January 1, 2016. The previous Chairman of the Board of Management, Dr. Marijn Dekkers, resigned his office effective April 30, 2016. The Supervisory Board appointed Werner Baumann as his successor.

Work of the Supervisory Board

The full Supervisory Board met five times during 2016 and resolved in writing on a special election to the Audit Committee. No member of the Supervisory Board attended only half or fewer than half of its meetings or those of the committees on which he/she served. The average attendance rate by Supervisory Board members at the meetings of the full Supervisory Board and of its committees held in 2016 was approximately 97 percent. A detailed overview of the attendance of the individual members of the Supervisory Board at the meetings of the Supervisory Board and its committees is shown in the "Further Information" section under "Governance Bodies."

The members of the Board of Management regularly attended the meetings of the Supervisory Board.

The deliberations of the Supervisory Board focused on questions relating to Bayer's strategy, portfolio and business activities. The discussions at the respective meetings in 2016 centered on various topics.

Werner Wenning, Chairman of the Supervisory Board of Bayer AG

At its February meeting, the Supervisory Board dealt with the departure of Dr. Marijn Dekkers as Chairman of the Board of Management effective April 30, 2016, and the appointment of Werner Baumann as new Chairman of the Board of Management for a duration of five years. The Supervisory Board also discussed the Annual Report 2015, the agenda for the Annual Stockholders' Meeting 2016, the Bayer Group's risk management system and the status of the Pharmaceuticals pipeline. At its April meeting, the Supervisory Board examined the business performance to date in 2016 and the imminent Annual Stockholders' Meeting.

At an extraordinary meeting in May, the Supervisory Board dealt in detail with the planned acquisition of Monsanto, including the associated financing. Following up on deliberations at earlier Supervisory Board meetings, the strategic aspects of the possible acquisition and the question of Monsanto's valuation were discussed at length. At its September meeting, the Supervisory Board once again dealt in detail with the acquisition of Monsanto and resolved on the final offer conditions for the acquisition. At this meeting, the Supervisory Board also extended the term of office of Kemal Malik on the Board of Management by an additional five years. In the intervals between its meetings, the Supervisory Board was regularly informed in writing about the respective status of the planned acquisition of Monsanto. In addition to the customary reports, the Chairman of the Supervisory Board was also kept constantly informed in detail about all major developments.

At its meeting in December 2016, the Supervisory Board undertook the routine review of the fixed compensation of the members of the Board of Management and the pension amounts of the former members of the Board of Management. Also at this meeting, the Board of Management presented its planning for the business operations in the years 2017 through 2019. The Supervisory Board approved the proposed financing framework for 2017 and also dealt with the strategy of the Bayer Group and possible courses of action with regard to the remaining interest in Covestro. In addition, the Supervisory Board resolved to issue an unqualified declaration of compliance with the German Corporate Governance Code.

Committees of the Supervisory Board

The Supervisory Board has a Presidial Committee, an Audit Committee, a Human Resources Committee, a Nominations Committee and an Innovation Committee. The current membership of the committees is shown in the "Further Information" section under "Governance Bodies."

The meetings and decisions of the committees, and especially the meetings of the Audit Committee, were prepared on the basis of reports and other information provided by the Board of Management. Reports on the committee meetings were presented at the meetings of the full Supervisory Board.

Presidial Committee: This comprises the Chairman and Vice Chairman of the Supervisory Board along with a further stockholder representative and a further employee representative. The Presidial Committee serves primarily as the mediation committee pursuant to the German Co-determination Act. It has the task of submitting proposals to the Supervisory Board on the appointment of members of the Board of Management if the necessary two-thirds majority is not achieved in the first vote at a plenary meeting. Certain decision-making powers in connection with capital measures, including the power to amend the Articles of Incorporation accordingly, have also been delegated to this committee. On a case-by-case basis, furthermore, the Supervisory Board can delegate certain responsibilities to the Presidial Committee. Finally, the Presidial Committee may also undertake preparatory work for full meetings of the Supervisory Board.

In 2016, the Presidial Committee was not required to convene in its capacity as the mediation committee. At a meeting in November 2016, it approved the issue of a mandatory convertible bond in connection with the financing of the planned acquisition of Monsanto based on a corresponding authorization by the full Supervisory Board.

Audit Committee: The Audit Committee comprises three stockholder representatives and three employee representatives. The Chairman of the Audit Committee in 2016, Dr. Klaus Sturany, satisfies the statutory requirements concerning the expertise in the field of accounting or auditing that a member of the Supervisory Board and the Audit Committee is required to possess. The Audit Committee meets regularly four times a year.

Its tasks include in particular oversight of the financial reporting process, the effectiveness and ongoing development of the internal control system, the risk management system, the internal audit system, the compliance system and the audit of the financial statements. The Audit Committee prepares the resolutions of the Supervisory Board concerning the financial statements and management report of Bayer AG and the proposal for the use of the distributable profit, the consolidated financial statements and management report of the Bayer Group and the agreements with the auditor (particularly the awarding of the audit contract, the determination of the main areas of focus for the audit and the audit fee agreement). The committee submits a proposal to the full Supervisory Board concerning the auditor's appointment, and takes appropriate measures to determine and monitor the auditor's independence. The audit focuses particularly on whether the financial statements have been prepared in compliance with the statutory requirements and whether the financial reporting provides a true and fair view of the financial position and results of operations of the company and the Group.

The Audit Committee discusses developments in the area of corporate compliance at each of its meetings where necessary.

The Chairman of the Board of Management and the Chief Financial Officer regularly attended the meetings of the Audit Committee. Representatives of the auditor were also present at all the meetings and reported in detail on the audit work and the audit reviews of the interim financial reports.

The meetings focused on a number of topics. At the February meeting, the Audit Committee discussed the financial statements of Bayer AG and the consolidated financial statements of the Bayer Group. It also carefully considered the risk report, which covered the risk management system, operational risks, planning and financial market risks, legal risks, corporate compliance, process and organizational risks, and the internal control system. At this meeting, the Audit Committee also made a recommendation to the full Supervisory Board concerning the resolution to be submitted to the Annual Stockholders' Meeting on the appointment of the auditor of the financial statements.

The April meeting mainly dealt with the yearly reports of the Group Compliance Officer and the Internal Audit department and with determining the main areas of focus for the audit of the 2016 financial statements. At its July meeting, the Audit Committee addressed the audit budget for 2017 and the scope of non-audit-related services by the external auditor. As at each meeting, it also discussed the interim financial report and legal and compliance issues. At its meeting in October, the Audit Committee dealt with the regular agenda items and with the tax strategy of the Bayer Group, value management, the audit conducted pursuant to Section 20 of the German Securities Trading Act (WpHG) (EMIR), the new requirements for the Independent Auditor's Report pursuant to ISA 700/701, and the upcoming change of external auditor.

Human Resources Committee: On this committee, too, there is parity of representation between stockholders and employees. It consists of the Chairman of the Supervisory Board and three other Supervisory Board members. The Human Resources Committee prepares the personnel decisions of the full Supervisory Board, which resolves on appointments or dismissals of members of the Board of Management. The Human Resources Committee resolves on behalf of the Supervisory Board on the service contracts of the members of the Board of Management. However, it is the task of the full Supervisory Board to resolve on the total compensation of the individual members of the Board of Management and the respective compensation components, as well as to regularly review the compensation system on the basis of recommendations submitted by the Human Resources Committee. The Human Resources Committee also discusses the long-term succession planning for the Board of Management.

The Human Resources Committee convened on three occasions in 2016. The matters discussed at these meetings concerned the compensation and contracts of the members of the Board of Management, as well as the preparation of the departure of Dr. Marijn Dekkers as Chairman of the Board of Management and the appointment of Werner Baumann as his successor.

Nominations Committee: This committee carries out preparatory work when an election of stockholder representatives to the Supervisory Board is to be held. It suggests suitable candidates for the Supervisory Board to propose to the Annual Stockholders' Meeting for election. The Nominations Committee comprises the Chairman of the Supervisory Board and the other stockholder representative on the Presidial Committee.

During four conference calls in 2016, the members of the Nominations Committee discussed candidates for the special elections to the Supervisory Board that took place at the 2016 Annual Stockholders' Meeting and for the elections to the Supervisory Board at the 2017 Annual Stockholders' Meeting.

Innovation Committee: The Innovation Committee is primarily concerned with the innovation strategy and innovation management, the strategy for the protection of intellectual property, and major research and development programs at Bayer. Within its area of responsibility, the committee advises and oversees the management and prepares any Supervisory Board decisions. The Committee comprises the Chairman of the Supervisory Board and five other members of the Supervisory Board, with parity of representation between stockholder and employee representatives.

The Chairman of the Board of Management and the member of the Board of Management responsible for Innovation regularly attend the meetings of the Innovation Committee.

The Innovation Committee convened twice in 2016. At its February meeting, it dealt with innovation management at Bayer and the development of the Bayer Lifescience Center. At its September meeting, it dealt once again with the development of the Bayer Lifescience Center, as well as with digital innovations at Bayer.

Corporate governance

The Supervisory Board dealt with the principles of corporate governance at Bayer. Among the topics discussed were the scope of dialogue between the Chairman of the Supervisory Board and investors. In December, the Board of Management and the Supervisory Board issued a new declaration concerning the German Corporate Governance Code.

Financial statements and audits

The financial statements of Bayer AG were prepared according to the requirements of the German Commercial Code and Stock Corporation Act. The consolidated financial statements of the Bayer Group were prepared according to the German Commercial Code and the International Financial Reporting Standards (IFRS). The combined management report was prepared according to the German Commercial Code. The auditor, PricewaterhouseCoopers Aktiengesellschaft, Wirtschaftsprüfungsgesellschaft, Essen, has audited the financial statements of Bayer AG, the consolidated financial statements of the Bayer Group and the combined management report. The conduct of the audit is explained in the auditor's reports. The auditor finds that Bayer has complied, as appropriate, with the German Commercial Code, the German Stock Corporation Act and/or the International Financial Reporting Standards endorsed by the European Union, and issues an unqualified opinion on the financial statements of Bayer AG and the consolidated financial statements of the Bayer Group. The financial statements of Bayer AG, the consolidated financial statements of the Bayer Group, the combined management report and the audit reports were submitted to all members of the Supervisory Board. They were discussed in detail by the Audit Committee and at a meeting of the full Supervisory Board. The auditor submitted a report on both occasions and was present during the discussions.

We examined the financial statements of Bayer AG, the proposal for the use of the distributable profit, the consolidated financial statements of the Bayer Group and the combined management report. We have no objections, thus we concur with the result of the audit.

We have approved the financial statements of Bayer AG and the consolidated financial statements of the Bayer Group prepared by the Board of Management. The financial statements of Bayer AG are thus confirmed. We are in agreement with the combined management report and, in particular, with the assessment of the future development of the enterprise. We also concur with the dividend policy and the decisions concerning earnings retention by the company. We assent to the proposal for the use of the distributable profit, which provides for payment of a dividend of €2.70 per share.

The Supervisory Board would like to thank the Board of Management and all employees for their dedication and hard work in 2016.

Leverkusen, February 21, 2017
For the Supervisory Board:

Werner Wenning
Chairman

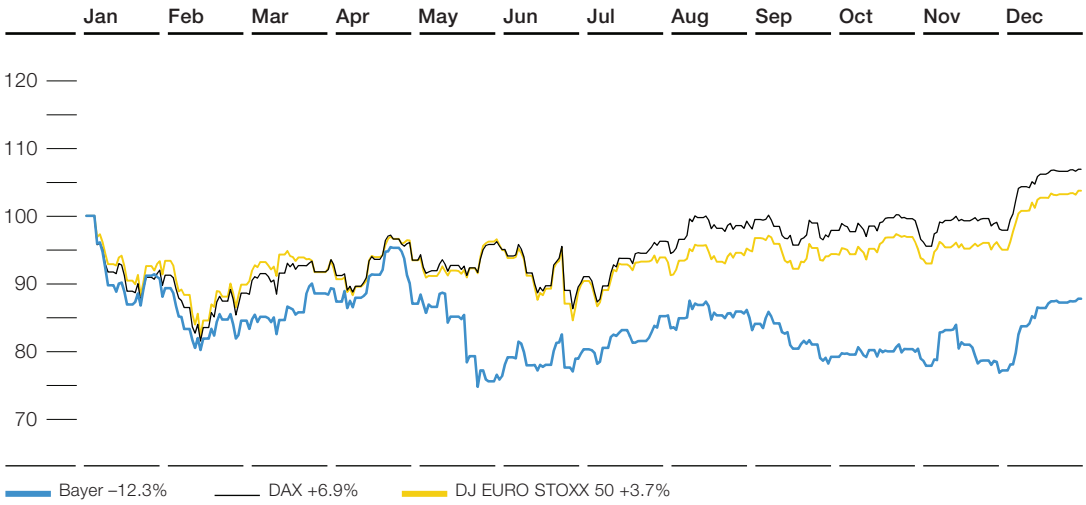
Investor Information

- Long-term return on Bayer stock still ahead of the market despite a decline in the share price in 2016
- €4 billion in mandatory convertible notes issued as a financing component for the agreed acquisition of Monsanto
- Dividend increase to €2.70 per share proposed

1

Performance of Bayer Stock in 2016

Indexed; 100 = Xetra closing price on December 31, 2015; source: Bloomberg



The Stock Market in 2016

Stock markets post moderate gains after a turbulent year

Fiscal 2016 was characterized by significant price fluctuations. At the beginning of the year, the financial markets were unsettled by growth concerns in China. The decline in oil prices, the Brexit vote in the United Kingdom, the U.S. presidential election and the monetary policy of the central banks caused significant fluctuations on the capital markets over the course of the year. The European Central Bank maintained its zero-interest policy and initially decided to expand its bond purchasing program. With a further interest rate hike, the U.S. Federal Reserve maintained its effort to implement a controlled departure from the phase of extremely low interest rates.

The German stock index DAX saw a decline of more than 15 percent in the first two months of 2016, falling below the 9,000-point mark in February. A phase of recovery then set in, followed by a volatile lateral movement that lasted through the beginning of December. After a strong finish in December, the DAX closed the year at 11,481 points – its fifth consecutive profitable year of growth. This equates to growth of about 6.9 percent for 2016.

Following a similar path, the European equities index EURO STOXX 50 (performance index) rose 3.7 percent, ending the year at 6,458 points. Share price performance in the United States and Japan varied. The S&P 500 index climbed by 9.5 percent, while the Nikkei 225 was largely unchanged.

Bayer share price declines

Including the dividend of €2.50 per share paid at the beginning of May, Bayer stock earned a negative return of minus 12.3 percent in 2016 after several years of what in some cases were substantial gains. Bayer stock ended the year at €99.13, thus underperforming the reference indices. The EURO STOXX Chemicals Index (performance index) climbed by 7.8 percent in 2016, while the EURO STOXX Health Care Index (performance index) rose by 2.4 percent.

2

Bayer Stock Data

		2015	2016
Earnings per share	€	4.97	5.45
Core earnings per share from continuing operations [1]	€	6.82	7.33
Equity per share	€	30.77	38.57
Dividend per share	€	2.50	2.70
Year-end price [2]	€	115.80	99.13
High for the year [2]	€	146.20	111.25
Low for the year [2]	€	108.00	84.42
Total dividend payment	€ million	2,067	2,233
Number of shares entitled to the dividend (Dec. 31)	million shares	826.95	826.95
Market capitalization (Dec. 31)	€ billion	95.8	82.0
Average daily share turnover on German stock exchanges	million shares	2.3	2.7
Price / EPS [2]		23.3	18.2
Price / core EPS [2]		17.0	13.5
Price / cash flow [2]		14.0	9.9
Dividend yield	%	2.2	2.7

2015 figures restated

[1] For details on the calculation of core earnings per share see Combined Management Report, Chapter A 2.4

[2] Xetra closing prices (source: Bloomberg). The calculation is based on the indicator "Net cash provided by (used in) operating activities, continuing operations."

Positive financing environment for Bayer in receptive markets

2016 began very weakly for issuers of corporate bonds. Investor behavior was characterized by uncertainty and reticence until the market environment improved at the end of the first quarter. Thereafter, the bond purchasing program of the European Central Bank also served to further improve financing conditions and costs. The interest levels for many maturities dipped into the negative zone and did not rise again substantially until the fourth quarter, although the absolute level remained at a historic low. Volatility remained very high at times before easing considerably in the second half of the year.

Bayer redeemed all bonds maturing in 2016 without refinancing. In November, €4 billion in three-year mandatory convertible notes were issued. This was the largest transaction of this kind to date for a European nonfinancial company. Through this issue, Bayer implemented a major component of the planned equity financing for the agreed acquisition of Monsanto. Further details of outstanding bonds are given in Note [27] to the consolidated financial statements.

Long-term return on Bayer stock still ahead of the market

A long-term investor who purchased Bayer shares for €10,000 five years ago and reinvested all dividends would have seen the value of the position grow to €22,546 as of December 31, 2016, giving an average annual return of 17.7 percent. That was above the return on the DAX (plus 14.2 percent) and the EURO STOXX 50 (plus 10.5 percent, performance index) in the same period.

Dividend increase to €2.70 per share

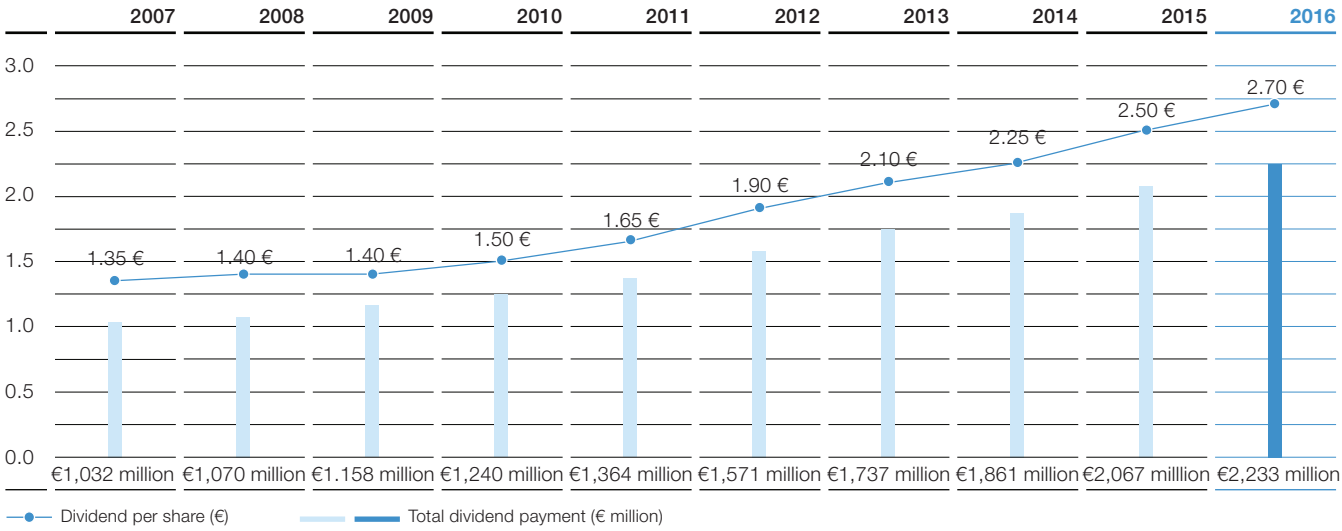
The Board of Management and the Supervisory Board will propose to the Annual Stockholders' Meeting that the dividend be increased by €0.20 to €2.70 per share. Thus we once again intend that our stockholders should participate in last year's positive business performance. The resulting payout ratio of 37 percent calculated on core earnings per share is within our target corridor of 30 percent to 40 percent.

See Chapter 2.2.1 of the Combined Management Report for core EPS

The dividend yield calculated on the share price of €99.13 at year end 2016 amounts to 2.7 percent and the total dividend payment to €2,233 million.

3

Dividends Per Share and Total Dividend Payments



Investor relations focused on the acquisition of Monsanto

Last year our investor relations (IR) activities focused on the announcement made and the agreement reached regarding the acquisition of Monsanto. In this connection, there were many questions from capital market participants pertaining to strategic alignment, financing and value creation.

GRI G4-26, G4-27

Bayer's management and the Investor Relations team last year communicated directly with investors and analysts during roadshows and investor conferences. Our Meet Management conference in September gave investors and analysts an opportunity to engage in direct dialogue with Bayer's top management. As in previous years, private investors also had an opportunity to find out about our company at various stockholder forums at which the Investor Relations team was present.

A sustainable investment

We continued our intensive dialogue with sustainability-oriented investors, analysts and rating agencies in 2016. Our discussions focused on business ethics, product stewardship and safety.

In 2016, Bayer again qualified for inclusion in major sustainability indices, including the Dow Jones Sustainability World, the FTSE4Good (Europe, Global and Environmental Leaders Europe 40) and the STOXX® Global ESG Leaders. In addition, Bayer was once again evaluated by the CDP as one of the leading international pharmaceutical companies in the areas of climate protection and sustainable water management.

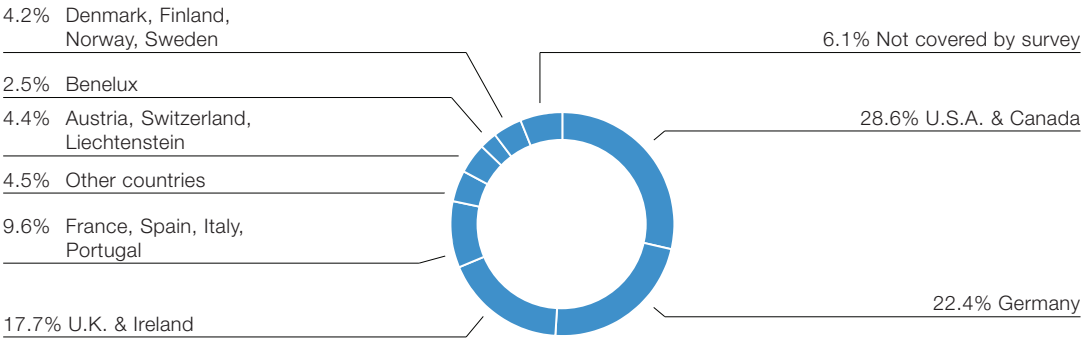
www.bayer.com/awards

A growing number of stockholders

Our ownership structure continues to show the international distribution of our capital stock. The highest proportion of our outstanding shares, almost 29 percent, is held by investors in the United States and Canada, followed by Germany with about 22 percent. Bayer has a 100-percent free float as defined by Deutsche Börse, the operator of the Frankfurt Stock Exchange. The number of Bayer stockholders rose substantially in 2016. At the end of 2016, approximately 360,000 stockholders were listed in our share register – an increase of more than 20 percent compared with the previous year.

4

Shareholder Composition – Regional Allocation



Source: IPREO

Combined Management Report

of the Bayer Group and Bayer AG as of December 31, 2016

1. Fundamental Information About the Group

1.1 Corporate Profile and Structure

> Health care and nutrition: Bayer helping to solve global challenges
> Innovations drive the success of the Life Science businesses
> New structure supports implementation of corporate strategy

1.1.1 Corporate Profile

Bayer is a Life Science company with a more than 150-year history and core competencies in the areas of health care and agriculture. With our innovative products, we are contributing to finding solutions to some of the major challenges of our time. A growing and aging world population requires an adequate supply of food and improved medical care. Our research and development activities are therefore focused on improving people's quality of life by preventing, alleviating and treating diseases. At the same time, we are making an important contribution to providing a reliable supply of high-quality food, feed and plant-based raw materials. Our understanding of the biochemical processes in living organisms helps us address these demanding challenges.

Our goal is to achieve and maintain leadership positions in our markets. In this way we create value for our customers, stockholders and employees, at the same time strengthening the company's earning power. We are committed to operating sustainably and addressing our social and ethical responsibilities. We also respect the interests of all our stakeholders. Employees with a passion for innovation enjoy excellent development opportunities at Bayer. All this goes to make up our mission – Bayer: Science for a Better Life.

In fulfilling our mission, we are guided by our corporate values. Represented by the acronym **LIFE** (**L**eadership, **I**ntegrity, **F**lexibility and **E**fficiency), these values apply to everyone at Bayer and are firmly integrated into our global performance management system for managerial employees. Our value culture ensures a common identity throughout the enterprise across national boundaries, management hierarchies and cultural differences.

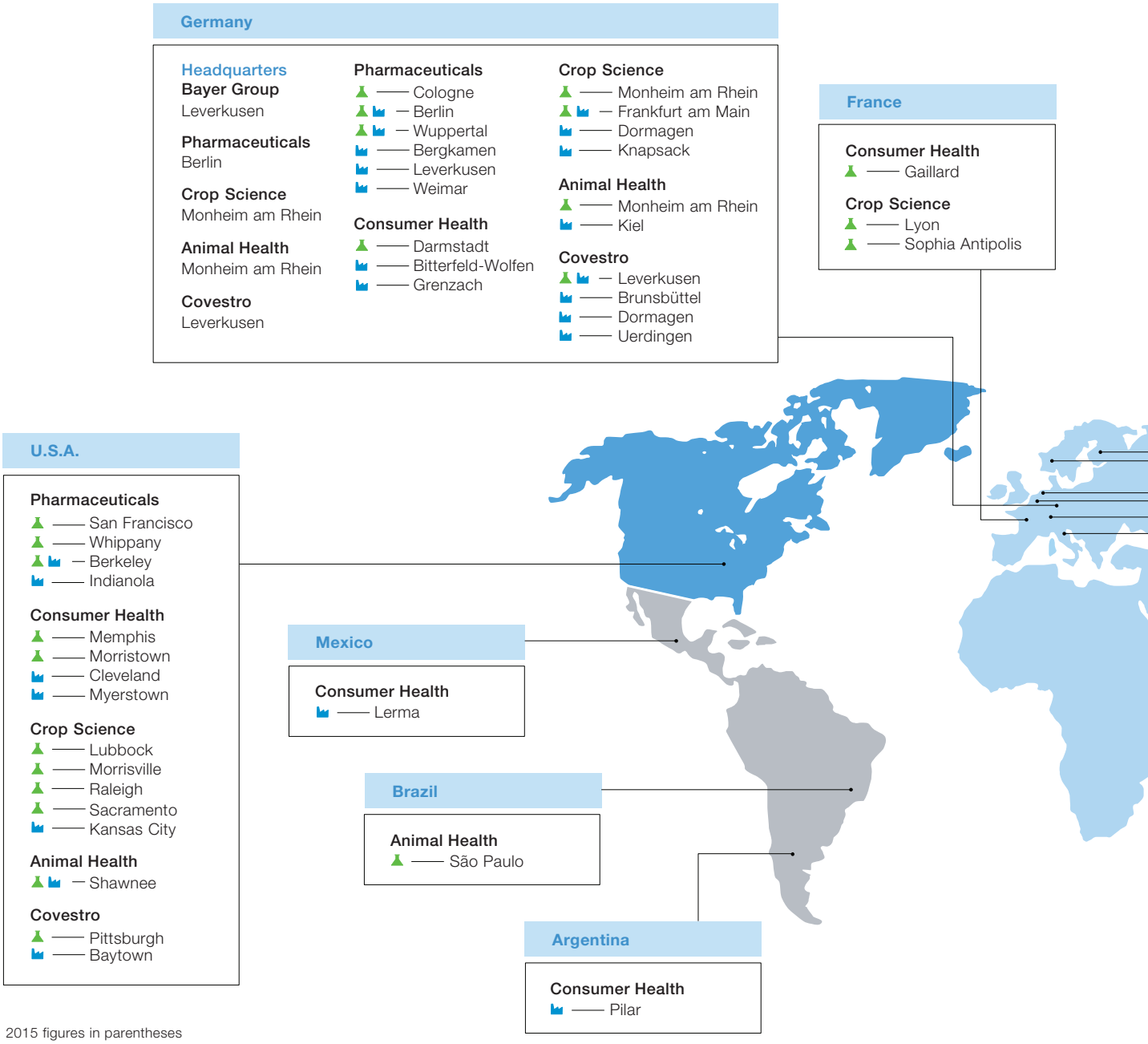
Bayer Worldwide 2016

North America

Sales	**€12,806** (12,621)[1] million
Employees	**15,800** (16,000)[1]
R&D[2]	**€1,081** (1,051)[1] million

Latin America

Sales	**€5,108** (5,494)[1] million
Employees	**12,500** (13,000)[1]
R&D[2]	**€71** (65)[1] million



2015 figures in parentheses
[1] 2015 figures restated
[2] Research and development
Significant research and development location
Significant production location

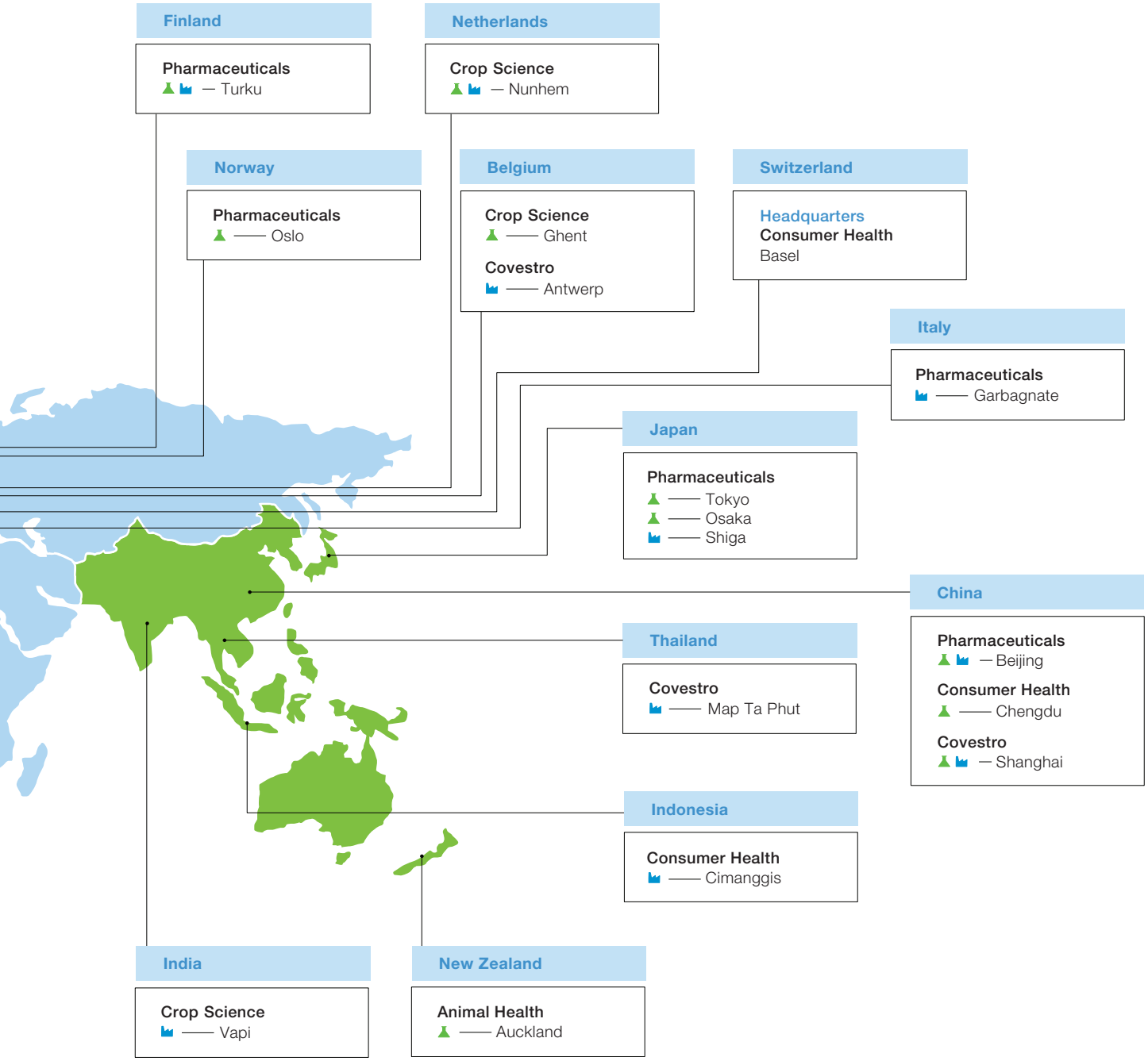
A 1.1.1/1

Europe / Middle East / Africa

Sales **€17,823** (17,707)[1] million
Employees **59,500** (58,800)[1]
R&D[2] **€3,285** (2,944)[1] million

Asia / Pacific

Sales **€11,032** (10,263)[1] million
Employees **27,400** (28,800)[1]
R&D[2] **€229** (214)[1] million



1.1.2 Corporate Structure

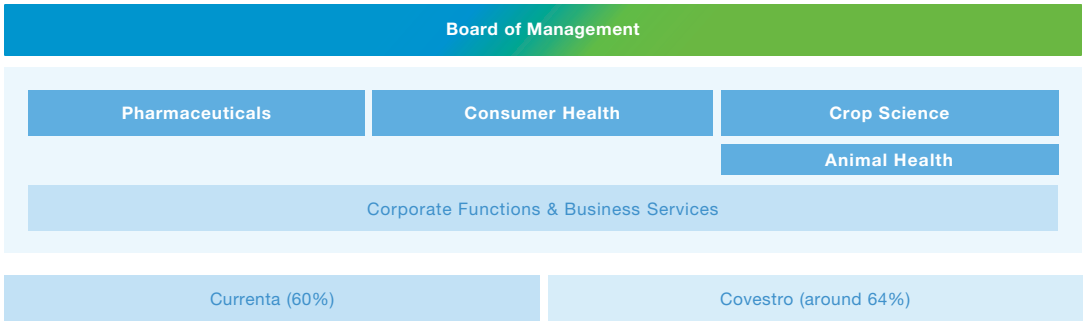
Following the stock market flotation of Covestro, we reorganized the Bayer Group effective January 1, 2016, and are now focusing on our Life Science activities. These businesses hold leading positions in innovation-driven, rapidly growing markets. Together, the Life Science businesses make up a strong, attractive and balanced portfolio that is resistant to fluctuations in demand and to potential risks. Our operations are managed in three divisions – Pharmaceuticals, Consumer Health and Crop Science – and the Animal Health business unit, which are also reporting segments. Bayer still holds about 64% of Covestro AG. Covestro therefore also remains a fully consolidated reporting segment. The operational business is supported by the corporate functions – including Technology Services, which was integrated into Bayer AG effective July 1, 2016 – Business Services and the service company Currenta.

The following changes were made to the corporate structure in the past fiscal year:

- In April 2016, Bayer AG deposited shares it held in Covestro AG in Bayer Pension Trust e.V. The number of shares deposited amounted to 10 million, or 4.9%, of the shares outstanding.
- In May 2016, Crop Science signed an agreement to divest the Consumer business of Environmental Science, which has since been reported retrospectively for 2015 and 2016 under discontinued operations. Environmental Science therefore now comprises only the business for professional users. The divestment was closed at the start of October 2016.

A 1.1.2/1

Bayer Group Structure in 2016



In 2016, the Bayer Group comprised 301 consolidated companies in 78 countries throughout the world.

Reporting of the regions in the Annual Report has been adjusted to reflect the distribution of responsibilities on the Board of Management. Africa / Middle East is now no longer reported together with Latin America but with Europe.

The **Pharmaceuticals** segment focuses on prescription products, especially for cardiology and women's healthcare, and on specialty therapeutics in the areas of oncology, hematology and ophthalmology. The division also comprises the radiology business, which markets diagnostic imaging equipment together with the necessary contrast agents.

The **Consumer Health** segment markets mainly nonprescription (OTC = over-the-counter) products in the dermatology, nutritional supplement, analgesic, gastrointestinal, cold, allergy, sinus and flu, foot care and sun protection categories.

The **Crop Science** segment is a world-leading agriculture enterprise with businesses in seeds, crop protection and nonagricultural pest control. The Crop Protection / Seeds operating unit markets a broad portfolio of high-value seeds and innovative pest management solutions, while at the same time providing extensive customer service for sustainable agriculture. The Environmental Science operating unit provides products and services for professional nonagricultural applications, such as vector and pest control and forestry.

Vector control: see Glossary

The **Animal Health** segment ranks among the leading international innovators in its field. It develops and markets products and solutions for the prevention and treatment of diseases in companion and farm animals.

The **corporate functions** and **Business Services** operate as Group-wide competence centers in which business support services are bundled. Currenta is the service company responsible for managing and operating the Chempark sites in Leverkusen, Dormagen and Krefeld-Uerdingen.

Covestro is one of the world's leading suppliers of high-tech polymer materials and develops innovative product solutions for a wide variety of everyday uses.

Online Annex: A 1.1.2-1

A 1.1.2-1/1

Product and Activities of the Segments

Indication/Application/Business	Core activities and markets	Main products and brands[1]
Pharmaceuticals		
Cardiology	Hypertension, pulmonary hypertension, heart attack and stroke, thrombosis	Xarelto™, Adalat™, Aspirin™ Cardio, Adempas™
Oncology	Liver cancer, renal cell carcinoma, prostate cancer, colorectal cancer, gastrointestinal stromal tumors (GIST)	Nexavar™, Xofigo™, Stivarga™
Ophthalmology	Age-related macular degeneration (AMD), diabetic macular edema (DME)	Eylea™
Hematology	Hemophilia A	Kogenate™ / Kovaltry™
Women's health	Contraception, gynecological therapy	Mirena™ product family, YAZ™ / Yasmin™ / Yasminelle™
Infectious diseases	Bacterial infections	Avalox™ / Avelox™, Cipro™, Ciprobay™
Radiology	Contrast agents; diagnostic imaging equipment for use with contrast agents	Gadovist™, Ultravist™, Medrad Spectris Solaris™, Medrad Stellant™
Other indications	Multiple sclerosis	Betaferon™ / Betaseron™
Consumer Health		
Dermatology	Wound care, skin care, skin and intimate health	Bepanthen™, Canesten™
Nutrition	Multivitamin products, dietary supplements	One A Day™, Elevit™, Berocca™, Supradyn™, Redoxon™
Analgesics	General pain relief	Aspirin™, Aleve™
Gastrointestinals	Gastric complaints	MiraLax™, Rennie™, Iberogast™
Allergy	Allergies	Claritin™
Cough and cold	Cough and cold	Aspirin™, Alka-Seltzer™, Afrin™
Footcare	Footcare	Dr. Scholl's™
Suncare	Sun protection	Coppertone™
Crop Science		
Fungicides	Biological and chemical products to protect crop plants from fungal diseases	Flint™, Fox™, Luna™, Nativo™, Prosaro™, Serenade™, Xpro™
Insecticides	Biological and chemical products to protect crop plants from harmful insects	Belt™, BioAct™, Confidor™, Movento™, Sivanto™
Herbicides	Chemical crop protection products to control weeds	Adengo™, Alion™, Basta™, Corvus™, Liberty™
SeedGrowth	Biological and chemical seed treatments to protect against fungal infection and pests	CropStar™, Gaucho™, Poncho™
Seeds	Seeds and traits for cotton, canola, rice, soybeans, wheat and vegetables	Arize™, Credenz™, FiberMax™, InVigor™, Nunhems™, Stoneville™
Environmental Science	Products for professional pest control, vector control, forestry, golf courses and parks, railway tracks	Esplanade™, Fludora™, Interface™, K-Othrine™, Maxforce™, Pistol™, Signature™
Animal Health		
Companion animals business	Veterinary medicines and solutions to protect and maintain the health of companion animals, focusing on antiparisitics and anti-infectives	Advantage™ product family, Seresto™, Drontal™, Baytril™
Farm animals business	Veterinary medicines and solutions to treat and prevent parasitic diseases, anti-infectives, immunostimulants, pharmacological treatments and farm hygiene products	Baytril™
Covestro		
Polyurethanes	Raw materials for flexible and rigid foams and for thermoplastics	Diphenylmethane diisocyanate (MDI), toluene diisocyanate (TDI) and polyether polyol product groups
Polycarbonates	Granules, sheets and films	Polycarbonate product group
Coatings, Adhesives, Specialties	Raw materials for surface coatings and adhesives and specialties	Hexamethylene diisocyanate (HDI) product group

[1] The order of the products listed is no indication of their significance.

1.1.3 Value Creation

By delivering innovative products and solutions in its core businesses, Bayer creates value for its stakeholders at all stages of the value chain. We operate production sites worldwide, invest in research and development, work with international and local suppliers and contribute to the economic development of our target markets. As an employer, we provide jobs in industrialized, emerging and developing economies and create purchasing power through the salaries we pay. We contribute to public finances and thus support public infrastructure through the payment of taxes and other levies.

A 1.1.3/1

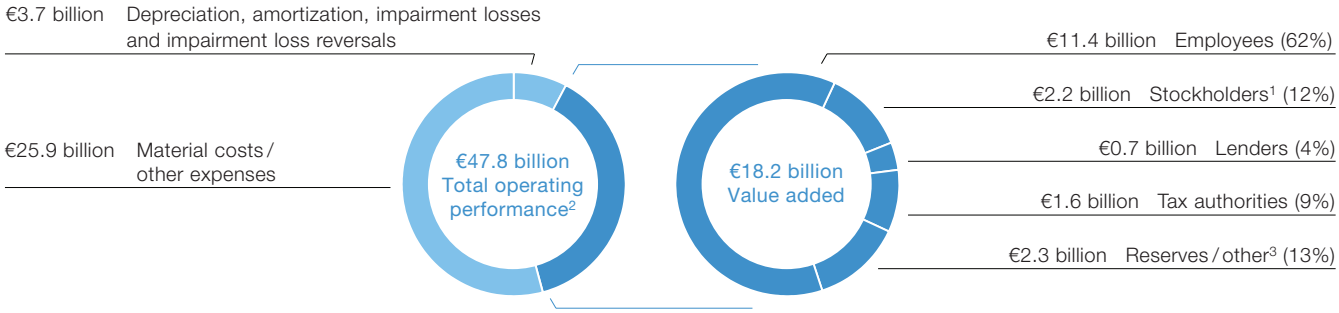
Value Chain Stages

See also A 1.4.2

The value added statement shows the direct financial value our business activities create for our stakeholders. We define value added as the company's total operating performance in the previous fiscal year less the costs of procured and consumed goods and services, depreciation, amortization, impairment losses and impairment loss reversals.

A 1.1.3/2

Bayer Group Value Added 2016



[1] Bayer AG dividend proposal for 2016
[2] Total operating performance = sales + other operating income + financial income / equity-method income (loss)
[3] Includes dividend for minority shareholders of Covestro AG

1.2 Strategy and Management

> Corporate strategy targets long-term profitable growth
> Group targets include financial and nonfinancial data
> Sustainability management integrated in all processes

1.2.1 Group Strategy and Targets

Our mission "Bayer: Science For A Better Life" guides our endeavors to address some of today's most pressing global challenges in health and nutrition through better medicines and a sufficient quantity of high-quality food for a steadily growing and aging population. Together with our partners, we are developing innovative solutions to tackle these challenges and thus improve people's quality of life.

We want to safeguard our company's long-term success in balance with ecological responsibility and societal acceptance. Sustainability is embedded in all our business practices as a fundamental condition for achieving this.

www.bayer.com/strategy

Our diversified portfolio of Life Science businesses delivers profitable growth. We continuously strive to develop our businesses such that they assume leading positions in the respective industries and segments. This development is sustained by our core competencies of innovation, customer focus, quality, process excellence and portfolio management, and by our people.

To advance the consistent implementation of our strategy, we have set ambitious group targets for our company in the areas of growth and profitability, innovation, sustainability and employees. These targets are explained in more detail on the following pages.

Strategies of the Segments

Pharmaceuticals

At Pharmaceuticals, our largest segment in terms of sales, we focus on researching, developing and marketing specialty-focused innovative medicines that provide significant clinical benefit and value, primarily in the therapeutic areas of cardiology, oncology, gynecology, hematology and ophthalmology. In this way, we are addressing the growing requirements of patients, physicians, health care payers and regulatory agencies.

We will continue to drive growth with our successfully launched products Xarelto™, Eylea™, Stivarga™, Xofigo™ and Adempas™. We are continuing to expand the use of these medicines through comprehensive clinical development programs – some of them in collaboration with other pharmaceutical companies – and to make them available to further patient groups.

To drive sustainable growth, we are continually increasing our investment in research and development, focusing on the areas with the greatest potential for innovation such as cardiology, oncology and gynecology. We aim to continue supplementing our own innovation strength through targeted external collaborations. In addition, we are expanding and supplementing our development portfolio through licensing agreements and acquisitions.

Moreover, we are seeking to further increase our efficiency as a means of ensuring the availability of resources for investment in innovation.

To improve access to our products in developing and emerging countries (Access to Medicine), we are implementing economically feasible concepts and further developing our compounds for the treatment of neglected tropical diseases alongside our philanthropic activities.

Online Annex: A 1.2.1-1

Target: improving people's quality of life

As an innovation company, we are addressing current challenges by improving people's quality of life through disease prevention and therapy. Within the scope of our entrepreneurial possibilities, we seek to make a responsible contribution to the benefit of society. Our Access to Medicine (ATM) activities are aligned to our company's expertise and our specific product portfolio.

Here we distinguish between not-for-profit and economically feasible activities. The former include our efforts in respect of neglected tropical diseases (NTDs). Having signed the London Declaration, Bayer is collaborating with other pharmaceutical companies and stakeholders to help control or if possible eliminate 10 of these tropical diseases by 2020. Each of the companies involved contributes its respective expertise. In this connection, we have been providing the WHO (World Health Organization) free of charge with two of our active ingredients to treat African sleeping sickness and Chagas disease for more than 10 years. In 2016, we supplied one million tablets of Lampit (active ingredient: nifurtimox) for the treatment of Chagas disease and additionally contributed €300,000 for logistics and distribution. Given the gratifying and continuous decline in the number of patients suffering from African sleeping sickness, the 10,000 Germanin ampoules we supplied in 2015 will be sufficient for treatment through 2018. Since 2013, we have also been supporting WHO mobile intervention teams in the Democratic Republic of Congo, the country with the highest incidence of African sleeping sickness.

Additionally, we are working with DNDi (Drugs for Neglected Diseases Initiative) to develop a new treatment for river blindness. As part of the TB Drug Accelerator program, Bayer is opening parts of its substance library to support the search for new compounds to combat tuberculosis. In 2016, we formed a collaboration with the University of Dundee, Scotland, and the University of Cape Town, South Africa, to study an approach resulting from that program. We are optimizing a special formulation of our active ingredient nifurtimox that will allow more accurate, weight-based dosing in the treatment of Chagas disease, especially for children. The related Phase III study was launched in 2016 in Argentina, Colombia and Bolivia.

Improved access to medicines

Our family planning programs are economically feasible and facilitate improved access to hormonal contraceptives for women in developing countries. These programs make our products available to international development partners at preferential prices.

In some countries, where sections of the population have no access to innovative medicines via health care systems, we have established patient assistance programs for selected products. These aim particularly to provide access to oncology and cardiovascular products and products to treat chronic diseases such as multiple sclerosis and hemophilia. Such programs exist in the United States and China, for example, as well as in a number of countries in South and Southeast Asia and Southeastern Europe.

Every two years, the Access to Medicine (ATM) Index analyzes the top 20 research-based pharmaceutical companies in terms of their efforts to improve access to medicines and health care in developing countries. The rating mainly focuses on infectious diseases such as HIV, malaria and neglected tropical diseases, indications for which Bayer's portfolio has a limited offering. In 2016, Bayer placed 12th (10th in the 2014 ranking) with its access programs for hormonal contraceptives, its collaboration with the WHO and other development projects.

Consumer Health

The growing and aging world population represents an increasing challenge to public health care systems. For this reason, the issue of self-care is gaining importance for millions of people, as well as for governments, health care systems and health care payers.

See also A 1.1.2

Our Consumer Health segment is responding to this change with its mainly nonprescription (OTC) brand products to treat and prevent diseases and to improve well-being, providing consumers with the corresponding self-care solutions. Our strategy is aimed at further building on our strong position in the market for over-the-counter medicines, nutritional supplements and other self-care products in selected categories.

Increasing competition for consumer attention combined with ongoing industry and distribution channel consolidation require a stronger focus on brand building, key markets and consumer-centric innovation. In order to drive the organic growth of our core brands, such as Claritin™, Aspirin™, Aleve™, Bepanthen™, Canesten™, Alka-Seltzer™, Dr. Scholl's™, One a Day™, Coppertone™, Elevit™ and Berocca™, we are investing in product innovation and geographical expansion. We additionally intend to further strengthen our positions in key markets such as the United States, Brazil, Russia and China through product developments, marketing innovations and new digital offerings.

We also plan to continue selectively pursuing external growth opportunities that arise from the progressive consolidation of the OTC industry in order to expand our presence in strategic focus categories and markets by way of acquisitions.

Crop Science

Our Crop Science segment is aligned to the long-term trends of the agricultural markets. Our aim is to help shape the future of the agricultural industry with innovative offerings that enable the production of sufficient high-quality food, animal feed and renewable raw materials for a growing world population despite the limited amount of available arable land. We want to contribute to global food security through an environmentally friendly and sustainable increase in agricultural productivity. Our innovation strength is intended to benefit both our customers and society as a whole and be the source of our long-term growth. Crop Science's strategy is built on three cornerstones: leading the way in innovation, increasing customer centricity and promoting and further developing sustainable farming practices.

See also A 1.3

To lead the way in innovation and develop holistic solutions, we aim to build on our expertise in the integration of seed technology with chemical and biological crop protection. In so doing, we support our customers with improved and innovative solutions tailored to specific local requirements. Innovative technologies are increasingly being applied in research and development in order to enhance our product portfolio. Examples here include new breeding technologies to improve yields or computational life sciences for the collection, processing and analysis of extensive research and development data as the basis for faster and more customer-focused development.

Another major part of our strategy is customer centricity along the entire value chain, which is coupled with the continuous optimization of distribution. We aim to offer our customers integrated solutions for the most important crops. In response to the increasing digitization of agriculture, we plan to develop a proprietary digital platform and specific data models in the area of digital farming so that we can give farmers more customized and sustainable agronomic recommendations for improving their yields. We are also seeking to support smallholder farmers in developing and emerging economies with specially tailored and sustainable solutions that help them optimize their agricultural production methods and improve their standard of living.

In line with our commitment to sustainable agriculture, we promote and improve corresponding farming practices. Moreover, we are steadily expanding our successful food chain partnerships. In these projects, Crop Science works with all participants in the food chain to sustainably safeguard and increase yields, and to satisfy the quality criteria in the food chain. With the Bayer Forward Farming initiative, we cooperate with farmers to develop and promote innovative solutions for the respective crops and facilitate sustainable agriculture. We plan to establish model operations known as “ForwardFarms” in all major agricultural markets by 2018.

www.bayer.com/foodchain

Cooperation is crucial to the implementation of these strategic priorities. To find innovative and sustainable solutions to the challenges facing the agricultural industry, we maintain numerous collaborations and partnerships with leading research institutes and partners from the public and private sectors.

See also A 1.3

On September 14, 2016, as the logical next step in our evolution as a Life Science company, we signed a binding agreement to acquire Monsanto Company. Monsanto’s shareholders approved the merger at an extraordinary shareholders’ meeting held on December 13, 2016. Subject to receipt of the required regulatory approvals, successful closing of the transaction is anticipated by the end of 2017. Together we would be able to offer a broader portfolio of innovative products customized to serve farmers’ many needs and individual requirements. In the medium to long term, the combined enterprise would be able to bring innovations to the market faster and provide its customers with better solutions and an optimized product offering on the basis of agricultural analysis and supporting digital farming applications.

Animal Health

Driven by an increasing world population and higher incomes, the animal health market remains very attractive. In the companion animals segment, we are benefiting from growing pet ownership rates. In the farm animals segment, moreover, the aspiration to adopt Western lifestyle habits is leading to higher meat consumption.

In the companion animals business, Animal Health has a strong position in the field of parasiticides. To safeguard and further expand this position, we are focusing on maintaining the strong performance of the Seresto™ collar, opening up new distribution channels and leveraging the brand equity of the Advantage™ product family.

See also A 1.3

In the farm animals business, we are focusing on parasiticides and anti-infectives for the treatment of infectious diseases. We are striving to develop new options for the prevention and treatment of diseases in livestock. In this connection, we recently launched the innovative, nonantibiotic immunostimulant Zelnate™. Additionally, we strengthened our antiparasitics business in the United States with the acquisition in January 2017 of the Cydectin™ endectocide portfolio.

Covestro

As a global supplier of high-tech polymer materials and associated application solutions for many areas of modern life, Covestro supplies key industry sectors such as the automotive, construction and electronics industries. Driven by macro trends such as climate change, the diminishing availability of fossil resources, the expanding global population, urbanization and increasing mobility, the company is seeking to achieve profitable growth in the long term. Through its products – alongside polycarbonates especially raw materials for polyurethanes, coatings, adhesives and sealants as well as speciality products – Covestro aims to help master these challenges in line with its vision “To make the world a brighter place.” It operates efficient, safe and environmentally friendly production facilities and processes that are capable of serving the anticipated growth in demand. Covestro intends to further optimize cost structures and efficiency throughout the company.

Targets and key performance indicators

Our strategy is aimed at achieving economic growth balanced with our responsibility for the environment and society. We measure our progress in this on the basis of ambitious Group targets along the value chain. These targets are in the areas of growth and profitability, innovation, sustainability and employees.

In this way, we aim to make clear the challenges we have identified in our core business in the context of sustainable development, and at the same time to highlight the continuous improvements we are committed to making throughout the Group. The current status of our progress in these areas is documented in the following table and the respective chapters.

A 1.2.1/1

Bayer Group Targets[1]

Target	Target attainment (as of 2016)	New or adjusted target
Growth and Profitability		
Increase in Group sales (Fx & portfolio adj.); forecast issued in February 2016: low-single-digit percentage increase to more than €47 billion	3.5% increase to €46.8 billion	Low- to mid-single-digit percentage increase (Fx & portfolio adj.) to more than €49 billion
Increase in EBITDA before special items; forecast issued in February 2016: mid-single-digit percentage increase	10.2% increase	Mid-single-digit percentage increase
Increase in core earnings per share; forecast issued in February 2016: mid-single-digit percentage increase	7.3% increase	Mid-single-digit percentage increase
Innovation		
Group: increase in R&D investment to €4.5 billion (2016)	€4.7 billion	Increase in R&D investment to €4.8 billion (2017)
Pharmaceuticals: transition of 10 new molecular entities (NMEs) into development (2016)	12 new molecular entities (NMEs) transferred	Transition of 10 new molecular entities (NMEs) into development (2017)
Consumer Health: transition of 20 consumer-validated concepts into early development (2016)	30 new concepts transferred	Transition of 25 consumer-validated concepts into early development (2017)
Crop Science: transfer of 3 new molecular entities (NMEs), plant traits or biologics into confirmatory technical proof-of-concept field studies (2016)	Start of field studies on 4 new molecular entities (NMEs) and 1 new plant trait	Transfer of 3 new molecular entities (NMEs), plant traits or biologics into confirmatory technical proof-of-concept field studies
Sustainability		
Supplier management		
Evaluation of all strategically important suppliers (2017)	98%	Target unchanged
Evaluation of all potentially high-risk suppliers with significant Bayer spend (2020)	83%	Target unchanged
Development and establishment of a new sustainability standard for our supply base (2020)	In implementation	Target unchanged

See A 1.3 for more information

See A 1.4.2.1 for more information

[1] All targets other than “Growth and Profitability” and R&D investment targets do not include Covestro.

A 1.2.1/1 continued

Bayer Group Targets[1]

Target	Target attainment (as of 2016)	New or adjusted target
Resource efficiency		
Improvement of 10% in energy efficiency (2020); reference value 2012: 8.86 MWh/t	6.77 MWh/t (24% improvement)	Improvement of 10% in energy efficiency (2020); reference value 2015: 143 kWh/€1,000 external sales
Reduction of 15% in specific greenhouse gas emissions (2020); reference value 2012: 1.88 t CO_2/t	1.54 t CO_2/t (–18%)	Reduction of 20% in specific greenhouse gas emissions (2020); new reference value (2015): 54.5 kg CO_2/€1,000 external sales
Establishment of water management at all sites in water-scarce areas (2017)	95%	Target unchanged
See A 1.4.3.3 for more information		
Safety		
Reduction of 35% in occupational safety incident rate (Recordable Incident Rate – RIR) (2020); reference value 2012: 0.50	RIR 0.40 (–20%)	Target unchanged
Reduction of 30% in process and plant safety incidents (Loss of Primary Containment Incident Rate – LoPC-IR) (2020); reference value 2012: 0.21	LoPC-IR 0.17 (–19%)	Target unchanged
See A 1.4.3.2 for more information		
Product stewardship		
Conclusion of assessment of hazard potential of all substances (>99%) used in quantities exceeding one metric ton per annum (2020)	66%	Target unchanged
See A 1.4.3.1 for more information		
Compliance		
Annual compliance training for virtually 100% of Bayer managers	97%	Target unchanged
See A 4.2 for more information		

Employees

Continuous improvement in employee engagement; reference value 2012: 85%	87%	Target unchanged
Increase in the proportion of women in senior management to 35% (2020); reference value 2010: 21%	31%	Target unchanged
Increase in the proportion of senior managers from outside the European Union, the United States or Canada to 25% (2020); reference value 2013: 18%	21%	Target unchanged
See A 1.4.1 for more information		

[1] All targets other than “Growth and Profitability” and R&D investment targets do not include Covestro.

1.2.2 Management Systems

One of the prime objectives of the Bayer Group is to achieve profitable growth in order to steadily increase the enterprise value and sustain the company as a going concern. Economic planning and management for the company takes place within a framework for the divisions determined by the Board of Management in the course of the strategic management process and translated into specific targets during operational planning. Continuous monitoring of business developments complements the planning and management process, and key management and performance indicators are regularly updated. This process also involves tracking the implementation of the strategic objectives and adopting countermeasures in the event of deviations from the budget. Moreover, the Board of Management uses targets and performance indicators to steer the company's sustainable alignment.

We use the following indicators to plan, manage and monitor the development of our business.

Operational management indicators

The main parameters in economic management within the Bayer Group at the operational level are figures for sales, earnings and tied-up capital, which therefore also significantly affect short-term variable compensation.

See also A 2.4

Growth is measured primarily in terms of the change in sales after adjusting for currency and portfolio effects (Fx & p. adj.) in order to reflect the operational business development of the Group and the divisions. A key measure of profitability at the Group and division levels is EBITDA before special items. The EBITDA margin before special items, which is the ratio of EBITDA before special items to sales, serves as a relative indicator for the internal and external comparison of operational earning power. Another important profitability indicator for the Bayer Group is core earnings per share, which is the core net income divided by the weighted average number of shares.

New value-based indicator: return on capital employed

At the strategic level, Bayer introduced the return on capital employed (ROCE) for fiscal 2016. This indicator of value-based performance replaces the cash value added (CVA) and cash flow return on investment (CFROI). The periodic capital return is measured by comparing ROCE with the weighted average cost of capital. This supports the management in evaluating long-term business development.

See also A 2.2.3

Management of the Covestro segment

The principal indicators used for internal management in the Covestro segment are core volume growth, return on capital employed (ROCE) and free operating cash flow. These indicators also serve as the basis for short-term incentive awards to all Covestro employees. For management at Group level, however, the indicators used by Covestro are converted into those defined for Bayer above.

1.2.3 Sustainability Management

To us, sustainability means safeguarding our future viability and, as part of corporate strategy, is integrated into everyday procedures. We underline our mission as a company that acts sustainably through our commitment to the U.N. Global Compact and the Responsible Care™ initiative, and through our active global involvement in leading initiatives such as the World Business Council for Sustainable Development (WBCSD). Bayer is committed to the U.N. Sustainable Development Goals (SDGs) and released a position outlining the company's stance on these in 2016. Our innovations, products and services make a contribution to overcoming some of the biggest global challenges, including the SDGs of zero hunger and good global health care in particular.

www.bayer.com/unsdg
U.N. Global Compact: see Glossary

Clear responsibilities and structures defined

GRI G4-18

As part of Bayer's corporate strategy, sustainability is firmly established at Board level. Responsibility for the Group's sustainable orientation lies with the Board of Management member responsible for Human Resources, Technology and Sustainability in his role as Chief Sustainability Officer, and with the Corporate Health, Safety & Sustainability function introduced in 2016. Operational implementation is effected with the help of nonfinancial targets and performance indicators throughout the value chain, based on a clear definition of responsibilities in the corporate structure and the identification of key areas of activity using a materiality analysis. Corporate policies ensure our sustainability principles are firmly established in business operations and are implemented through management systems, committees and processes. The ongoing review and revision of directives and regular internal audits ensure that our management systems are continuously improved and aligned to the specific respective requirements.

www.bayer.com/policies

Covestro has established its own sustainability organization that functions according to a similar system and comparable processes to those at Bayer. The following information in this chapter does not include Covestro, unless otherwise indicated.

A 1.2.3/1

Structure of Sustainability Management

Sustainability management

Organization	Major areas of activity	Steering, measurement and documentation
› Member of the Board of Management responsible for Human Resources, Technology and Sustainability › Corporate Health, Safety & Sustainability function › Group committees focusing on sustainability and HSEQ issues	› Product and process innovation › Access to Medicine › Sustainable food supply › Employee relations & development › Business ethics › Product stewardship › Safety › Environmental protection / resource efficiency › Supplier management › Stakeholder engagement / partnering › Societal engagement	› Group policies on, for example, – human rights – compliance – sustainable development – responsible marketing › Targets / indicators › HSEQ management systems and audits › Opportunity and risk management › Integrated Annual Report with independent auditing

Commitment to standards and organizations such as WBCSD, GRI, U.N. Global Compact, Responsible Care

Materiality analysis and areas of activity updated

GRI G4-18, G4-23, G4-26, G4-27

We regularly analyze what the major stakeholders expect and require and match this against our own assessment. This enables us to identify at an early stage the latest developments along with sustainability-related opportunities and risks, which we can then incorporate into our strategy. After Covestro became independent and Bayer realigned itself as a Life Science company, we examined our areas of activity in 2016. This involved reviewing the issues in our last materiality analysis and assessing their relevance in view of the reorganization. Selected internal and external stakeholders evaluated the relevance to Bayer of the issues identified in respect of sales, costs, risk and reputation. The results were entered into a materiality matrix in line with the internal and external perspectives. The next step was to condense the issues relevant to Bayer, leading to 11 areas of activity. The Board of Management approved the entire process. The following graphic shows our areas of activity and their assignment to the stages of the value chain.

www.bayer.com/materiality

www.bayer.com/areas-of-activity

A 1.2.3/2

Areas of Activity Across the Different Stages of the Value Chain

Areas of activity \ Value chain stages	Research, development, innovation	Procurement and supply chain	Production	Logistics	Distribution and marketing	Use
Product and process innovation	⊗		⊗			
Access to Medicine	⊗				⊗	
Sustainable food supply	⊗		⊗		⊗	
Employee relations & development	⊗		⊗	⊗	⊗	
Business ethics	⊗		⊗	⊗	⊗	⊗
Product stewardship	⊗		⊗	⊗	⊗	⊗
Safety	⊗		⊗	⊗		
Environmental protection / resource efficiency	⊗		⊗	⊗	⊗	⊗
Supplier management		⊗				
Stakeholder engagement / partnering	⊗		⊗	⊗	⊗	⊗
Societal engagement	⊗				⊗	

The content index of the Global Reporting Initiative (GRI) with the corresponding U.N. Global Compact principles and the key GRI aspects assigned to our areas of activity can be found in the augmented version of the Annual Report. There we indicate whether we are able to exert influence within or outside the company. An overview of our areas of activity, their definitions, the corresponding Group targets and the assigned GRI aspects is available on our sustainability website.

GRI: see Glossary

www.bayer.com/gri

Stakeholder dialogue promotes acceptance and business success

GRI G4-26, G4-27

As a company, Bayer is a part of society and of public life. Ongoing and systematic dialogue with our stakeholders is therefore particularly important to us. Their expectations and viewpoints affect public acceptance of Bayer and thus our commercial success. They enable us to recognize trends and developments in society and our markets at an early stage and provide input for the continuing development of our business activities, risk management and reporting. We take the wide-ranging requirements of our stakeholders seriously and consider them in our business operations. The open dialogue with them also enables us to build trust in our products and the social value of our services. We distinguish four main stakeholder groups with which we interact.

GRI G4-24

A 1.2.3/3

Stakeholder Dialogue: Our Most Important Interest Groups

Bayer			
Partners	**Financial market participants**	**Social interest groups**	**Regulators**
› Customers › Suppliers › Employees › Associations › Universities / schools	› Investors › Banks › Rating agencies	› General public › NGOs › Local communities › Competitors	› Lawmakers › Politicians › Authorities

Online Annex: A 1.2.3-1

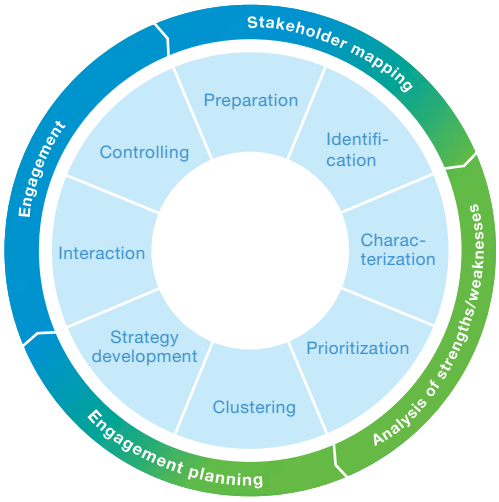
Diverse stakeholders in focus

GRI G4-25

We involve our interest groups, among other means, on the basis of our Stakeholder Engagement Process. This describes how their expectations, regarding a particular project for example, can be charted and dialogue with them steered. The engagement process is regularly reviewed based on social trends.

A 1.2.3-1/1

Stakeholder Engagement Process



Early and open dialogue for new projects

GRI G4-26

To ensure the long-term acceptance and appreciation of our business, we seek to link the interests of our stakeholders to our corporate strategy. Bayer approaches key social and political players right from the start of a new project to canvass their support. The open dialogue makes it possible to identify opportunities and risks early on. We use a manual to guide our stakeholder engagement in strategic decision-making processes such as investment projects and launching new products. The associated internal platform, the Virtual Resource Center, provides corresponding online tools. The concept is currently being applied to various projects at Bayer and undergoing continuous further development based on the practical experience obtained. In addition, senior managers are receiving systematic training to improve interaction with critical stakeholders.

Collaboration formats aimed at specific target groups

GRI G4-26

Bayer's regular stakeholder activities range from dialogue at local, national and international level and active involvement in committees and specialist workshops all the way through to comprehensive information programs, issue-related multi-stakeholder events and participation in international initiatives and collaborations. Our stakeholder dialogue also involves systematic monitoring.

GRI G4-24

Below and in the relevant chapters, we use examples to provide an insight into our engagement in 2016 with respect to our four most important stakeholder groups.

Our partners

Customers and suppliers

More on this topic can be found in Chapter A 1.4.2.1 and A 1.4.2.3.

Employees

More information about internal communications can be found in Chapter A 1.4.1.

Universities and scientific institutions

Bayer's research and development activities are supported by international collaborations with leading universities, public-sector research institutes and partner companies. More about this can be found in Chapter A 1.3.1.

Schools and universities

You can find more information on Bayer's comprehensive activities in dialogue with school and university students in Online Annex A 1.4.1-15 of this Annual Report.

Associations

Bayer is an active member of, or holds leadership positions in, numerous associations and their committees. Examples include the German Chemical Industry Association (VCI; Vice-Presidency), the German Equities Institute (DAI; Presidency) and the European Chemical Industry Council (CEFIC; Executive Director Sustainability). Bayer also currently provides the Chairman of the Executive Board of econsense, the Forum for Sustainable Development of German Business.

Our segments are active members of their respective industry associations and committees. For example, Pharmaceuticals is on the boards of both the European (EFPIA) and the American (PhRMA) pharmaceutical trade associations. Consumer Health has leadership functions in relevant industrial and trade associations. The member of the Bayer Board of Management responsible for Consumer Health is on the Board of Directors of the WSMI (World Self-Medication Industry) federation. Representatives of the segment are on the boards of regional self-medication associations in the United States, Latin America and Europe, where Bayer currently holds the vice-presidency.

Crop Science is represented on the boards of the international crop protection association CropLife International, its regional associations CropLife America, Asia, Latin America and Africa & Middle East, the European Crop Protection Association (ECPA) and the presidium of the German agricultural association Industrieverband Agrar.

Animal Health is represented on the Board of Directors of the international association Health for Animals and the International Federation of Animal Health (IFAH-Europe) among other organizations.

Covestro holds the Presidency of PlasticsEurope, the association of European plastics manufacturers, and is represented on the Executive Committee of the World Plastics Council. It is also represented on the Executive Committee of CEFIC and the Board of VCI.

Financial market players

Investors, banks and rating agencies

More information on our dialogue with the capital market – stockholders, capital investment companies, institutional investors, banks and rating agencies – can be found in the "Investor Information" chapter of this Annual Report.

Regulators

Legislators, authorities and politicians

GRI G4-26

The framework for the company's operations is essentially determined by authorities, legislators and politicians. The dialogue with authorities and ministries worldwide includes discussions with political decision-makers and active involvement in specialist committees and cooperation projects. Our active participation in political decision-making processes is explicitly sought by the key players involved.

Lobbying

www.bayer.com/pol-involvement

In its Corporate Policy "Code of Conduct for Responsible Lobbying," Bayer sets out binding rules for its involvement in political matters, aiming to ensure transparency in any collaboration with the representatives of political institutions. The Group's Public and Governmental Affairs Committee established the principles for the alignment of Bayer's political work. This especially includes developing the company's political positions as well as determining the position of the Board of Management on important political issues. In 2016, Bayer's political lobbying focused among other things on social debate regarding good framework conditions for developing innovative Life Science technologies and products, evidence-based regulation and the necessary reforms for the regulatory approval of crop protection products and in the area of seeds. A further focal point was submitting proposals for creating sustainable health care systems and strengthening self-care as a key factor in this process. Bayer also promotes the prevention of additional burdens for innovation and is involved in various policy areas: from energy, chemicals and trade policy to climate protection and sustainability. In addition, the company actively supports the protection of intellectual property – a key prerequisite for continuing to invest significantly in the development of innovative products. More information on our political principles and positions can be found on the internet.

www.bayer.de/us-lobbying-disclosure

Our liaison offices in Berlin, Brussels, Washington, Moscow, Brasília and Beijing are key touchpoints between the company and political stakeholders. Bayer actively participates in existing transparency initiatives. It publishes details of costs, employee numbers and any of the other statistics required in each country, e.g. in the transparency registers of the European institutions and the U.S. Congress. Bayer goes far beyond the statutory requirements in doing so. For instance, the Group also publishes data for countries such as Germany where there is no legal requirement to publish such information. In 2016, the costs incurred at the liaison offices for human resources, material and projects totaled approximately: €1.4 million in Berlin, Germany; €1.9 million in Brussels, Belgium; €7.3 million in Washington, United States; €0.2 million in Moscow, Russia; €1.3 million in Brasília, Brazil; and €1.1 million in Beijing, China.

According to our corporate policy, we have committed not to make any direct donations to political parties, politicians or candidates for political office. However, some associations to which the Group belongs make donations on their own initiative, in compliance with statutory regulations.

In the United States, a number of our employees use the Bayer Corporation Political Action Committee (BayPac) to make private donations supporting candidates for parliamentary office. Political action committees in the United States are state-regulated, legally independent employee groups. In the United States, companies are legally prohibited from donating to political candidates in Federal elections directly. In many cases, such direct donations by companies are legally prohibited for elections at state and local level too, but irrespective of the legislation Bayer's internal regulations do not permit them anyway. Donations through BayPac are therefore not corporate donations. The BayPac contributions are regularly reported to the U.S. Federal Election Commission and can be viewed on its website.

www.fec.gov

Social interest groups

Nongovernmental organizations, the public, the local community and competitors

Bayer is involved in a variety of projects, thematic initiatives and specialist conferences at a national and international level in order to play an active role in the common task of shaping sustainable development. Alongside exchange and cooperation with nongovernmental organizations (NGOs) and supranational organizations, this primarily involves dialogue with the public.

GRI G4-26

Among other involvement, Bayer is actively engaged in the U.N. Global Compact and its initiatives, the CEO Water Mandate and Caring for Climate, as well as the Global Compact LEAD network and local networks. We have also acted as an organizational stakeholder in the Global Reporting Initiative since 2004.

As a co-initiator of the "Zukunft der Industrie" (Future of Industry) group, Bayer was involved in several events in Germany during the Week of Industry initiative that took place for the first time in 2016. This demonstrated the impressive performance and innovative spirit of industry as well as its vital contribution to the prosperity of German society.

Segments develop specific dialogue formats

Pharmaceuticals is an active participant in the social dialogue addressing sustainability issues and creates forums to encourage exchange and develop viable problem-solving approaches together with partners. Pharmaceuticals supports the International Dialogue on Population and Sustainable Development conference in close collaboration with various governmental and nongovernmental organizations. Here, approaches for tackling internationally relevant issues in reproductive health are worked on and experiences of implementing the U.N. Millennium Development Goals are shared.

GRI G4-26

As part of their partnership, Consumer Health and the U.S. NGO, the White Ribbon Alliance (WRA), make a joint contribution to the U.N.'s "Every Woman Every Child" campaign. Its goal is to work at local level to reduce the mortality rate of mothers, infants and children. Consumer Health also supports the United Nations Population Fund's (UNFPA) "Safe Birth" campaign.

Crop Science has initiated various dialogue formats to improve knowledge transfer in agriculture, highlight the improvements in sustainable agriculture and increase communication with stakeholders such as farmers, public-sector decision-makers and society as a whole. For instance, Bayer has joined forces with industry business partners to organize numerous visits to Hof ten Bosch, a farm near Brussels, Belgium, with the goal of providing E.U. representatives, journalists and other stakeholders with a practical example of how digital farming works and can be further expanded. Crop Science sees great potential in digitizing agriculture and is therefore working with partners, for example, to develop digital farming applications for farmers that support them in decision-making processes and help them to optimize their work routines.

www.bayer.com/ag-edu

Crop Science pursues an intensive societal dialogue about the benefits of science and innovation in agriculture today. The Agricultural Education program is primarily aimed at encouraging young people to take a greater interest in agriculture and food production. In addition to practical exercises in student laboratories, the program also includes scholarships for agricultural science students and the sharing of ideas about the future of agriculture at international youth conferences such as the Youth Ag-Summit. And AgLearn, a new online offering, offers a practical approach to learning with online experiments relating to plant growth.

GRI G4-26

Dialogue with the local community builds trust

An important part of our stakeholder dialogue takes place in the direct vicinity of our sites. We are working on being recognized everywhere as a reliable partner and attractive employer that is aware of its social responsibility. The involvement of the local community plays a decisive role, for example, in the success of any investment project.

Dialogue with neighbors in the communities surrounding our production sites is anchored in a corporate policy on site management. Community dialogue is jointly maintained by the sites and the relevant country organization. In Germany, dialogue with the local community is handled via the Chempark neighborhood offices among other means.

For Pharmaceuticals and Consumer Health, exchange with neighbors at the production sites is a particularly high priority as it helps make the operation of the facilities in question transparent. It involves organizing guided tours and dialogue events and providing informational material for various stakeholder and age groups. Regular exchange is also maintained in networks with representatives of local governments and other resident companies. Crop Science regularly uses forums, print media and personal discussions with citizens' initiatives, representatives of church communities and the regional press to keep its neighbors continually informed, for instance at the Dormagen, Frankfurt-Hoechst and Knapsack sites in Germany. Close dialogue with stakeholders is also taking place in the communities around sites in other countries, such as in the United States.

Covestro initiates dialogue with neighbors, the public and nongovernmental organizations (NGOs) on a case-by-case basis. In the United States, for example, dialogue takes place through the Community Advisory Panels (CAPs). These organize regular meetings, for example with local government or the community, in order to provide information on current issues. Covestro enters into direct dialogue with social interest groups in particular when commissioning new facilities.

1.3 Focus on Innovation

> Excellence in research and development
> Groundbreaking technologies in the Life Sciences
> Global open innovation network

Innovation is a cornerstone of our mission "Science For A Better Life" and a core element of our strategy. We define innovations as new solutions that generate added value for our customers and society. Our activities focus on innovative products based on our strong research and development competencies. They are accompanied by process, service and business model innovation.

With our innovative solutions, we are responding to the global challenges in medical care and the need to safeguard an adequate food supply. Here we focus on three key elements: excellence in research and development, the application of groundbreaking technologies, and open innovation.

↗ Group target 2016: increase in R&D investment to €4.5 billion; see also A 1.2.1

Excellence in research and development

The success of our company is based on excellence in research and development (R&D). The know-how and skills of our employees are our most valuable resource in this endeavor. We develop new molecules and technologies in the research-intensive fields of medicine and modern agriculture and invest continuously in research and development projects.

We maintain a global network of research and development locations, where more than 15,000 scientists are employed. The focus of the research projects is determined by the R&D strategies of our segments. In 2016, we increased our research and development investment by 9.8% (Fx adj.) to €4,666 million. We plan to invest around €4.8 billion in research and development in 2017.

A 1.3/1

Research and Development Expenses in 2016

	R&D expenses € million		R&D expenses before special items € million		Share of R&D expenses %		R&D expenses before special items % of sales		R&D employees FTE	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Pharmaceuticals	2,450	2,787	2,402	2,736	57.3	59.7	15.7	16.7	8,003	7,934
Consumer Health	250	259	232	234	5.8	5.6	3.8	3.9	347	331
Crop Science	1,082	1,164	1,082	1,156	25.3	24.9	10.7	11.7	5,073	5,631
Animal Health	134	140	134	140	3.1	3.0	9.0	9.2	285	308
Reconciliation	96	55	96	55	2.2	1.2	8.7	5.2	40	9
Life Sciences	**4,012**	**4,405**	**3,946**	**4,321**	**93.7**	**94.4**	**11.6**	**12.4**	**13,748**	**14,213**
Covestro	262	261	261	261	6.3	5.6	2.2	2.2	1,005	1,016
Group	**4,274**	**4,666**	**4,207**	**4,582**	**100**	**100**	**9.1**	**9.8**	**14,753**	**15,229**

2015 figures restated

Patents protect Bayer's intellectual property

Globally reliable protection of intellectual property rights is particularly relevant for an innovation company like Bayer. We therefore endeavor to obtain patent protection for our products and technologies in the major markets depending on the legal framework. At the end of 2016, we owned approximately 50,800 valid patent applications and patents relating to some 5,000 protected inventions worldwide.

Online Annex: A 1.3-1

Patent protection is essential

Patent terms vary according to the laws of the country granting the patent. In view of the high investment required for product research and development, the European Union (E.U.) member states, the United States, Japan and some other countries extend patent terms or issue supplementary protection certificates to compensate for the shortening of the effective patent protection period due to regulatory approval processes for new drugs.

The term of a patent is normally 20 years. Since it takes an average of 12 years to develop a new medicine, only eight years of patent protection generally remain following the product's approval. In most cases it would be impossible to cover the substantial costs incurred in the research and development of innovative medicines or of new indications or dosage forms for existing drugs without this protection. We are therefore committed worldwide to protecting both the international patent system and our own intellectual property. The following table shows the expiration dates for the Bayer Group's significant patents.

www.bayer.com/political-position-ip

A 1.3-1/1

Pharmaceuticals Patent Expiration Dates

	Market										
	Germany	France	U.K.	Italy	Spain	Japan	China	Switzerland	Brazil	U.S.A.	Canada
Products											
Adempas™											
Active ingredient	2028[e]	2028	2023[a]	2028	2028	2027	2023	2028	2023[b]	2023[a]	2023
Production process / intermediate	2030	2030	2030	2030	2030	2030	2030	2030	2030[b]	2030	2030[b]
Eylea™											
Active ingredient	2020[a]	2025	2020[a]	2025	2025	2021-2023[d]	2020	2025	2020[b]	–	2020
Formulation	2027	2027	2027	2027	2027	2028-2029[d]	2027[b]	2027	2027[b]	–	2027
Kogenate™											
Active ingredient	–	–	–	–	–	–	–	–	–	–	2021
Formulation	2017	2017	2017	2017	2017	2020	2017	2017	2020	2016	2017
Kovaltry™											
Active ingredient	–	–	–	–	–	–	–	–	–	–	2021
Formulation	2017	2017	2017	2017	2017	2020	2017	2017	2020	2016	2017
Production process	2018	2018	2018	2018	2018	2018[a]	2018	2018	2023	2017	2018
Mirena™											
Inserter	2029	2029	2029	2029	2029	2029	2029	2029	2029[b]	2029[b]	2029
Nexavar™											
Active ingredient	2021	2021	2021	2021	2021	2021-2025[d]	2020	2021	2025	2020	2020
Salt form	2022	2022	2022	2022	2022	-	-	2022	-	-	-
Polymorph	2025	2025	2025	2025	2025	2025-2026[d]	2025	2025	2025[b]	2027	2025
Formulation	2026	2026	2026	2026	2026	2026-2027[d]	2026	2026	2026[b]	2026[f]	2026
Stivarga™											
Active ingredient	2028	2028	2024[a]	2028	2028	2026[d]	2024	2028	2024[b]	2031	2024
Formulation	2025	2025	2025	2025	2025	2026[d]	2025	2025	2025[b]	2031[c]	2025
Production process	2031	2031	2031	2031	2031	2031	2031	2031	2031[b]	2031	2031
Xarelto™											
Active ingredient	2023	2023	2023	2023	2023	2022-2025[d]	2020	2023	2022	2024[e]	2020
Formulation	2024	2024	2024	2024	2024	2025-2028[d]	2024	2024	2024[b]	2024	2024
Xofigo™											
Use	2024	2024	2024	2024	2024	2019[a]	2019	2024	–	2020[a]	2019
Production process	2031	2031	2031	2031	2031	2031	2031	2031	2031[b]	2031	2031[b]

[a] Current expiration date; patent term extension applied for
[b] Patent application pending
[c] Patent term revised
[d] Application-specific term extension(s)
[e] Patent term extension granted
[f] Notice of allowance received

Groundbreaking technologies in the Life Sciences

With our strategic innovation unit, the Bayer Lifescience Center (BLSC), we focus on new groundbreaking technologies. In May 2016, Bayer and ERS Genomics, Ireland, signed an agreement giving Bayer access to ERS's CRISPR-Cas9 genome-editing patents. The agreement granted Bayer rights for defined research applications of this technology in selected strategic areas. In August 2016, Casebia Therapeutics, a company established by Bayer and CRISPR Therapeutics in March 2016, launched operations in Cambridge, Massachusetts, and San Francisco, California, United States. The goal of Casebia Therapeutics is to develop new, trend-setting therapeutics to treat blood diseases, blindness and congenital heart disease. In December 2016, Bayer and Versant Ventures established the company BlueRock Therapeutics, which will be active in the area of regenerative medicine. The company plans to develop highly efficient therapies based on induced pluripotent stem cells (iPSCs) to cure various cardiovascular diseases, neurological disorders and diseases of the central nervous system.

Global open innovation network

Partnerships are integral to our innovation strategy. That is why we work within a network of alliances with start-ups, academic institutes, industry, suppliers and other partners. Our open innovation network spans all parts of the company along the value chain. Our open innovation portal offers a platform for collaborations in all parts of the company. We also invest in venture capital funds that finance life science start-up companies, among other projects.

See the segment sections for details

www.innovate.bayer.com

Online Annex: A 1.3-2

Scientists from Bayer are involved in constant dialogue with renowned research institutes and support partnership projects in the public and private sectors. In 2016, public funding worth more than €12 million was spent on more than 50 projects worldwide. This is equivalent to roughly 0.3% of our annual R&D expenses. We also participate in industry associations, assume professorships at universities worldwide and regularly invite scientists, university and school students to attend events such as symposiums on health topics or research days for school students. We view this as an investment in our own future.

GRI G4-26

Pharmaceuticals

Pharmaceuticals focuses on indications with high medical need in the areas of cardiovascular disease, oncology, gynecology, ophthalmology and hematology. We conduct research and development activities at several locations, mainly in Germany, the United States, Japan, China, Finland and Norway.

Bayer worldwide; see also A 1.1.1/1

In line with our targets for 2016 we transferred 12 new molecular entities from our research pipeline into preclinical development in the reporting year. We define a new molecular entity (NME) as a new chemical or biological substance that has not been in development to date. In preclinical trials these substances are examined further in various models with respect to their suitability for clinical trials and linked "first-in-man" studies. In 2016, we conducted clinical trials with several drug candidates from our research and development pipeline. We strengthened products that were already on the market through life cycle management activities to further improve their application and / or expand their spectrum of indications.

Group target 2016: transition of 10 new molecular entities (NMEs) into development; see also A 1.2.1

Progress in clinical Phase II projects

The following table shows our most important drug candidates currently in Phase II of clinical testing:

A 1.3/2

Research and Development Projects (Phase II)[1]

Projects	Indication
Anetumab ravtansine (mesothelin ADC)	Cancer
Ang2 antibody + aflibercept	Serious eye diseases[2]
BAY 1142524 (chymase inhibitor)	Heart failure
BAY 2306001 (IONIS-FXIRx)	Prevention of thrombosis[3]
Copanlisib (PI3K inhibitor)	Recurrent / resistant non-Hodgkin lymphoma (NHL)
Molidustat (HIF-PH inhibitor)	Renal anemia
Neladenoson bialanate (BAY 1067197)	Chronic heart failure
PDGFR-beta + aflibercept	Wet age-related macular degeneration[2]
Radium-223 dichloride	Breast cancer with bone metastases
Radium-223 dichloride	Cancer, various studies
Regorafenib	Cancer
Riociguat	Diffuse systemic sclerosis
Riociguat	Cystic fibrosis
Rivaroxaban	Secondary prevention of acute coronary syndrome (ACS)[4]
Vilaprisan (S-PRM)	Symptomatic uterine fibroids[5]
Vilaprisan (S-PRM)	Endometriosis

[1] As of January 31, 2017
[2] Sponsored by Regeneron Pharmaceuticals, Inc.
[3] Sponsored by Ionis Pharmaceuticals, Inc.
[4] Sponsored by Janssen Research & Development, LLC
[5] Based on positive Phase II study data, the decision was taken to initiate Phase III studies.
The nature of drug discovery and development is such that not all compounds can be expected to meet the predefined project goals. It is possible that any or all of the projects listed above may have to be discontinued due to scientific and / or commercial reasons and will not result in commercialized products. It is also possible that the requisite U.S. Food and Drug Administration (FDA), European Medicines Agency (EMA) or other regulatory approvals will not be granted for these compounds. Moreover, we regularly review our research and development pipeline so that we can give priority to advancing the most promising pharmaceuticals projects.

Below are the most significant changes that occurred in 2016 compared with the previous year:

In March 2016, we expanded our existing cooperation with Regeneron Pharmaceuticals, Inc., United States, to jointly develop a combination therapy of the angiopoietin2 (Ang2) antibody nesvacumab and aflibercept for the treatment of serious eye diseases. Two ongoing Phase II clinical studies are evaluating the combination therapy as a single intravitreal injection in patients with wet age-related macular degeneration or diabetic macular edema.

Also in March 2016, the study involving BAY 1007626, or progestin IUS (contraception), was discontinued. Clinical development of roniciclib (cancer) was discontinued. Bayer does not intend to pursue the development of refametinib (cancer) and the project will be returned to Ardea BioSciences, Inc., United States.

In May 2016, we terminated our Phase II study investigating riociguat (tradename: Adempas™) in patients with pulmonary hypertension associated with idiopathic interstitial pneumonia (PH-IIP) following the recommendation of an independent data monitoring committee (DMC).

We also will not further pursue the development of BAY 98-7196 + anastrozole (intravaginal ring) for the indication endometriosis.

In September 2016, our partner Regeneron Pharmaceuticals, Inc., United States, published the first data from a clinical Phase II study investigating the treatment of wet age-related macular degeneration with rinucumab, a PDGFR-β antibody, in combination with aflibercept (tradename: Eylea™). Although the study failed to meet its primary endpoint, a statistically significant improvement in visual acuity after 12 weeks, Regeneron will, however, continue the study as planned. Further data will be analyzed after 28 weeks and following the conclusion of the trial (after 52 weeks). Bayer will then examine the available data and decide on the next steps.

Progress in clinical Phase III projects

The following table shows our most important drug candidates currently in Phase III of clinical testing:

A 1.3/3

Research and Development Projects (Phase III)[1]

Projects	Indication
Amikacin Inhale	Pulmonary infection
BAY 1841788 (ODM-201, AR antagonist)	Nonmetastatic castration-resistant prostate cancer
BAY 1841788 (ODM-201, AR antagonist)	Metastatic hormone-sensitive prostate cancer
Ciprofloxacin DPI	Non-cystic fibrosis bronchiectasis
Copanlisib (PI3K inhibitor)	Various forms of non-Hodgkin lymphoma (NHL)
Damoctocog alfa pegol (BAY 94-9027, long-acting rFVIII)	Hemophilia A
Finerenone (MR antagonist)	Diabetic kidney disease
Radium-223 dichloride	Combination treatment of castration-resistant prostate cancer
Regorafenib	Colon cancer, adjuvant therapy
Rivaroxaban	Prevention of major adverse cardiac events (MACE)
Rivaroxaban	Anticoagulation in patients with chronic heart failure[2]
Rivaroxaban	Long-term prevention of venous thromboembolism
Rivaroxaban	Prevention of venous thromboembolism in high-risk patients after discharge from hospital[2]
Rivaroxaban	Embolic stroke of undetermined source (ESUS)
Rivaroxaban	Peripheral artery disease (PAD)
Tedizolid	Pulmonary infection
Vericiguat (BAY 1021189, sGC stimulator)	Chronic heart failure[3]

[1] As of January 31, 2017
[2] Sponsored by Janssen Research & Development, LLC
[3] Sponsored by Merck & Co., Inc., United States
The nature of drug discovery and development is such that not all compounds can be expected to meet the predefined project goals. It is possible that any or all of the projects listed above may have to be discontinued due to scientific and / or commercial reasons and will not result in commercialized products. It is also possible that the requisite U.S. Food and Drug Administration (FDA), European Medicines Agency (EMA) or other regulatory approvals will not be granted for these compounds. Moreover, we regularly review our research and development pipeline so that we can give priority to advancing the most promising pharmaceuticals projects.

Below are the most significant changes that occurred in 2016 compared with the previous year:

In the first quarter of 2016, we decided to focus our development activities for finerenone on the indication of diabetic kidney disease. A study in the indication of chronic heart failure will therefore not be carried out.

In May 2016, a clinical Phase III study investigating regorafenib (tradename: **Stivarga™**) in unresectable liver cancer reached its primary endpoint, a statistically significant improvement of overall survival. The study investigated regorafenib in patients with hepatocellular carcinoma whose disease had further progressed during prior treatment with sorafenib (tradename: **Nexavar™**). Based on these data, we submitted regorafenib for marketing authorization for the treatment of unresectable liver cancer in Europe, Japan and the United States in the third quarter of 2016.

In June 2016, we agreed with Orion Corporation, Espoo, Finland, to expand the global clinical development program for the novel androgen receptor (AR) antagonist BAY-1841788 (ODM-201).

A new clinical Phase III study is evaluating BAY-1841788 in men with newly diagnosed metastatic hormone-sensitive prostate cancer (mHSPC) who are starting first-line hormone therapy.

In June 2016, we formed a new research partnership with the U.S. National Surgical Adjuvant Breast and Bowel Project (NSABP), a leading clinical trials cooperative group. A clinical Phase III study will investigate regorafenib as a single agent for adjuvant treatment following completion of standard adjuvant chemotherapy in patients with advanced but not yet metastatic colon cancer.

In September 2016, a new clinical Phase III trial was initiated to evaluate vericiguat, a soluble guanylate cyclase (sGC) stimulator, in patients suffering from chronic heart failure with reduced ejection fraction. The development and commercialization of vericiguat are part of the worldwide strategic collaboration between Bayer and Merck & Co., Inc., United States (through a subsidiary), in the field of sGC modulation.

In February 2017, the Phase III COMPASS study with Bayer's rivaroxaban in patients with coronary or peripheral artery disease showed overwhelming efficacy and met its primary endpoint early.

Clinical trials are an essential tool for determining the efficacy and safety / tolerability of new developmental products before they can be used to diagnose or treat diseases. The benefits and risks of new medicinal products must always be scientifically proven and well documented. All clinical trials at Bayer satisfy strict international guidelines and quality standards, as well as the respective applicable national laws and standards.

Online Annex: A 1.3-3

Transparency through publication of clinical trials

Bayer publishes information about clinical trials in line with the respective applicable national laws and according to the principles of the European (EFPIA) and U.S. (PhRMA) pharmaceutical associations, these principles being defined in a joint position paper.

Pharmaceuticals publishes information on its own clinical trials both in the publicly accessible register www.ClinicalTrials.gov and in its own "Trial Finder" database. In the case of approved products, summarized results of Phase II, III and IV clinical trials are accessible online through the "Trial Finder." Upon request, scientists can receive access to anonymized data at the patient level via the portal www.clinicalstudydatarequest.com.

Further information on our globally uniform standards, the monitoring of studies and the role of the ethics committees can be found on the internet.

www.bayer.com/ethics-in-rnd

Filings and approvals

We regularly evaluate our research and development pipeline in order to prioritize the most promising pharmaceutical projects. Following the completion of the required studies with a number of these drug candidates, we submitted applications to one or more regulatory agencies for approvals or approval expansions. The most important drug candidates in the approval process are:

A 1.3/4

Main Products Submitted for Approval[1]

Projects	Indication
Regorafenib	Europe, Japan, U.S.A.: second-line treatment for unresectable liver cancer
Rivaroxaban[2]	U.S.A.; secondary prophylaxis of acute coronary syndrome (ACS)

[1] As of January 31, 2017
[2] Submitted by Janssen Research & Development, LLC

In February 2016, Bayer received approval from the European Commission for **Kovaltry™** (Bay 81-89-73) for the treatment of hemophilia A in patients of all age groups. Kovaltry™ is an unmodified recombinant factor VIII product that in clinical trials has demonstrated efficacy and tolerability as an on-demand therapy and for prophylactic use two or three times per week by hemophilia A patients. In March 2016, Kovaltry™ was approved by the U.S. Food and Drug Administration (FDA) and the Japanese Ministry of Health, Labour and Welfare (MHLW).

In March 2016, the Japanese MHLW granted marketing authorization for **Xofigo™** (radium-223 dichloride) for the treatment of adult patients with castration-resistant prostate cancer and bone metastases.

In May 2016, the U.S. Food and Drug Administration (FDA) approved **Gadavist™ / Gadovist™** (active ingredient: gadobutrol) as the first contrast agent for use with magnetic resonance angiography (MRA) to evaluate known or suspected supra-aortic or renal artery disease in patients of all ages.

In September 2016, the U.S. Food and Drug Administration (FDA) approved our new low-dose levonorgestrel-releasing intrauterine system with the brand name **Kyleena™**. The new system releases the lowest daily hormone dose in an intrauterine system for up to five years of effective protection against pregnancy. It uses the smallest T-shaped body available today for implantation in the uterus for the purpose of contraception with active ingredient-releasing systems. In October 2016, furthermore, we successfully completed the corresponding decentralized registration procedure for the European Union. On this basis, it is expected that the health authorities of the E.U. member states will grant national marketing authorizations in the coming months.

In November 2016, an expansion of indications was filed for **Stivarga™** (active ingredient: regorafenib) in the United States, Japan and Europe. The filings pertain to the second-line treatment of patients with unresectable hepatocellular carcinoma. Stivarga™, an oral multikinase inhibitor, is already approved under this brand name in numerous countries for the treatment of metastatic colorectal cancer and unresectable or metastatic gastrointestinal stromal tumors. The U.S. Food and Drug Administration (FDA) granted priority review status to regorafenib in the registration process for the expansion of indications (supplemental New Drug Application, sNDA). The Japanese Ministry of Health, Labour and Welfare (MHLW) granted priority review status for the registration filing in January 2017.

See also A 1.3 “Global open innovation network”

Cooperations

We augment our own research capacities through collaborations and strategic alliances with external industrial and academic research partners. In this way we gain access to complementary technologies and external innovation potential. The following table shows examples of the main collaborations:

A 1.3/5

Main Cooperations in 2016

Partner	Cooperation objective
Broad Institute	Strategic partnership in the field of genome and drug research in cardiology aimed at using findings from human genetics to develop new cardiovascular therapies and in the field of oncology to identify and develop active ingredients that target tumor-specific gene alterations
German Cancer Research Center (DKFZ)	Strategic partnership for the development of new therapeutic options in oncology, especially in immunotherapy
Evotec AG	Collaboration to identify development candidates for the treatment of endometriosis and kidney diseases
ImmunoGen Inc.	Cooperation in the field of antibody-drug conjugates (ADCs) for novel tumor therapies
Janssen Research & Development, LLC of Johnson & Johnson	Development of Xarelto™ (rivaroxaban)
Merck & Co., Inc.	Development and marketing collaboration in the field of soluble guanylate cyclase (sGC) modulation
MorphoSys AG	Development of antibody-drug conjugates using MorphoSys’s HuCAL technology
Orion Corporation	Development of ODM-201 for the treatment of patients with prostate cancer
Regeneron Pharmaceuticals Inc.	Development of Eylea™ (aflibercept) to treat various eye diseases Development of a combination therapy of rinucumab, a PDGFR-beta (beta-type platelet derived growth factor receptor) antibody, and aflibercept for the treatment of wet age-related macular degeneration Development of a combination therapy of the angiopoietin2 (Ang2) antibody nesvacumab and aflibercept for the treatment of serious eye diseases

Online Annex: A 1.3-4

A 1.3-4/1

Other Cooperations in 2016

Partner	Cooperation objective
BioInvent International AB	Access to antibody library with in-licensing of antibodies
Compugen Ltd.	Collaboration for the research and development of new immunotherapy approaches in oncology
Dimension Therapeutics, Inc.	Development of a novel gene therapy for hemophilia A
Inception 4, Inc.	Research into new approaches for the treatment of various eye diseases
Ionis Pharmaceuticals, Inc.	Development of an antisense molecule for the prevention of thrombosis
Leica Biosystems Ltd.	Development of diagnostic tests in personalized oncology treatment
Ludwig Boltzmann Institute	Research into lung vascular disease, especially pulmonary hypertension
Merck & Co., Inc.	Codevelopment of tedizolid to treat various infections
Nektar Therapeutics	Codevelopment of a targeted antibiotic inhalation therapy for lung infections (amikacin inhale)
Novartis AG	Development of a targeted antibiotic inhalation therapy for lung infections (ciprofloxacin DPI)
OncoMed Pharmaceuticals Inc.	Discovery and development of novel anticancer stem cell therapeutics
Onyx Pharmaceuticals Inc. of Amgen Inc.	Codevelopment of Nexavar™ (sorafenib) for various types of cancer
Peking University	Research cooperation and establishment of a research center for joint projects
Seattle Genetics Inc.	Access to technologies for antibody-drug conjugates (ADCs) for novel tumor therapies
Tsinghua University	Research cooperation and establishment of a research center for joint projects
University of Oxford	Strategic research alliance for the development of novel gynecological therapies
Ventana Medical Systems, Inc.	Development of diagnostic tests in personalized oncology treatment
Wilmer Eye Institute of Johns Hopkins University	Research and development of innovative drug products to treat serious back-of-the-eye diseases

Science and cooperation centers

In addition to these cooperations, we operate our own science and innovation centers. We coordinate primarily our research partnerships in Asia through our innovation centers in Beijing, China; Singapore; and Osaka, Japan. In Berlin, Germany, and San Francisco, California, United States, we operate the CoLaborator™, an incubator model for young life science companies. The objective of the global CoLaborator™ concept is to offer these companies suitable laboratory and office infrastructure in the direct vicinity of Bayer's own research facilities and the opportunity to exchange experiences with Bayer experts.

In the area of crowdsourcing, we established another global initiative named Grants4Indications™ in February 2016. This program promotes the exploration of new therapeutic indications for Bayer's active ingredients. We are also continuing the Grants4Apps™, Grants4Targets™ and PartnerYourAntibodies™ programs. In 2016, we launched the AACR-Bayer Innovation and Discovery Grants together with the American Association for Cancer Research (AACR). The objective is to develop new treatment options for cancers with high medical need. In addition, the East Coast Innovation Center was established in 2016 in Cambridge/Boston, Massachusetts, United States.

In the area of venture capital, we are active with the "High-Tech Gründerfonds" and Versant Ventures.

Further information on this can be found at: www.innovate.bayer.com/what-we-offer

Consumer Health

Bayer worldwide; see also A 1.1.1/1

Our development activities for nonprescription (OTC) products focus primarily on the areas of dermatology, dietary supplements, pain relief, gastrointestinal complaints, allergy relief and cold symptoms, as well as foot and sun care products. Developments aligned to the desires and needs of consumers range from new formulations, delivery forms and solutions for specific customer requirements to new packaging designs, technical applications (apps, Custom Fit Kiosk for Dr. Scholl's™ products) and medical devices. Consumer Health maintains a global network of research and development facilities, with sites in the United States, France, Germany and China.

See also A 1.1.2

↗ Group target 2016: transition of 20 consumer-validated concepts into early development

Transitioning of current prescription medicines to OTC status (Rx-to-OTC switches) forms an integral part of our innovation strategy designed to offer new self-care solutions to consumers. In 2016, we were able to realize 30 new consumer-validated concepts and thus exceeded the target we had set.

In 2016, we introduced a number of new product line extensions for existing brands in various markets, including as follows:

The April 2016 expansion of our Claritin™ portfolio in the United States included ClariSpray™, a 24-hour nasal spray for treatment of allergy symptoms.

We began marketing Aleve™ Direct Therapy in the United States in June 2016, thereby expanding our range of analgesic products. This medical device for transcutaneous electrical nerve stimulation is used to help relieve lower back pain and tension.

We expanded our Alka-Seltzer™ product family in the United States in July 2016 to include another cold medicine in the Alka-Seltzer Plus™ line.

We launched the new 2-phase system for Elevit™ (Elevit™1 and Elevit™2) in Germany in October 2016. These two complementary products for the healthy development of babies are specially tailored to the increased nutrient requirements of women in the conception and pregnancy phases.

Crop Science

Bayer worldwide; see also A 1.1.1/1

Crop Science maintains a global network of research and development facilities. While research is carried out centrally at a few dedicated sites, development of crop protection products as well as plant breeding and trait development activities take place both at these sites and at numerous field testing and breeding stations in all regions. Our scientists working across the areas of seed traits, seed technology, seed breeding, agricultural chemistry and biologics closely collaborate as part of our integrated research approach. This optimally combines complementary technical expertise from chemical and biological research and development.

To develop better agronomic recommendations for farmers, we develop, for example, digital products and services that help them with analyses and the evaluation of conditions in the field and provide them with extensive geographical information that enables better decision-making for mastering a variety of challenges.

At **Crop Protection**, we pursue the goal of identifying and developing innovative, safe and sustainable active ingredients for use as insecticides, fungicides, herbicides and crop efficiency products by foliar and soil application as well as seed treatment. Here, we use research methods such as high-throughput screening and computational life sciences for the identification and optimization of new chemical and microbial leads. In addition, we expand the area of applications for our active ingredients and their performance through new mixtures and through the development of innovative formulations.

In **Seeds** we are conducting research to optimize plant traits and are developing new varieties in cotton, oilseed rape / canola, soybeans, rice, wheat and vegetables. Our researchers are working both on increasing the yield potential of crops and on enhancing the quality of the crop. Examples include altering the profile of rapeseed / canola oil or enhancing the properties of cotton fibers. We are also targeting the development of plants that deliver higher yields under occasionally adverse climatic conditions. Further areas of focus include developing new herbicide tolerance and insect resistance traits based on novel modes of action, and improving disease tolerance.

Environmental Science further develops substances either from our own agricultural portfolio or from external partners for professional uses in non-agricultural areas. This includes solutions for controlling pests such as cockroaches or rodents in public areas and the food industry, or to control weeds on roads or railways. In the area of vector control, we develop solutions with resistance-breaking properties for controlling mosquitoes that can transmit malaria, dengue fever or Zika.

Research and development pipeline

Our product pipeline contains numerous new crop protection products, seed varieties and enhanced products (life cycle management). We estimate the combined peak sales potential of products with launch dates between 2015 and 2020 to be more than €5 billion. In 2016, we launched confirmatory technical proof-of-concept field studies for four active ingredients and one new crop trait, thus exceeding our Group target. A new plant trait is a specific characteristic that has not yet been available or offered at Bayer for the crop plant in question. The following table shows selected new products that are expected to be launched by 2020.

↗ Group target 2016: transfer of 3 new molecular entities (NMEs), plant traits or biologics into confirmatory technical proof-of-concept field studies; see also A 1.2.1

A 1.3/6

Product Innovation Pipeline[1]

Market launch	Product group	Indication / crop	Product / plant trait
2017	Biological crop protection	Insecticide	BioAct™ Liquid
2017	Seeds	Cotton	Glytol TwinLink Plus™ (dual herbicide tolerance and insect resistance)
2017	Seeds	Rice	Pest resistance and disease tolerance (native traits)
2017	Seeds	Rice	Flood tolerance (native trait)
2017	Seeds	Soybeans	Balance™ GT (dual herbicide tolerance)
2018	Seeds	Oilseed rape / canola	Dual herbicide tolerance
2018	Seeds	Rice	Salt tolerance (native trait)
2019	Chemical crop protection	Insecticide	Tetraniliprole
2019	Chemical crop protection	Fungicide	Tiviant™
2019	Seeds	Oilseed rape / canola	Herbicide tolerance
2019	Seeds	Oilseed rape / canola	New oil profile (native trait)
2019	Seeds	Rice	Dual disease tolerance (native trait)
2019	Seeds	Soybeans	Triple herbicide tolerance
2020	Seeds	Oilseed rape / canola	Dual herbicide tolerance

[1] Planned market launch of selected new products
As of January 30, 2017

New products and registrations

In 2016, Crop Science received marketing authorization in certain countries for new mixtures and formulations, as well as for expanded indications for existing products. For example, we were granted authorization to market the herbicide indaziflam and its core brand Alion™ in Brazil and the new herbicide mixture DiFlexx™ Duo in corn in the United States. The herbicide active ingredient triafamone and its Council™ formulations were approved in Japan. We also received further marketing authorizations and the approval of expanded indications for the biological fungicide Serenade™ ASO in various countries and for the nematicide Velum™ prime in southern Europe and Africa.

In July 2016, furthermore, the European Commission approved the dual herbicide tolerance trait Balance™ GT in soybeans for food and feed uses. Balance™ GT is owned by MS Technologies and is being codeveloped through a joint development agreement between that company and Bayer. The launch of soybeans with this new trait is planned for 2017, pending approval by the regulatory authorities.

Major success can be achieved with vegetables and many broad-acre crops using conventional and molecular plant breeding methods. As vegetables are intended especially to be marketed and eaten fresh, merchants and consumers have particularly strict requirements and expectations regarding their taste, appearance, nutrient content and shelf life. We continuously launch new vegetable seed varieties with these quality traits. In addition, we launch numerous new broad-acre crop varieties every year.

Environmental Science expanded its product range for forestry in Indonesia, Argentina and Brazil by launching the herbicide Esplanade™ F. Furthermore, the two new products Derigo™ and Pistol™ Flexx supplemented our portfolio for vegetation control in noncrop areas. We are continuously expanding our range of products for the maintenance of golf courses by developing and introducing various innovative solutions such as the nematicide Indemify™ and the fungicide Exteris™ in the United States. We are also supporting professional pest control around the world by expanding the Maxforce™ range of insecticides.

Cooperations

See also A 1.3 “Global open innovation network”

Crop Science is part of a global network of partners from diverse segments of the agricultural industry and academic research.

A 1.3/7

Crop Science: Important Cooperations

Partner	Cooperation objective
CSIRO	Increase in wheat yields by means of native plant traits – discovery, validation and integration
Elemental Enzymes	Use of microbes to improve soil health and thereby increase crop productivity
GRDC	Herbicide Innovation Partnership for the discovery and development of innovative weed management solutions
IVCC	Joint development of new substances to control mosquitoes that transmit diseases such as malaria and dengue fever
Targenomix	Development and application of systems biology approaches to achieve a better understanding of metabolic processes in plants
Embrapa	Cooperation on several R&D objectives in various areas of relevance for agriculture in Brazil, e.g. Asian soybean rust
Jülich Research Center	Research collaboration focused on phenotyping for plant breeding, research into plant traits and the development of biologicals
Planetary Resources International	Decision-making aids for farmers that enable more targeted deployment of crop protection products in fields using satellite technology

Online Annex: A 1.3-5

We formed new partnerships in 2016: in April 2016, Crop Science announced a five-year research partnership with the Institute of Geography and the Department of Informatics of the University of Hamburg that is aimed at jointly developing new digital solutions for agriculture based on geoinformatics methods and models. These enable the IT-based visualization of the consequences of agricultural processes using relevant geobasic data such as soil, climate, land relief and usage parameters. In September 2016, Crop Science announced a five-year research partnership with the Jülich Research Center in Germany that is focused on phenotyping for plant breeding, research into plant traits and the development of biologicals. In October 2016, Bayer and the Chinese Academy of Agricultural Sciences announced a research collaboration aimed at better understanding the genetic factors that impact wheat yields so that these can be increased.

In our open innovation initiatives Grants4Targets and Grants4Traits, we invite partners from academic research institutes, start-ups and other companies to join us and together drive innovation in the areas of crop protection and trait development. By investing in venture capital funds, furthermore, we support up-and-coming companies in agricultural technologies. We have developed various venture capital funds with partners such as Flagship Ventures, Trendlines and Finistere Ventures LLC.

Animal Health

At Animal Health we focus our research and development activities on antiparasitics, antibiotics, medicines to treat noninfectious disorders and nonantibiotic alternatives for infectious diseases. We endeavor to improve the health and well-being of companion and farm animals through innovations that also include digital solutions. Here Animal Health also pursues the “one health” concept: we offer animal health products that reduce the risk of transmission of disease pathogens to humans, such as endoparasiticides for cats and dogs or ectoparasiticides to protect especially against fleas and ticks. Through our initiative focusing on companion vector-borne diseases (CVBD) and with the leading global scientists who participate in this initiative, we are setting trends in the establishment of scientific principles and the fight against vector-borne diseases.

www.cvbd.org

Our central research activities are conducted through the Life Sciences platform in conjunction with the research and development department at Pharmaceuticals and in close collaboration with Crop Science.

New products and registrations

In January 2017, the European regulatory authorities approved a new product to protect honey bees against the Varroa mite. Before the product can be marketed, this decision must be implemented in national law.

Cooperations

Animal Health reinforces its business by continually identifying further product development candidates through new and existing collaborations.

In May 2016, we entered into an agreement with BioNTech AG, Germany, to develop novel mRNA vaccines and therapeutics specifically for veterinary medicine applications.

Also in May 2016, we signed a global license agreement with TransferTech Sherbrooke, Quebec, Canada, to advance a novel vaccine candidate developed at Université de Sherbrooke. The new vaccine is intended to help protect dairy cattle from mastitis caused by the bacterium Staphylococcus aureus.

Covestro

Innovation is a core element of Covestro's strategy. The company is accounting for current and future needs and trends through systematic innovation management, a strong global presence with major innovation centers and pronounced customer centricity.

With the objective of maintaining and building on its own competitive position, Covestro continuously works to achieve innovations and improvements in products and in production and processing techniques, as well as with respect to business models and processes. The main goals here are to improve the performance of products and processes, increase their cost efficiency and open up new areas of application.

The focus in the Polyurethanes Business Unit (BU) is partly on increasing the flame retardance and insulation properties of the materials it supplies. The business unit is also researching alternatives to petrochemical raw materials. The Polycarbonates BU focuses mainly on reducing the weight of the relevant materials, increasing their energy efficiency and safety, and expanding design options. The Coatings, Adhesives, Specialties BU concentrates on further developing its own technology platforms and the related products in order, for example, to increase their efficiency and sustainability.

Cooperation is integral to the innovation management concept of Covestro. The company closely cooperates with customers, scientific institutions, start-up companies and academic spin-offs.

1.4 Sustainable Conduct

1.4.1 Commitment to Employees and Society

> Attracting, developing and retaining the best managers and employees
> Corporate culture: dialogue, diversity, innovation
> Creating attractive working conditions
> Wide-ranging societal engagement

Our business success is based to a large extent on the knowledge, skills, commitment and satisfaction of our employees. As a modern international employer, we offer our employees attractive conditions and wide-ranging individual development opportunities. The key to this is our highly effective system of vocational and ongoing training, which we are continuously extending. Alongside professional training, we focus on conveying our corporate values (LIFE) and establishing a dialogue-oriented corporate culture based on trust, respect for diversity and equality of opportunity. That plays a part in employee satisfaction – along with our responsible approach to structuring working conditions, which includes fair and respectful treatment at work, a transparent, competitive and equitable compensation system, company pension plans, the ability to combine working with family commitments, flexible worktime arrangements and a working environment that fosters health.

Our global human resources strategy is designed to help us meet business needs in the future as well. It is adopted by the primary decision-making body of Bayer's HR function, the HR Leadership Team, which also sets binding policies and defines priorities for all regions and organizational units. The HR Leadership Team is led by the Head of Human Resources & Organization. Our Group-wide Employee Survey, which is normally conducted about every two years, and our institutionalized feedback discussions and analyses aim to achieve a steady rise in satisfaction with Bayer as an employer. They enable us to monitor the effectiveness of our activities and make any necessary improvements. Focal areas include strengthening our innovation culture, which provides a trustful basis that encourages creativity, experimentation, collaboration and customer focus in all areas. In the most recent Employee Survey we received an employee satisfaction rating of 87%, thereby achieving our Group target.

GRI G4-26

↗
Group target: continuous improvement in employee satisfaction; see also A 1.2.1

As well as promoting our competitiveness, our forward-looking human resources strategy reflects our social responsibility to provide secure employment and stable incomes, and to foster social integration. We are also committed to supporting the general well-being of our employees with a wide range of projects and initiatives in the central areas of health, education and meeting basic social needs.

Employee data

Slight reduction in Group headcount

On December 31, 2016, Bayer employed approximately 115,200 people worldwide (2015: 116,600), a slight decrease from the prior year. In Germany we had some 37,000 employees (2015: approximately 36,600), which was 32.1% of the total Group workforce (2015: 31.4%).

There was a reduction in the number of employees in the Asia / Pacific, Latin America and North America regions, but a slight increase in the Europe / MiddleEast / Africa region. While the headcount in the Consumer Health, Crop Science, Covestro and Pharmaceuticals segments decreased, there was an increase in the number of employees included in the Reconciliation and at Animal Health. The breakdown by function shows fewer employees working in sales and more in R&D. The proportion of women in the workforce was unchanged from the previous year at 37%. Similarly, in 2016 there was no significant change in the age structure compared with the previous year.

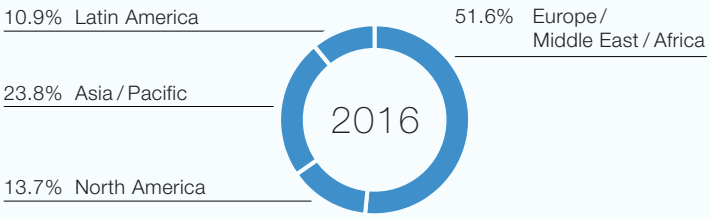
On the reporting date, our employees had worked for the Bayer Group for an average of eleven years. The level of voluntary fluctuation (employee-driven terminations) was 4.6% in 2016 (2015: 5.0%), slightly below the previous year's figure. The overall fluctuation rate was 12.3%, a decrease of 1.6 percentage points compared with the previous year. This figure includes all employer- and employee-driven terminations, retirements and deaths. This shows that we were again successful in retaining staff in the company for long periods. Our workforce only includes a small number of employees on temporary contracts and hardly any temporary employees from staffing agencies.

A 1.4.1/1

Employee Data

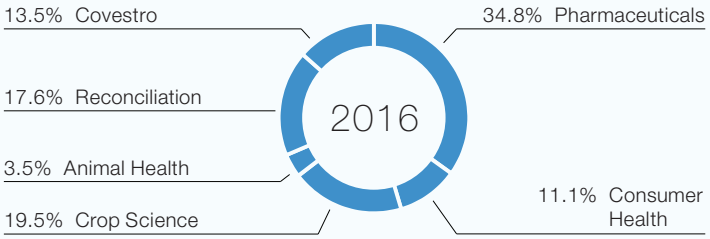
	2015	2016	Change in %
Total	**116,600**	**115,200**	**–1.2**

by Region



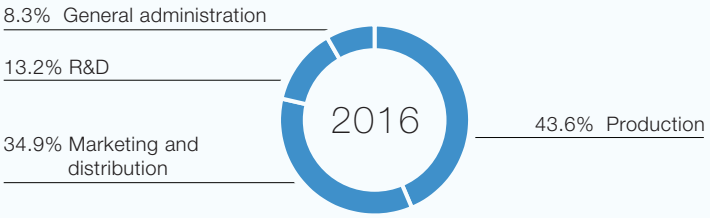
	2015	2016	Change in %
Europe / Middle East / Africa	58,800	59,500	+ 1.2
North America	16,000	15,800	– 1.3
Asia / Pacific	28,800	27,400	– 4.9
Latin America	13,000	12,500	– 3.8

by Segment



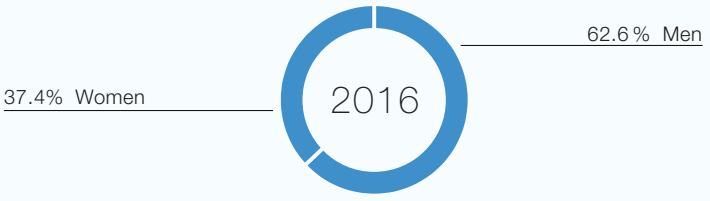
	2015	2016	Change in %
Pharmaceuticals	40,500	40,100	– 1.0
Consumer Health	13,500	12,800	– 5.2
Crop Science	23,300	22,400	– 3.9
Animal Health	3,800	4,000	+ 5.3
Reconciliation	19,700	20,300	+ 3.0
Life Sciences	100,800	99,600	– 1.2
Covestro	15,800	15,600	– 1.3

by Function



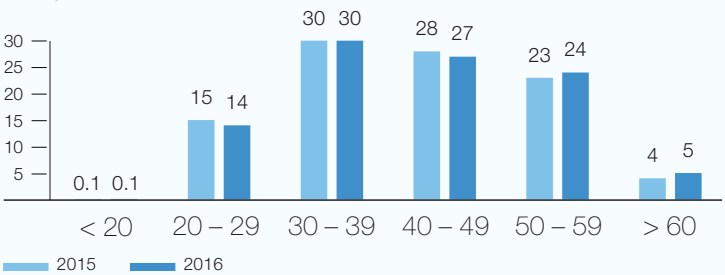
	2015	2016	Change in %
Production	50,600	50,200	– 0.8
Marketing and distribution	41,700	40,200	– 3.6
R&D	14,700	15,200	+ 3.4
General administration	9,600	9,600	0.0

by Gender



	Women		Men	
	2015	2016	2015	2016
Europe / Middle East / Africa	22,100	22,300	36,700	37,200
North America	6,200	6,200	9,700	9,600
Asia / Pacific	10,400	10,000	18,500	17,400
Latin America	4,900	4,600	8,100	7,900
Total	43,600	43,100	73,000	72,100

by Age Group in %



Fluctuation in %

	Voluntary		Total	
In %	2015	2016	2015	2016
Women	5.8	5.2	13.9	12.9
Men	4.5	4.3	13.9	12.0
Total	5.0	4.6	13.9	12.3

2015 figures restated; values rounded to the nearest hundred; number of employees in full-time equivalents (FTE)

Online Annex: A 1.4.1-1

A 1.4.1-1/1

Employees[1] by Employment Status, Region and Gender 2016

	Permanent employees			Temporary employees		
	Women	**Men**	**Total**	**Women**	**Men**	**Total**
Europe / Middle East / Africa	21,200	35,800	57,000	1,100	1,400	2,500
North America	6,100	9,500	15,600	100	100	200
Asia / Pacific	9,700	16,900	26,600	300	500	800
Latin America	4,400	7,000	11,400	200	900	1,100
Total	**41,400**	**69,200**	**110,600**	**1,700**	**2,900**	**4,600**

[1] The number of employees on either permanent or temporary contracts is stated in full-time equivalents (FTE) and rounded to the nearest hundred. Part-time employees are included on a prorated basis in line with their contractual working hours.

The next table contains further information on the breakdown of employee fluctuation by region, gender and age.

A 1.4.1-1/2

Employee Fluctuation[1] by Region, Gender and Age Group

	Europe / Middle East / Africa		North America		Asia / Pacific		Latin America		Total	
%	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**
Women	**8.3**	**9.4**	**15.7**	**15.5**	**22.2**	**17.6**	**19.2**	**15.9**	**13.9**	**12.9**
< 30[2]	20.4	17.8	36.1	22.8	24.9	21.0	29.1	22.7	24.5	20.0
30 – 49	7.0	9.2	14.1	13.7	20.4	16.1	17.4	14.5	12.6	12.2
>= 50[3]	5.5	6.2	13.2	16.5	29.1	18.9	12.9	14.3	9.1	9.8
Men	**8.0**	**7.3**	**13.2**	**14.3**	**23.6**	**18.6**	**19.2**	**17.4**	**13.9**	**12.0**
< 30[2]	28.7	17.9	35.8	25.6	31.3	27.6	31.4	28.3	30.7	23.8
30 – 49	6.1	6.2	10.0	11.1	21.7	16.5	16.0	13.8	12.3	10.7
>= 50[3]	5.2	5.8	12.8	15.8	17.2	13.8	19.4	20.5	8.7	9.3
Total	**8.1**	**8.1**	**14.2**	**14.8**	**23.1**	**18.3**	**19.2**	**16.8**	**13.9**	**12.3**

[1] The data include all employer- and employee-driven terminations, retirements and deaths.
[2] The comparatively high proportion of employees in the < 30 age group is due to the inclusion of employees on temporary contracts (working for 2 – 6 months of the year) and other short-term employees. It does not include apprentices.
[3] The fluctuation rates for the >= 50 age group are mainly due to retirements.

At our significant locations of operation, we use temporary personnel from staffing agencies on a small scale, primarily in response to short-term personnel requirements, fluctuations in order levels, temporary projects or long-term illness. In Germany, temporary staff make up 2.4% of the total workforce. At our significant locations of operation, the average is 3.5 %.

Significant locations of operation: see Glossary

Attracting, developing and retaining the best managers and employees

Employer branding targets both current and prospective employees

Innovations, changing customer requirements and a strong competitive environment are just some of the reasons why we welcome open-minded employees who question the status quo. A professional approach to attracting suitable talents is key to this. In 2016, we established our uniform employer brand “Passion to Innovate | Power to Change” around the world. This expresses what we expect of our employees and, at the same time, what we as a company offer them. We use our employer branding internally to enhance employee identification and externally to position the company on the employment market. In total, the Bayer Group hired 12,012 new employees in 2016.

Online Annex: A 1.4.1-2

A 1.4.1-2/1

New Hires[1] by Region and Gender

	Europe / Middle East / Africa		North America		Asia / Pacific		Latin America		Total	
	2015	**2016**	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**
Women	**2,513**	**2,318**	**1,024**	**754**	**1,569**	**1,265**	**666**	**599**	**5,772**	**4,936**
< 30	1,179	1,147	308	220	937	697	375	318	2,798	2,383
30 – 49	1,221	1,058	515	366	611	543	286	278	2,634	2,245
>= 50	114	113	201	168	21	24	5	3	341	308
Men	**3,480**	**3,057**	**1,406**	**1,008**	**2,762**	**2,026**	**1,082**	**986**	**8,729**	**7,076**
< 30	1,815	1,634	503	316	1,709	1,114	611	523	4,638	3,587
30 – 49	1,452	1,246	597	478	1,009	888	452	437	3,509	3,049
>= 50	212	177	307	214	45	23	19	26	583	440
Total	**5,994**	**5,375**	**2,430**	**1,762**	**4,330**	**3,291**	**1,748**	**1,584**	**14,502**	**12,012**

2015 figures restated
The figures also include the discontinued operations.
[1] Converted into full-time equivalents (FTE)

Our excellent reputation as an employer is shown by numerous external surveys, awards and accolades.

High level of vocational and ongoing training

www.bayer.com/career

www.bayer.com/training

Vocational training plays a key role at Bayer in order to meet the need for skilled employees. We provide sound training in more than 20 different occupations and offer more vocational training places than required to meet our needs. In Germany alone, around 1,145 young people embarked on a vocational training course at Bayer in 2016. In addition, Bayer offers trainee programs in Germany in areas such as financial management, human resources and engineering. Furthermore we give young people an opportunity to gain an early insight into a practical work environment. Overall, we provided some 2,800 professional internships for students around the world in 2016.

Significant locations of operation: see Glossary

A key aim of our personnel development strategy is to create an environment where all employees have the opportunity to develop their full potential. In the spirit of “lifelong learning”, we help employees in all fields broaden their knowledge and skills and keep up with the latest changes throughout their working lives. Support ranges from knowledge sharing and peer learning to programs that take up new trends and perspectives. On average, employees at our significant locations of operation received 22.1 hours of vocational and ongoing training in 2016.

Online Annex: A 1.4.1-3

At the heart of our ongoing training concept is the Group-wide Bayer Academy, which bundles our extensive continuing education offerings for employees and which was once again honored with the renowned Brandon Hall Group Excellence Award in bronze in 2016. Alongside systematic development of managerial employees, it offers continuous professional training through various functional academies. In 2016, the average cost of training per employee was approximately €409. The next table contains a further breakdown of vocational and ongoing training.

A 1.4.1-3/1

Training Activities in Hours in 2016 by Employee Group and Gender[1]

	Women	Men	Total
Employee group			
Senior management	24.3	16.7	18.6
Junior management	30.9	28.5	29.5
Specialists	20.2	15.8	17.5
Overall average	**23.7**	**19.6**	**21.2**

The figures also include the discontinued operations.
[1] Selected training activities in the countries covered by the global training system, in which we generated approximately 72% of our sales in 2016; the gender-specific averages assume 50% women and 50% men for the United States and Japan as statutory regulations preclude differentiation by gender in these countries.

Development Dialogue and feedback on performance

The aim of the Development Dialogue is to define possible perspectives for further career development as a basis for a development plan that fosters employees' personal strengths and addresses areas in which they would like to develop further. Some 31,000 Development Dialogues were held and documented in 2016.

31,000
Development Dialogues were held in 2016.

Specific and differentiated feedback forms the basis for positive personal development. Bayer encourages a culture of candid feedback to help employees achieve their individual goals within the framework of corporate targets. This is supported by our Group-wide performance management system, which includes obligatory feedback discussions where employees receive meaningful feedback from their supervisors on fulfillment of their professional and behavioral objectives. This assessment also determines the level of their variable compensation. In 2016, this system covered about 63% of our total workforce. Of the participants 45% were female and 55% male.

63%
of all Bayer employees take part in performance feedback.

Wide-ranging career opportunities

Thanks to our wide-ranging business activities, we offer employees throughout the Group good opportunities for development. Vacancies throughout the Bayer Group, from nonmanagerial right up to senior management level, are advertised via a globally accessible platform. In 2016, around 11,700 vacancies in 63 countries were posted here. International assignments are also an important element in employee development. Around 1,000 employees around the world participated in international assignments in 2016.

1,000
Bayer employees on international assignments

Corporate culture: dialogue, diversity, innovation

Ethical standards established

Fairness and respect are central elements of our corporate culture. That includes observing Group-wide standards of conduct and protecting employees from discrimination, harassment and retaliation. These standards are set forth in the corporate policy on Fairness and Respect at Work.

Communication at all levels

We involve our employees in business processes through active dialogue and further develop employee communication formats. The previously separate intranet sites for different countries and companies have been combined in a single platform covering all employee needs. Informing staff promptly and extensively about upcoming changes, in compliance with the applicable national and international regulations, is very important to us. We engage in open and trustful dialogue with employee representatives.

GRI G4-26

Online Annex: A 1.4.1-4

The main dialogue formats are regular employee assemblies, information events for managers and the European Forum, where employee representatives from all European sites engage in discussion with the Board of Management on issues of central relevance to the company.

Our employees actively use opportunities to discuss company-specific issues and scope for optimization via various communication channels. For example, Bayer fosters a culture of innovation at the workplace through two platforms for employee suggestions: the Bayer Ideas Pool and the Ideas Forum. The suggestions made by employees on improving processes, occupational safety and health protection are rewarded and utilized. In total, 3,408 ideas were submitted in 2016. Around 45% of the suggestions for improvement evaluated in 2016 were implemented. In the first year of implementation alone, those improvements that led to quantifiable benefits generated savings of more than €13 million. In 2016, Bayer distributed bonuses of around €1.7 million for the implemented proposals. Another example of employee participation is the Board of Management's appeal to all employees to submit suggestions on improving the Group-wide performance management system via the “WeSolve” platform.

Diversity and internationality are hallmarks of Bayer

Diversity: see Glossary

A diverse employee structure is vital for our company’s competitiveness. By embracing diversity we improve our understanding of changing markets and consumer groups, gain access to a broader pool of talented people and benefit from the enhanced innovative and problem-solving abilities that are demonstrably associated with high cultural diversity. Mutual understanding and a gender and cultural balance, especially at management level, are important success factors. We have an inclusive approach: diversity is integrated into all relevant human resources processes and driven forward by the management.

Online Annex: A 1.4.1-5

Bayer has officially adopted the United Nations’ Women’s Empowerment Principles, a set of seven principles that sum up how women can be strengthened in the workplace, on the employment market and in the community. The company is also a founding member of the German “Chefsache” network sponsored by the German Chancellor Angela Merkel. Its members are committed to working together to develop practically oriented strategies to drive diversity and gender balance in their organizations.

↗ Group target 2020: increase in the proportion of senior managers from outside the European Union, the United States or Canada to 25%; see also A 1.2.1

Overall, the Bayer Group employs people from around 150 different nations. Around 21% of our senior managers come from outside Western Europe, the United States and Canada. We aim to increase this to 25% by 2020 in accordance with our Group target. At our significant locations of operation we hired 390 employees for senior management, 70% of whom are employed in their country of origin.

↗ Group target 2020: increase the proportion of women in senior management to 35%; see also A 1.2.1

Group-wide, Bayer had raised the proportion of women at senior management level to around 29% by the end of 2016 (2015: 28%). Without Covestro the proportion was 31%. Our aim is to raise this to 35% by 2020.

Online Annex: A 1.4.1-6

Of the members of our Group Leadership Circle – the senior management level below the Board of Management – in which 31 nationalities are currently represented, around 67% come from the country in which they are employed. The proportion of women also increased in the Group Leadership Circle. By year-end 2016, it was made up of 84% men (2010: 93%) and 16% women (2010: 7%).

The next table shows the proportion of men and women in various employee categories.

A 1.4.1-6/1

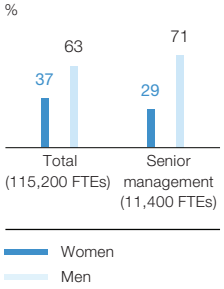
Bayer Group Workforce Structure[1]

	Women		Men		Total	
	2015	**2016**	**2015**	**2016**	**2015**	**2016**
Senior management	3,100	3,300	8,000	8,100	11,100	11,400
Junior management	11,300	11,400	16,600	16,600	27,900	28,000
Skilled employees	29,200	28,400	48,400	47,400	77,600	75,800
Total	**43,600**	**43,100**	**73,000**	**72,100**	**116,600**	**115,200**
Apprentices	800	800	1,800	1,800	2,600	2,600

2015 figures restated
[1] Number of employees converted into full-time equivalents (FTE) and rounded to the nearest hundred

A 1.4.1-6/2

Proportion of Women in the Workforce 2016



Creating attractive working conditions

Competitive compensation and variable pay

Our compensation system combines a basic salary reflecting performance and responsibility with elements based on the company's success, plus extensive additional benefits. Adjustments based on continuous benchmarking make our compensation internationally competitive.

We attach great importance to equal pay for men and women, providing fair and competitive compensation and informing our employees transparently about the overall structure of their compensation.

Online Annex: A 1.4.1-7

Binding and transparent compensation structures

At Bayer, individual salaries are based on each employee's personal and professional abilities and the level of responsibility assigned to them. At managerial level, this is based on uniform evaluation of all positions throughout the Group using the internationally recognized Hay method. In areas of the Group and jobs that fall within the scope of a binding collective bargaining agreement, there are no differences in pay based on gender either. This also applies for the compensation of apprentices. In the Emerging Markets and developing countries, too, compensation levels are aligned to local market conditions. In the majority of cases, full- and part-time employees at our significant locations of operation receive the same rates of pay. The situation differs with regard to employees on temporary contracts as they are not entitled to long-term compensation components such as pension plans in some countries.

Significant locations of operation: see Glossary

Our compensation concept also includes variable one-time payments. More than €1,400 million is earmarked for bonus awards to employees for 2016 under the Group-wide short-term incentive (STI) program. In many countries, employee stock programs enable our staff to purchase Bayer shares at a discount. We also offer senior managers throughout the Group "Aspire," a uniform long-term compensation program based on the development of the share price.

Short-term incentive program: see Glossary

Our personnel expenses for continuing operations amounted to €11,357 million in 2016 (2015: €11,176 million). The change was mainly due to salary adjustments and higher employee bonuses, which together outweighed currency effects.

See also Note 12 to B Consolidated Financial Statements

See also Note 25 to B Consolidated Financial Statements

Alongside attractive compensation for their work, Bayer contributes to the financial security of its present and former employees after their retirement. The present value of total pension obligations at the end of 2016 was €28,995 million. Personnel expenses in 2016 included pension expenses of €1,064 million. Payments of €1,131 million were made in 2016 to current retirees.

A 1.4.1/2

Personnel Expenses and Pension Obligations

€ million	2012	2013	2014	2015	2016
Personnel expenses	9,194	9,430	9,693	11,176	11,357
of which pension expenses	681	897	834	1,060	1,064
Pension obligations[1]	22,588	20,682	27,771	26,809	28,995
Pension benefits paid	887	925	942	997	1,131

2015 figures restated; figures for 2012–2014 as last reported
[1] Present value of defined benefit obligations for pensions and other post-employment benefits

Work-life balance

Present and future employees attach great importance to achieving a balance between employment and their personal and family lives. In many countries our commitment in this area goes well beyond the statutory requirements. We offer our employees flexible working hours and support in child care and caring for close relatives.

In 2015, Bayer introduced uniform conditions for short-term mobile working in Germany through a new General Works Agreement with the Works Council. In addition, employees in Germany can convert part of their salary into free time through the “BayZeit” long-term account. There are similar programs in other countries as well.

In 2016, the Bayer Group had some 10,700 part-time employees, in particular in Europe. This figure represents 9% of the total headcount.

Online Annex: A 1.4.1-8

A 1.4.1-8/1

Percentage of Part-Time Employees by Region and Gender

	Women		Men		Total	
%	2015	2016	2015	2016	2015	2016
Europe/Middle East/Africa	23.0	23.8	11.6	12.2	16.0	16.7
North America	1.2	1.3	0.2	0.1	0.6	0.6
Asia/Pacific	2.1	2.6	0.1	0.2	0.8	1.1
Latin America	0.1	0.1	0.0	0.0	0.0	0.1
Total	**12.7**	**13.5**	**6.0**	**6.5**	**8.5**	**9.1**

2015 figures restated

Bayer enables both men and women to take parental leave. Since national parental leave regulations vary widely from country to country, we only compile data for our significant locations of operation. These represent a selection of countries in which we generate around 81% of our sales. 1,621 women and 687 men at these locations took parental leave in 2016. By the end of the year, around 1,583 employees on parental leave had returned to work.

Online Annex: A 1.4.1-9

The next table shows the number of employees who have returned after the standard statutory parental leave program of up to three years per child and Bayer's more far-reaching "Family & Career" model (up to six years), using Germany as an example. By the end of 2016, 70.4% had returned to work. 50.6% of women and 94.2% of men who took parental leave in 2014 returned to work.

A 1.4.1-9/1

Employees Returning from Parental Leave using Germany as an Example

	Women		Men		Total	
	%	Absolute	%	Absolute	%	Absolute
Employees who have taken parental leave since 2014	**54.5**	**1,101**	**45.5**	**918**	**100.0**	**2,019**
Still on parental leave / with a dormant employment contract	43.5	479	4.8	44	25.9	523
Returned by 2016	50.6	557	94.2	865	70.4	1,422
Terminated [1]	5.9	65	1.0	9	3.7	74

[1] Includes employees who have left the company due to employer- and employee-driven terminations, severance agreements and expiration of contracts

The General Works Agreement on caring for close relatives helps Bayer employees in Germany to combine working with their role as carers.

Online Annex: A 1.4.1-10

Our employees can take up to 10 days' paid leave to provide emergency care for family members. For longer periods, they are entitled to work part-time. During this time, their salary is topped up by drawing funds from their long-term account. Alternatively, employees who need to care for close relatives full-time can take unpaid leave for up to six months (up to one year in exceptional cases).

Initiatives to promote health and ensure safe working conditions

Our occupational health management activities include many regular preventive programs, ranging from ergonomic workplaces and stress management to incentive systems to promote healthy behavior.

Online Annex: A 1.4.1-11

The "Healthy at Bayer" initiative helps employees in Germany take action at work to promote their health, with offerings ranging from preventive check-ups through programs to encourage healthy eating to exercise at sports clubs supported by Bayer. Health management also includes support for treating illnesses and reintegration measures.

We have activities and programs to enhance the health and vitality of our employees in many countries. One example is "B Well" in the United States, where individual health targets are defined and programs are specially designed to achieve them. The health and personal development of employees in Mexico is supported by "Vive con Bien Estar," a broadly based initiative by the Human Resources, Medical Services, Security and Communications units.

We aim to provide employees in all countries with access to affordable and targeted health offerings such as regular medical check-ups, sports programs, rehabilitation and on-site medical care. We also ensure safe working conditions and thus an environment where our employees can work without fear and undertake international business travel without risk. Our employee representatives are included in operational health management and are actively involved in its development.

Online Annex: A 1.4.1-12

Binding agreements at Group level

The Bayer European Forum – which brings together management and employee representatives – has signed the Luxembourg Declaration on Workplace Health Promotion in the E.U. This involves a network of around 200 companies which aims to identify and share best practices and encourages joint measures by employers, employees and society to improve health and well-being at the workplace.

Group-wide initiatives in Germany include the General Works Agreements on lifetime working and demographic change and on addressing demographic change at nonmanagerial level at Bayer. These agreements contain measures to reduce the workload of shift workers who work regular night shifts from the age of 55 and of all other nonmanagerial employees in Germany from the age of 57. Further, they include measures to ease the return to work of nonmanagerial employees after long-term illness, and an extensive health screening program for all employees. More than 98% of those who were eligible took part in the program to reduce the workload of older employees in 2016.

70%
of Bayer employees have a company pension plan.

Social responsibility for employees worldwide

More than 70% of Bayer employees worldwide are included in a Bayer pension plan. The benefits provided depend on the legal, fiscal and economic conditions in each country, employee compensation and years of service. Nearly all employees worldwide either have statutory health insurance or can obtain health insurance through the company.

A 1.4.1/3

Health Insurance and Pension Coverage

	Health insurance [1]		Pension plans [2]	
%	2015	2016	2015	2016
Europe / Middle East / Africa	98	98	85	86
North America	93	99	99	100
Asia / Pacific	95	96	39	39
Latin America	95	99	54	57
Total	**96**	**98**	**72**	**74**

2015 figures restated
[1] Government or employer- / employee-funded
[2] Programs to supplement statutory pension plans

Our social responsibility is also reflected in our approach to restructuring, which includes efforts to take account of our employees' interests. In Germany, which remains Bayer's largest operational base with 37,000 employees, business-related dismissals are excluded through the end of 2020 for a large proportion of employees under an agreement with the employee representatives.

In 2016, the working conditions for around 61% of our employees worldwide were governed by collective or company agreements. At various country companies, the interests of the workforce are represented by elected employee representatives who have a right to be consulted on certain personnel-related decisions. The contractually agreed working hours of our employees do not exceed 48 hours a week in any country.

Online Annex: A 1.4.1-13

A 1.4.1-13/1

Percentage of Collective Agreements by Region[1]

%	2015	2016
Europe / Middle East / Africa	84	84
North America	5	5
Asia / Pacific	44	45
Latin America	53	52
Total	**60**	**61**

2015 figures restated

[1] Percentage of employees covered by collective agreements, especially on compensation and working conditions

Our understanding of our role as a socially responsible company includes a commitment to helping disadvantaged people. We employ some 2,600 people with disabilities in 29 countries. That is around 2% of our total workforce. 36% are female and 64% male. Most employees with disabilities work for our companies in Germany, where they made up 5.1% of the workforce in 2016.

2,600
people with disabilities work for the Bayer Group.

Global respect for human rights

Bayer fully supports human rights and has set out its stance in a binding global policy. We are committed to respecting and fostering human rights within our sphere of influence and to reporting transparently on the results of our activities in this area. Alongside working conditions in the Bayer Group, this centers on our expectation that human rights will be respected at all stages in the supply chain, as detailed in our Supplier Code of Conduct. In addition, our LIFE values and Corporate Compliance Policy commit all employees around the world to fair and lawful conduct toward staff, colleagues, business partners and customers. We are a founding member of the U.N. Global Compact and respect the Universal Declaration of Human Rights and a range of globally recognized declarations applicable for multinational corporations.

See also A 1.4.2.1

Online Annex: A 1.4.1-14

These include, in particular, the OECD Guidelines for Multinational Enterprises, the Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy, and the core labor standards of the International Labour Organization (ILO). We also observe the U.N. Guiding Principles on Business and Human Rights.

ILO core labor standards: see Glossary

In 2016, around 87% of our employees received training in the main aspects of our Human Rights Position, in training sessions totaling 220,000 hours. That included training for internal and external security staff. The compliance organizations at Group and country level monitor compliance with the relevant corporate policies. If there are signs of violation, employees can contact their Compliance Officer at any time, anonymously if required. Alternatively, they can contact the Group-wide compliance hotline.

See also A 4.2

Societal engagement

Bayer's societal engagement focuses on people working innovatively in the areas of education & science and health & social needs who are committed to achieving a lasting improvement in living conditions. This also extends to a further focus area – sports & culture – although our involvement in professional soccer does not form part of our social sponsorship activities.

See also A 1.2.1-1

Our Access to Medicine (ATM) activities give patients in developing countries and the Emerging Markets access to our products.

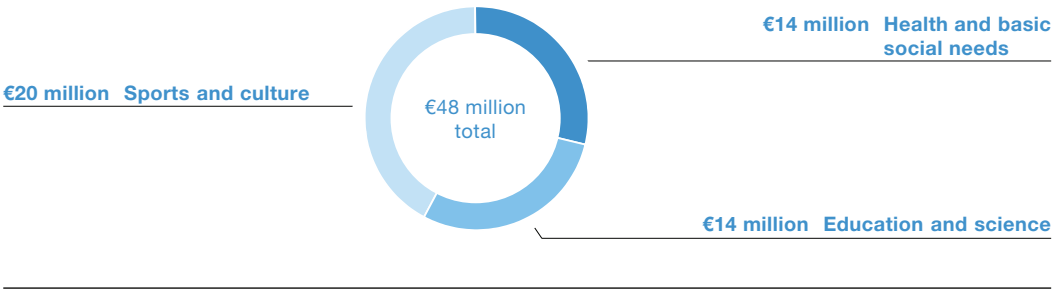
Bayer's foundation work centers on two globally active foundations that are linked to the company – the Bayer Science & Education Foundation for Life Sciences, education and medicine, and the Bayer Cares Foundation for social innovations and social commitment. An interdisciplinary committee chaired by the member of the Bayer Board of Management responsible for Innovation holds responsibility for the strategic orientation and coordination of our societal engagement. The Group-wide donation allocation and management policies form the basis for our foundation and donation activities. A large number of the initiatives are implemented in collaboration with partner organizations such as non-governmental organizations. An independent panel made up of internal and external judges decides how foundation funding is allocated. Covestro is responsible for its own social commitment activities. Donations are allocated on the basis of internal Covestro regulations.

In 2016, we invested (incl. Covestro) a total of around €48 million (2015: €51 million) in charitable activities worldwide. This was aimed at improving the quality of life at the company's various locations and contributing to solving social challenges.

Online Annex: A 1.4.1-15

A 1.4.1-15/1

Societal Engagement in 2016



For Bayer, pioneering achievements in science and society are fundamental to progress and success. For that reason, promoting cutting-edge research and supporting education and social innovation are key objectives of the Bayer foundations. Selected activities from the three key areas of health and basic social needs, education and science, and sports and culture are set out below.

Activities focusing on health and basic social needs

Encouraging social innovation

In 2016, the Bayer Cares Foundation gave the former Aspirin Social Award a new strategic orientation. Now called the Aspirin Social Innovation Award, the accolade has an international reach for the first time, focusing on social innovation in the areas of health and nutrition. All five award-winners received €20,000 of funding to expand their charitable business initiatives.

Supporting creative voluntary work

Last year, the Bayer Cares Foundation provided first-time funding for 73 volunteering projects of employees in 37 countries within the framework of the Bayer Volunteering Program. In Germany, an additional 26 projects of individuals not working at Bayer were also supported. The total funding amounts to around €341,000. All the projects offer innovative approaches to help solve social problems in the areas of health, nutrition and education in the catchment areas of the company's sites.

Rapid assistance in the event of natural disasters

In 2016, Bayer was once again active in supporting people experiencing acute hardship as a result of natural disasters. For example, we provided medicines worth €250,000 free of charge to assist in the medical care of the victims of a severe earthquake in Ecuador.

Activities focusing on education and science

Award-winning pioneering achievements

The Bayer Science & Education Foundation's Otto Bayer Award 2016 worth €75,000 went to Dr. Dirk Trauner from the University of Munich (LMU Munich). Working in the field of photopharmacology and chemical optogenetics, he is developing novel switches that use light to precisely control all kinds of processes in cells. This may open up new chemotherapeutic treatment opportunities, for example to cure blindness and cancer.

In 2016, the Bayer Early Excellence in Science Award worth €10,000 to each recipient went to three young researchers from Germany and Switzerland for their successful work in the fields of medicine, biology and chemistry.

Getting young people excited about science

The Bayer Science & Education Foundation helped talented young individuals in 2016 by awarding 245 scholarships worth a total of more than €1 million to students, postgraduates and apprentices in the fields of natural, life and agricultural science and medicine. This funding is intended in particular to facilitate research projects abroad. For the first time ever, youngsters from India and Africa joined children from German and U.S. schools at the Science Teens camp in the United States. Bayer was once again involved in the student support programs geared to national requirements in over 20 countries. To this end, our country organizations cooperated with universities, museums and other educational institutions.

In Germany, the focus in 2016 was on promoting innovative teaching projects, with total funding of some €550,000 for 37 specific measures at schools and other educational institutions in 18 towns and cities. The three Baylab student laboratories offered school classes a professional infrastructure that was used by over 7,500 schoolchildren and teachers in 2016 as a supplement to normal tuition.

Education program for refugee children

In 2016, the Science4Life Academy founded in 2015 by the Bayer Science & Education Foundation along with the Berlin Senate and other educational organizations produced scientific teaching materials geared specifically to the needs of refugee children and tested them at pilot schools in Berlin. The next steps are to evaluate the results and pass these on to all Germany's Federal states. In addition, the funding is to be used for a dictionary for refugee children.

Activities focusing on sports and culture

We continued our recreational, disabled and competitive sports activities in 2016. The Bayer sports clubs again made a key contribution to the broad range of sporting activities around the German sites in North Rhine-Westphalia. The 23 clubs have a total of around 45,000 members. In 2016, the major clubs also became more intensely involved as professional service providers for the company's occupational health management.

Bayer once again expanded its cultural activities in 2016, among other things by extending the stART program for talented young artists with the stARTacademy. A total of around 120 music, dance, theater and art events took place in 2016, including an art exhibition with selected works from the Bayer Collection.

1.4.2 Responsibility in Value Creation

> Sustainability criteria consistently anchored in the supply chain
> Strengthening efficiency and flexibility in production and logistics
> Ethical action shapes dialogue and partnership with our customers

We aim to offer our customers innovative products and high-quality solutions. This requires us to efficiently and responsibly steer processes at all value creation stages: in procurement, in production, in logistics and in distribution.

Our supply chain is designed at both a global and regional level according to clear, sustainability-oriented criteria and standards. We not only examine and evaluate our suppliers' sustainability performance, but also offer them support through partnership-based cooperation and training measures. In this way, we are able to implement our requirements together with our suppliers in the face of serious challenges such as eliminating child labor.

We continuously work at our production sites to react more rapidly to market developments and to achieve our ambitious quality and safety objectives through increased flexibility and the expansion of capacities. To achieve this, we invest continuously in our global production network. We steer our logistics services in equal measure according to quality, safety and environmental aspects.

Our partnership with our customers is shaped by responsibility. We integrate them at an early stage into our processes and address their needs with regard to the use of our products. We systematically analyze their satisfaction with our performance and safeguard our long-term business success by deriving optimization measures from this analysis.

1.4.2.1 Procurement and Supplier Management

The procurement organization supplies the company with goods and services around the world. We exert influence on society and the environment as a result of our procurement activities and supplier relationships. Not just economic, but also ethical, ecological and social principles are therefore anchored in our Procurement policy, which is binding for all employees.

Procurement (excluding Covestro) has been organized since 2016 as a corporate function that acts centrally on behalf of all segments. Synergies can be leveraged by pooling know-how and procurement volumes. Our procurement activities are directed by the Procurement Leadership Team, which acts as the highest decision-making body for procurement issues. The team is led by the Head of Procurement, who reports directly to the Chief Financial Officer. Covestro has its own procurement organization. Unless explicitly stated otherwise, all information hereafter with the exception of the Group targets includes Covestro.

www.covestro.com/en/company/procurement/overview

Procurement operates according to uniformly established procurement and supplier management processes. Long-term contracts and active supplier management for strategically important goods and services are important elements here. Thus we not only minimize procurement-specific risks such as supply bottlenecks or significant price fluctuations, but also safeguard the company's competitiveness and ensure smooth production processes.

We procured goods and services in 152 countries during the reporting period. Procurement spend from transactions with approximately 110,900 suppliers amounted to some €21.8 billion. In 2016, our procurement spend in Germany, the United States and Switzerland accounted for nearly 68% of our expenditures in OECD countries, which in turn made up about 54% of the Bayer Group's global procurement spend. Brazil, India and China together accounted for about 66% of expenditures in the non-OECD countries or about 13% of the total spend. The following table contains information about Bayer's procurement volumes and supplier shares based on the regional origin of goods and services.

€21.8 billion
Bayer's procurement spend in 2016

Online Annex: A 1.4.2.1-1

A 1.4.2.1-1/1

Procurement Spend and Number of Suppliers in OECD and Non-OECD Countries in 2016

	Spend		Suppliers	
	€ billion	%	Number	%
OECD countries				
Germany	5.3	24.2	22,108	19.9
United States	5.3	24.2	11,540	10.4
Switzerland	1.2	5.6	1,789	1.6
Other	5.7	26.0	42,649	38.5
Total	**17.5**	**80.0**	**78,086**	**70.4**
Non-OECD countries				
China	1.9	8.7	3,432	3.1
India	0.5	2.3	3,785	3.4
Brazil	0.5	2.2	2,546	2.3
Other	1.5	6.9	23,052	20.8
Total	**4.4**	**20.1**	**32,815**	**29.6**

Bayer purchases locally wherever possible in order to adequately react to the requirements of our sites and strengthen regional economies. In 2016, this applied to 71% of our procurement spend at our main business locations, and also 71% of procurement spend in all countries worldwide. The following table shows the main procurement products in 2016.

Local procurement: see Glossary

Online Annex: A 1.4.2.1-2

A 1.4.2.1-2/1

Main Procurement Products

Pharmaceuticals	Zetia (finished product), cell media culture (raw material), Betaferon (interferon-beta-1b) (bulk product) and Eylea protein (bulk product), packaging materials
Consumer Health	Active ingredients (e.g. naproxen sodium, loratadine, paracetamol), vitamins (e.g. vitamin C and B), auxiliaries, finished products (e.g. Canesten, Dr. Scholl's, Berocca), packaging materials
Crop Science	Active ingredients (e.g. mancozeb), adjuvants and solvents (e.g. rapeseed oil, toluene, ammonia), complex intermediates (e.g. pyridine polyfluoride), packaging materials
Animal Health	Active ingredients (e.g. moxidectin, praziquantel and permethrin), finished products, packaging materials (e.g. Seresto tins)
Covestro	Key basic raw materials are benzene and phenol, propylene oxide, toluene, acetone and hexamethylenediamine

The use of renewable raw materials plays only a subordinated role at Bayer for portfolio reasons. We primarily use renewable raw materials when it makes technical, economic and ecological sense to do so.

Online Annex: A 1.4.2.1-3

At Pharmaceuticals, a number of hormones are synthesized through certain sterols and phytosterols that result as byproducts during the production of plant oils from soybeans, oilseed rape / canola or sunflowers, as well as during wood processing. We additionally purchase various steroids that are manufactured from diosgenin or its intermediate stages. This substance is usually obtained from yam grown in countries such as China. We also use raw materials such as water, glucose, yeast, soybean starch, castor oil and corn steep water in our fermentation processes.

For some products, Consumer Health uses extracts of plant leaves. We take great care with the cultivation and extraction of the raw materials for manufacturing plant-based pharmaceuticals. The controlled, integrated cultivation and extraction of plant-based raw materials take place according to local regulations, e.g. the GACP (Good Agricultural and Collection Practice) guidelines of the European Medicines Agency.

Crop Science processes soy, e.g. in the production of crop protection products. To support the maintenance of sustainability criteria in soy cultivation, Crop Science is a member of the Round Table for Responsible Soy (RTRS) and, starting in 2017, intends to purchase RTRS certificates corresponding to the soybean consumption in its production. In addition, we cooperate with farmers to support the certification of their soybean production in accordance with international standards.

We use a small amount of palm oil derivatives in some of our Life Science products. As the production of palm oil is often associated with social and ecological problems, Bayer takes part in the Round Table for Sustainable Palm Oil (RSPO). In 2017, we plan to purchase so-called RSPO credits, which promote the sustainable production of palm oil, according to the quantities used by us.

Covestro is developing processes for the replacement of raw materials derived from crude oil. In 2016, for example, it launched the commercial production of a curing agent for polyurethane coatings and adhesives based on renewable raw materials. The product is 70% based on raw materials derived from biomass that does not compete with food production.

Bayer sustainability requirements defined in its Supplier Code of Conduct

Bayer regards adherence to sustainability standards within its supply chain as a crucial factor in the value chain and an important lever for minimizing risks. A four-step process is thus established throughout the Group to improve sustainability practices in the supply chain comprising the elements awareness-raising, supplier nomination, sustainability performance evaluation and development. It is defined in a special instruction and centrally steered by a sustainability team whose management reports to the Procurement Leadership Team.

Our sustainability requirements are established in Bayer's Supplier Code of Conduct. Based on the principles of the U.N. Global Compact and our Human Rights Position, it establishes the basic foundation for this cooperation. For this reason, not just economic standards, but also ethical and environmental, social and governance (ESG) standards apply for the selection and evaluation of new and existing suppliers. The Code of Conduct is integrated into electronic ordering systems and contracts throughout the Bayer Group. Furthermore, our standard supply contracts contain clauses that authorize Bayer to verify suppliers' compliance with our sustainability requirements.

Evaluating the sustainability performance of our suppliers

Bayer verifies the observance of the Code requirements by our suppliers through online assessments and on-site audits. Suppliers are selected for these evaluations based on a combination of country and material risks as well as strategic importance in accordance with our Group targets. By 2017, Bayer plans to evaluate all strategically important suppliers according to sustainability-relevant criteria (target attainment as of 2016: 98%). This group includes suppliers with a major influence on business in terms of, for example, procurement spend and long-term collaboration prospects (3-5 years). By 2020, we also aim to evaluate all those suppliers with a significant procurement spend (> €1 million p.a.) that are regarded as potentially high-risk suppliers (target attainment as of 2016: 83%).

↗ Group target 2017: evaluation of all strategically important suppliers

Group target 2020: evaluation of all potentially high-risk suppliers with significant Bayer spend; see also A 1.2.1

Bayer carries out the online assessments together with an established provider of sustainability performance evaluations (EcoVadis). The assessment criteria comprise the areas environment, labor practices and human rights, ethics and sustainable procurement. On-site audits are carried out by independent external auditors. Audits are based on the criteria of the Together for Sustainability (TfS) initiative and the Pharmaceutical Supply Chain Initiative (PSCI). In both initiatives, Bayer works together with other companies to standardize sustainability assessments and audits of suppliers in the same industry and to leverage synergies by sharing information. In line with our Group target, we plan to develop and introduce a sustainability standard for our suppliers by 2020. In addition, Bayer auditors evaluate suppliers with regard to sustainability aspects focusing on health, safety and environmental protection.

www.tfs-initiative.com

www.pscinitiative.org

↗ Group target 2020: development and establishment of a new sustainability standard for our supply base; see also A 1.2.1

Online Annex: A 1.4.2.1-4

A 1.4.2.1-4/1

Supplier Assessments and Audits

	2015	2016
Sustainability assessments[1] via the EcoVadis platform	521	795
Sustainability audits[2] by external auditors	71	73
Sustainability / HSE[3] audits by Bayer auditors	107	168

[1] Initial and re-assessments of suppliers working for Bayer; initiated by Bayer and shared as part of the TfS initiative
[2] Initial and follow-up audits of suppliers working for Bayer; initiated by Bayer and shared as part of the TfS and PSCI initiatives
[3] Health, safety, environmental protection

Within the scope of the TfS initiative, a total of 1,773 supplier assessments using EcoVadis and 241 audits – performed, for example, in Poland, Mexico and South Korea – were successfully completed in 2016. In the same year, 51 shared audits were carried out through PSCI, for example in China, India, Israel and Brazil.

Verifying the requirements with new suppliers

Our Life Science businesses undertake separate evaluations of suppliers with regard to the contract manufacturing of quality-relevant goods and services. These evaluations cover the areas of health, safety and environmental protection among others and are performed prior to the commencement of business operations.

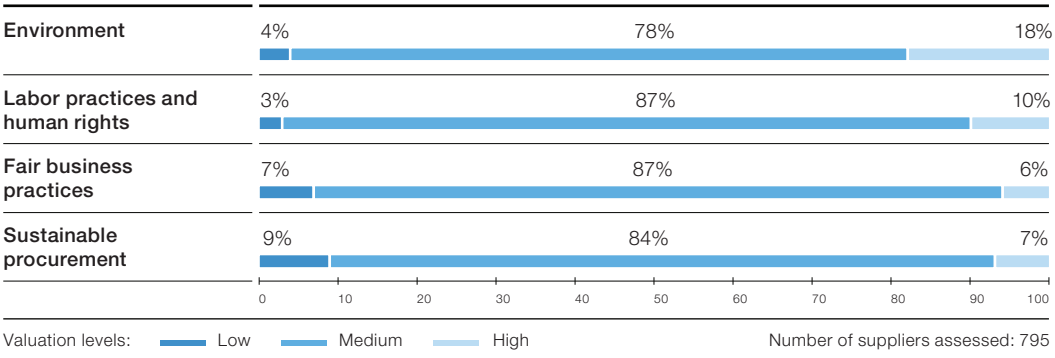
Furthermore, the Life Science businesses obligate potentially risky, newly selected suppliers with a prospective annual procurement spend in excess of €1 million to undergo an EcoVadis sustainability assessment or an on-site audit. The relevant suppliers evaluated in this way in 2016 met our sustainability requirements.

The online assessments and on-site audits are analyzed and documented so that – in the event of unsatisfactory results – specific improvement measures can be defined with the suppliers. In 2016, this applied above all to the categories Ethics, Sustainable Procurement and Health and Safety. In 2016, 24 suppliers (3% of those evaluated) posted a critical result (assessment level low). These suppliers were requested by Bayer to rectify the identified weaknesses on the basis of specific action plans. Overall some 400 of our suppliers improved their sustainability performance in 2016.

Online Annex: A 1.4.2.1-5

A 1.4.2.1-5/1

Online Supplier Assessments by Category



Improvement measures in the supply chain taking effect

We monitor the implementation of the improvements demanded by us through re-assessments or follow-up audits. Numerous suppliers also voluntary undergo a re-assessment in order to improve their results. In 2016, 583 suppliers underwent a re-assessment through the EcoVadis platform, of whom approximately 67% improved their sustainability performance. Nine follow-up audits verified the rectification of previously identified deficiencies. In 2016, Bayer was not prompted to end any supplier relationship due solely to sustainability performance.

Conflict minerals: see Glossary

Additional verification processes were established for the fulfillment of further international regulations. This applies, for example, to regulations that require companies to disclose the origin of certain raw materials such as so-called conflict minerals.

Online Annex: A 1.4.2.1-6

Target: elimination of conflict raw materials

International regulations such as the Dodd-Frank Act in the United States obligate companies to disclose the origin of certain raw materials. The purpose of this is to rule out that minerals from conflict regions such as the Democratic Republic of the Congo or its neighboring countries find their way into products through the supply chain. Bayer has questioned about 150 of its first-tier suppliers who could potentially be impacted by this issue. Nearly 65% of them confirmed to us that they do not procure potential conflict minerals. It was agreed with the remaining suppliers during verification processes that they must ensure compliance with the requirements.

GRI G4-26

Training measures and dialogue on the issue of sustainability

We support our procurement employees in the implementation of our procurement processes and sustainability requirements with targeted Group-wide training measures. In the reporting period, 244 procurement employees completed training courses explaining the EcoVadis sustainability assessment process. We also offer our suppliers a wide range of development and dialogue opportunities in order to familiarize them with Bayer's sustainability requirements.

Online Annex: A 1.4.2.1-7

In 2016, Crop Science used its Supplier Days in India and China as an important dialogue platform for sustainability requirements. Covestro also carried out a Supplier Day in India for its strategically important suppliers. In addition, we offered further Supplier Days, training and workshops in China and India in cooperation with our industry initiatives PSCI and TfS. The Supplier Academy developed by TfS in 2016 and the sustainability webinars developed by PSCI itself offer further training components for suppliers.

Tackling child labor in the seed supply chain

A key challenge for sustainable supplier management in the Group is to counter child labor in the seed supply chain of the Crop Science segment. Our position on this is unequivocal and includes a strict ban on child labor. We therefore also obligate our suppliers along our value chain to strictly refrain from employing children. For many years, Bayer has taken systematic action to prevent child labor in the cotton, rice and vegetable seed supply chain in India, Bangladesh and the Philippines through its Child Care Program and conducts inspections locally. In 2016, Bayer for the first time also inspected external producers of vegetable seed in China and Thailand. No cases of child labor were identified. In addition, Bayer continues to raise awareness of the issue among its suppliers and their local environment and clearly communicates its requirements.

www.bayer.com/child-care

Online Annex: A 1.4.2.1-8

Bonuses and sanctions for suppliers

Crop Science's comprehensive activities in its Child Care Program include the observation and monitoring of the seed produced through wage labor in India. To this end, the corporate auditor EY (formerly Ernst & Young), India, carries out unannounced visits to farms in four Indian districts, among other measures. Suppliers who can verify that they strictly observe our ban on child labor receive a bonus along with training in raising agricultural efficiency. Graduated sanctions are applied for noncompliance. These range from written warnings to termination of the contract in the case of repeated noncompliance.

Supporting school education is a key element

Bayer regards school attendance not only as essential for children's development but also as an effective tool for preventing child labor. We therefore also visit the parents of children we find working in the fields to convince them of the importance of school education. We promote this in India with the "Learning for Life" initiative within our Child Care Program, which focuses both on fostering scientific knowledge and on general vocational training. This covers everything from reintegrating children into the regular school system to vocational training measures. Between 2005 and the end of 2016, "Learning for Life" reached more than 6,200 children and young people.

Thanks to a stringent monitoring system, which is supported by local educational initiatives, there are now only very few instances of child labor among our contractors, which we nonetheless closely track and immediately put a stop to.

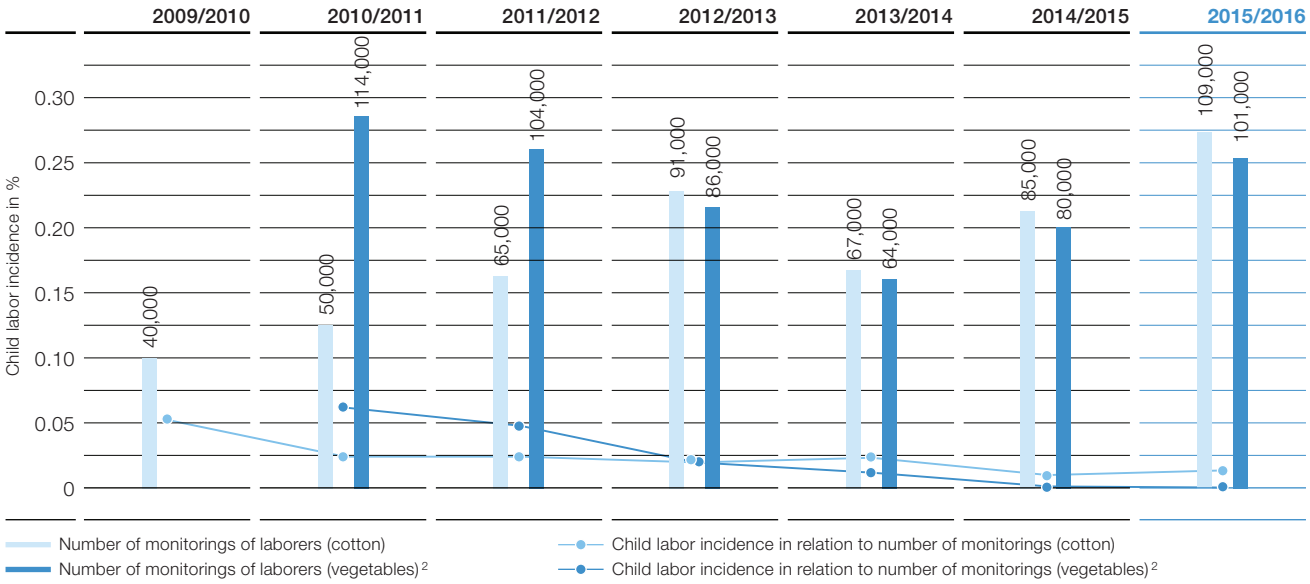
The Child Care Program Advisory Council, comprised of international experts and recognized professionals, supports Bayer in the protection of children's rights and the objective of seed production without child labor. We measure the success of our comprehensive program using the indicator "Child labor incidence as a percentage of total monitorings of laborers."

Online Annex: A 1.4.2.1-9

The table informs about the development of the indicator that Bayer uses in the evaluation of child labor cases.

A 1.4.2.1-9

Child Labor Incidence in the Production of Cotton and Vegetable Seed for Bayer in Relation to the Total Number of Monitorings [1]



[1] The figures cover several growing cycles per cultivation year. In India the cultivation year runs from the middle of one year to the middle of the next, depending on climatic conditions and the various seed types. Cumulated depiction on the basis of control inspections performed (at least 3 per cultivation season for vegetables and up to 6 per season for cotton).

[2] Vegetable seed included in field monitoring from 2010 / 2011 onward; for vegetables, cultivation areas and number of monitorings refer to a combination of various seed types. Each type of seed has its own monitoring intensity.

1.4.2.2 Production and Logistics

Production according to high quality, safety and environmental standards

See also A 1.4.3.2 and A 1.4.3.3

Bayer operates production facilities at more than 140 sites in 39 countries. The safe and responsible operation of our facilities and the comprehensive safety of our employees and the people who live near our sites are of utmost importance to Bayer. Bayer also places great importance on protecting the environment and using materials and energy efficiently. We use our HSEQ management systems to steer these processes. Our commitment to environmental protection, health and safety extends beyond the scope of legal requirements. For capital expenditure projects exceeding €10 million, it particularly includes factoring in environmental aspects and performing a voluntary ecological assessment. In the case of acquisitions, we examine whether the applicable environmental and occupational safety regulations and fundamental employee rights are complied with at the production sites in question. Group policies additionally stipulate that new production sites must not be set up in areas that are statutorily protected with regard to natural characteristics, biodiversity or other factors.

Online Annex: A 1.4.2.2-1

Few sites close to protected areas

In an updated comparison of the geographical coordinates of our production sites against those of internationally recognized protected areas (ASEAN Heritage, Barcelona Convention, UNESCO-MAB Biosphere Reserve, Wetlands and World Heritage Convention and Ramsar Convention), we identified three sites that are within a radius of three kilometers from such areas. These are the Blesbokspruit protected areas in South Africa, Moreton Bay in Australia and Reserva Costa Atlantica de Tierra del Fuego (Atlantic Coast of “Land of Fire”) in Argentina. None of the sites examined is directly located in any of the named protected areas.

Pharmaceuticals and Consumer Health

Both segments operate their own production sites around the world at which active ingredients are manufactured and at which formulation and packaging services are performed for the product portfolio.

Both Pharmaceuticals and Consumer Health continuously invest in their global production networks. Production capacities for the manufacture of hemophilia A products are being established at the Wuppertal and Leverkusen sites in Germany through the perennial and currently biggest capital expenditure program of Pharmaceuticals with a total volume of €720 million. The Beijing site in China is also being considerably expanded with a capital expenditure volume of some €100 million. Consumer Health's biggest investment project, also with a volume of around €100 million, comprises the modification and expansion of its production sites in China.

Bayer worldwide:
see also A 1.1.1/1

€720 million
is being invested in production capacities for hemophilia medicines.

A 1.4.2.2/1

Strategic Investments in Property, Plant and Equipment at Pharmaceuticals and Consumer Health

2016	
Pharmaceuticals	Production capacities for new rFactor VIII therapies in Wuppertal and Leverkusen, Germany
	Expansion of R&D laboratory capacities in Wuppertal, Germany
	Modernization of research facilities in Berlin, Germany
	Modernization of site infrastructure in Wuppertal and Leverkusen, Germany
	Expansion of production capacities in Beijing, China
	Expansion of Quality Control Biologics in Berkeley, California, United States
Consumer Health	Reconstruction and expansion of production site in Majinpu, China
2015	
Pharmaceuticals	Production capacities for new rFactor VIII therapies in Wuppertal, Germany
	Expansion of R&D laboratory capacities in Wuppertal, Germany
	Modernization of research facilities in Berlin, Germany
	Modernization of site infrastructure in Wuppertal and Leverkusen, Germany
	Expansion of production capacities in Beijing, China
	Expansion of Quality Control Biologics in Berkeley, California, United States
Consumer Health	–

Crop Science

The products of Crop Science are mainly produced at the segment's own production sites. Numerous decentralized formulation and filling sites enable the company to quickly react to the needs of local markets. At these sites the active ingredients are processed according to local requirements and application areas. Packaging of the products also takes place in these facilities. Production of seeds takes place at locations close to our customers in Europe, Asia, and North and South America at our own farms or under contract.

We invested some €2.4 billion overall in property, plant and equipment between 2013 and 2016 to satisfy increased demand for crop protection products and seed. In addition to the expansion of production capacities, this included expansion of our research and development facilities. Here the focus was on the United States and Germany and on our network of breeding stations for various crops in Europe, North and Latin America.

Bayer worldwide:
see also A 1.1.1/1

€2.4 billion
was invested by Crop Science between 2013 and 2016 in the production of crop protection products and seed.

A 1.4.2.2/2

Strategic Investments in Property, Plant and Equipment at Crop Science

2016	
	Capacity expansions for herbicides in the United States and Germany
	Construction of a production facility for insecticides in Dormagen, Germany
	Expansion of production capacities for fungicides in Dormagen, Germany
	Expansion of R&D facilities in Monheim, Germany
	Establishment of breeding stations for various plant species worldwide
	Expansion of R&D facilities in Raleigh, North Carolina, United States
2015	
	Capacity expansions for herbicides in the United States and Germany
	Construction of production facilities for insecticides in Vapi, India, and Dormagen, Germany
	Expansion of production capacities for fungicides in Dormagen, Germany
	Expansion of R&D facilities in Monheim, Germany
	Establishment of breeding stations for various plant species worldwide
	Expansion of R&D facilities in Raleigh, North Carolina, United States

Animal Health

We procure the active ingredients for our Animal Health products both from internal sources within Bayer and external suppliers worldwide. Our globally marketed animal health products are mainly manufactured at the sites in Kiel, Germany, and Shawnee, Kansas, United States.

Covestro

Bayer worldwide: see also A 1.1.1/1

Covestro's network includes eight world-scale production sites. We also operate several production facilities in selected countries for the formulation and supply of customized polycarbonate granule compounds and the manufacture of semi-finished products (polycarbonate sheets). Covestro also operates regional production facilities for derivatives of the Coatings, Adhesives, Specialties Business Unit and for functional films made of polycarbonate or thermoplastic polyurethane. Covestro continuously invests in its global production network:

A 1.4.2.2/3

Strategic Investments in Property, Plant and Equipment at Covestro

2016	
	Capacity expansion of MDI facility in Brunsbüttel, Germany
	Start-up of a production line for CO_2-based polyols in Dormagen, Germany
	Continuation and finalization of capital expenditure projects from 2014 – Doubling of production capacity for polycarbonate in Shanghai, China – Doubling of production capacity for the aliphatic isocyanate HDI in Shanghai, China
2015	
	Construction of a production line for CO_2-based polyols in Dormagen, Germany
	Continuation of capital expenditure projects from 2014 – Doubling of production capacity for polycarbonate in Shanghai, China – Doubling of production capacity for the aliphatic isocyanate HDI in Shanghai, China

Efficient logistics concept implemented

See also A 1.4.3

Logistics at Bayer comprises not just the transport and warehousing of goods, but in fact the entire steering and monitoring of all flows of goods and logistics data for the Bayer Group. We work continuously to develop logistics concepts that account for safety, environmental and cost aspects in equal measure. Areas of focus in the ecological field include the reduction of energy consumption and CO_2 emissions, for example by minimizing air transport or using logistic concepts that include rail- and waterways.

With an agile corporate structure, we operate according to management systems and directives with global validity. We use both internal capacities and external logistics partners for storage and transport services. Bayer selects these according to strict safety, environmental and quality criteria. Alongside the Corporate Supply Chain unit, each segment maintains its own logistics activities that are aligned toward the unique circumstances of the respective business model and products.

1.4.2.3 Marketing and Distribution

Our marketing and distribution activities are primarily geared toward acquiring new clients and retaining existing customers over the long term. In this area too, responsible practices are a top priority for Bayer.

Close distribution network and intensive customer dialogue

To consolidate and further build on our position in the different markets, we continuously work to optimize our market- and customer-specific distribution network and customer dialogue. Depending on market conditions, we supply our customers in the health care sector, in agriculture, in industry and in the private sector through wholesalers, specialist retailers or direct sales organizations. We have established our distribution channels at the international, regional and local levels in accordance with demand.

A high level of customer satisfaction is essential for our long-term success. We therefore systematically analyze both the diverse needs and satisfaction of, as well as complaints made by, our customers in the respective segments. We foster partnership and dialogue with our customers with the help of a variety of distribution tools and marketing formats.

Online Annex: A 1.4.2.3-1

Pharmaceuticals and Consumer Health

Numerous distribution channels in the health care sector

The products of Pharmaceuticals are primarily distributed through wholesalers, pharmacies and hospitals. The products of Consumer Health are generally sold in pharmacies, with supermarket chains, online specialists and other large retailers also playing a significant role in certain markets such as the United States.

Broad range of customer dialogue

Our customer environment includes in equal measure patients, consumers, physicians, pharmacists, caretakers, patient organizations, health policy decision-makers and opinion leaders, partners from research and development, and health authorities and health care payers. Our activities with all customer groups ultimately focus on the health and well-being of patients and consumers. Owing to the heterogeneity of these groups we take specific steps in each case when entering into dialogue with our customers.

Market research provides us with information on our customers' needs and positions that we use as a basis for further activities. Through surveys with respect to various indications, therapeutic areas and regions, we regularly assess the satisfaction of our customers.

Different legal requirements apply for prescription medicines than for nonprescription medicines or medical devices with regard to the collection of customer satisfaction data. Taking account of these requirements, the Pharmaceuticals and Consumer Health segments conduct primary market and data research. Systematic internet analyses additionally give us a better understanding of our stakeholders' opinions, interests and networks.

Pharmaceuticals, for example, engages in dialogue with patient organizations and groups so as to improve disease awareness and market access for innovative therapies.

Consumer Health has now successfully introduced its excellence program to improve customer orientation in 22 countries, with more to follow in 2017. With this program we aim to make Bayer the leading health care company in the areas of market development strategies, distribution and trading.

Crop Science

User-oriented distribution system at Crop Protection

We market our crop protection products in more than 120 countries, mainly through wholesalers or directly through retailers. Our seeds are sold to growers, seedling companies, specialist retailers and the processing industry. Plant traits developed using modern breeding methods are either incorporated into proprietary seed varieties or licensed to other seed companies. We market our Environmental Science range of pest and weed control products through wholesalers and specialist retailers to professional users in the green industry, forestry, industrial vegetation management and pest control, as well as in the area of public health to combat malaria and dengue fever, for example. The latter is mainly transacted through tendering by government agencies and NGOs.

Marketing to customers through new technologies

The customers of Crop Science vary according to product, region and culture. This results in different customer wishes and trends such as industrialization 4.0 with new technologies like digital farming and also rising demands with respect to food safety and quality.

We want to focus more strongly on our customers and their special needs and offer them tailored solutions. As a result, we realigned our Marketing organization in 2016. Through our locally aligned marketing activities (“field marketing”) in particular, we want to improve both the speed and content of our customer relations. In addition, we want to determine customer satisfaction through surveys every two years depending on the country organization. In 2016, we conducted such surveys in Japan and Hungary.

www.forwardfarming.com

Crop Science is intensifying its direct cooperation with farmers through the Bayer Forward Farming initiative. Our solutions for sustainable agriculture in practice are demonstrated at Bayer ForwardFarms. Since the program was launched, Crop Science has been successively expanding this type of cooperation worldwide.

Animal Health

Depending on national regulatory frameworks, we market our animal health products through veterinarians and other distribution channels such as pharmacies or retail stores. Depending on the respective market segment, Animal Health conducts studies on customer satisfaction and customer retention. Performance indicators are developed from long-term studies in order to measure customer satisfaction.

Covestro

Covestro’s products are mainly supplied to the automotive and transportation, construction, wood processing and furniture, and electrical / electronics industries. Covestro markets its products mostly through regional and local distribution channels. Three globally established supply chain centers for Covestro’s most important regions pool all information streams from order acceptance to dispatch planning, delivery and complaint acceptance. They serve as the central link to the customers and aim to ensure the rapid and smooth processing of orders. Covestro systematically analyzes customer satisfaction worldwide through the regular evaluation of complaints and assessments by customers. Corrective and prevention measures are derived from this.

Commitment to ethical conduct

In the development, sale and marketing of our products, we do not tolerate bribery or any other form of improper exertion of influence on our business partners. The corresponding rules of conduct are established in our Corporate Policy "Responsible Marketing & Sales." Furthermore, we are committed to ethical advertising and communication for all our products and services. Our minimum standards are derived from laws and other statutory regulations, industry codes and internal rules.

As part of our compliance management system, we register and investigate any suspected violation of our responsible marketing principles. This applies to complaints both from within the company and as notified to us from outside.

Compliance: see Glossary

Our corporate policy and the respective training programs are implemented decentrally in the segments.

See also A 3.2.1 and A 4.2

Online Annex: A 1.4.2.3-2

Pharmaceuticals and Consumer Health

The marketing and distribution of pharmaceuticals, medical devices and nonprescription (over-the-counter = OTC) medications are strictly regulated and subject to relevant laws that we are committed to observing. Also applicable at Bayer at the global or regional levels are industry codes adopted by relevant associations of the pharmaceuticals and medical devices industries. In many countries, furthermore, these standards are further concretized by local codes – all of which apply to prescription pharmaceuticals and many of which additionally apply to nonprescription medicines.

All codes of the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) serve as a binding minimum global standard for all pharmaceutical products marketed by Bayer. In addition, Bayer observes the codes of the European Federation of Pharmaceutical Industries and Associations (EFPIA) for dealings with health care professionals and patient organizations. The WHO's Ethical Criteria for Medicinal Drug Promotion, together with national ethical standards that are usually also enshrined in industry codes at the local level, represent the minimum global standard for the advertising of human pharmaceutical products at Bayer.

All the aforementioned codes contain provisions governing, among other issues, advertising material standards, the distribution of samples, cooperation with medical and pharmaceutical specialist groups in connection with speaker and consultancy contracts, and scientific studies. Adherence to these codes is designed to ensure the independence of both health care professionals and patient organizations. Based on the new EFPIA transparency code and the corresponding local interpretations, Pharmaceuticals discloses any grants to health care professionals and organizations annually for the preceding calendar year.

Bayer compliance rules supplement codes

The most important internal Bayer corporate policy is our Anti-Corruption Procedure. The key requirements and the minimum global standard for compliant and ethical conduct are summarized in the Anti-Corruption Compliance Manual, which applies worldwide at Pharmaceuticals and Consumer Health. Principles for ethically and legally acceptable advertising for pharmaceuticals and medical devices are set out in a further Bayer corporate policy. Should several regulations be relevant, Bayer principally applies the more stringent standards.

Training measures on product-related communication and anti-corruption are fundamental elements of the system at Bayer. The principles communicated in these training courses provide an overview of globally applicable minimum requirements for cooperation with key stakeholders in the health care industry, such as physicians, hospitals or patient organizations. The courses explain general compliance principles and also give specific instructions in relation to nonreciprocal benefits and the exchange of services with health care professionals.

Crop Science

Crop Science follows the guidelines of its Product Stewardship Policy with regard to the distribution and use of its crop protection products. This policy, which also satisfies the requirements of the Corporate Policy "Responsible Marketing & Sales," is based on the International Code of Conduct issued by the Food and Agriculture Organization of the United Nations (FAO). We carry out training courses on this topic worldwide and make available corresponding materials to the employees online.

Responsible business practices in marketing and sales are addressed at Crop Science in compliance training courses and are also an integral element of marketing and sales excellence training measures.

Animal Health

In the marketing and use of its products, Animal Health not only observes statutory regulations, but also further-reaching Group-wide policies and voluntary industry-wide commitments. Where several regulations are applicable, Animal Health principally observes the more stringent requirements. Most of our companion and farm animal products are subject to the provisions of drug advertising law.

Covestro

In the marketing of its products, Covestro consistently observes its Responsible Marketing & Sales Policy. The importance of observing antitrust law and preventing corruption is regularly emphasized in training programs, internal communications and discussions with management.

1.4.3 Safety for People and the Environment

> High level of product stewardship and risk prevention determines our activities
> Occupational health and transportation safety further improved
> More efficient use of energy and water

We are fully aware of our stakeholders' high expectations regarding our products and processes. The quality and safety of our products, the safe and responsible operation of our facilities and the comprehensive protection of our employees and the people who live near our sites are of the utmost importance to us. Bayer also considers environmental protection and the responsible use of natural resources to be extremely important.

Responsibility for health, safety, environmental protection and quality (HSEQ) lies with the Group Board of Management. Group-wide HSEQ management systems are in place and incorporated into the business processes. Responsibility for steering and control lies with the two new corporate functions, "Health, Safety & Sustainability" and "Quality," which stipulate responsibilities and framework conditions, among other things, through corporate policies, targets and key performance indicators (KPIs).

Operational responsibility lies with the corresponding line organizations of the segments, which steer HSEQ independently with management systems, committees and working groups. All relevant HSEQ performance indicators from our production sites are compiled in a Group-wide Bayer site information system (BaySIS). The continuous review and revision of policies by the corporate

functions, regular mandatory internal audits and external certification processes ensure that the systems at all production sites effectively meet the specific requirements in each case.

The excellent performance of our HSEQ management systems for the areas of health, safety, environmental protection and quality also reduces running costs by avoiding damage and disruptions to work and production.

Standards and certifications

Bayer's HSEQ management systems are based on recognized international standards. Regular upkeep of the management systems and appropriate training and certification also underpin our commitment to the chemical industry's Responsible Care™ initiative and in particular the guidelines of the Responsible Care Global Charter.

With regard to HSE management system coverage based on energy consumption, around 95% of all our production sites had an HSE management system audited by Bayer in 2016. Some 97% of our business activities were certified externally to at least one internationally recognized standard. A Group-wide certification plan aims to achieve virtually complete coverage in accordance with external standards in both environmental and occupational safety management by 2017. One hundred percent coverage is not feasible owing to the frequent changes in our site portfolio.

A 1.4.3/1

Standards and Certifications

in % of business activities based on energy consumption	2012	2013	2014	2015	2016
Certification to external standards					
ISO 14001 certification / EMAS validation	84	84	91	93	94
OHSAS 18001[1] certification	30	30	34	80	86
ISO 50001[2] certification	–	–	40	47	49
Degree of coverage with certification to at least one of the above standards	89	90	95	93	97
HSE management systems internally audited by Bayer	**99**	**99**	**94**	**96**	**95**

[1] The rise in 2015 is due to the increased OHSAS 18001 certification of Covestro sites.
[2] Group values determined from 2014 onward

Quality management

The Quality function ensures uniform quality standards across all segments and functions along with the continuous improvement of all quality-related processes. The quality requirements derived from regulatory requirements, permits and authorizations, relevant standards of nongovernmental organizations and industry associations and customer expectations are regularly reviewed and integrated into an internal quality management system.

Our segments have quality management systems based on sector-specific international standards. Group-wide, coverage with this kind of certification is over 98% based on energy consumption.

Online Annex: A 1.4.3-1

Pharmaceuticals and Consumer Health

The quality management system of these two segments forms the basis for the highest possible safety standards in the manufacturing of pharmaceuticals and medical devices, which are subject to strict quality requirements. It is therefore based on internationally recognized standards such as ISO (e.g. ISO 9001, 17025 and 13485) and ICH (International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use), as well as on rules for good working practice (GxP) in the development and manufacture of pharmaceuticals (e.g. Good Manufacturing Practices (GMP)), Good Distribution Practices (GDP) and Good Clinical Practices (GCP). Compliance with the relevant standards is regularly audited by internal experts, regulatory authorities and external consultants. These audits also cover our suppliers and institutes sub-contracted by us.

GxP: see Glossary

Crop Science
Product manufacture at Crop Science is performed according to ISO 9001. Compliance with manufacturing standards and registered product specifications is regularly monitored by external auditors. All our products are approved/authorized by the relevant national authorities and thus fulfill the respective requirements with regard to quality and user safety.

Animal Health
Our veterinary medicine products also comply with stringent GxP quality standards stipulated in relevant statutory requirements applying to development, approval, manufacture, marketing and safety monitoring. According to this, safety is to be ensured for the animals to be treated, people and the environment alike. Within the scope of the statutory approval procedures and, if required, re-registrations, Animal Health carries out studies in order to verify the quality, efficacy and safety of its products. Regular official inspections and internal audits check compliance with legal requirements. The audits also cover institutes subcontracted by us, service providers and suppliers.

Covestro
Covestro's quality management system is certified to the international standard ISO 9001. Over 99% of reporting production and nonproduction sites worldwide are certified.

1.4.3.1 Product Stewardship

We consider product stewardship to mean that our products satisfy the highest quality standards and are safe for people, animals and the environment when properly used. All substances and finished products undergo extensive testing and evaluation in the interest of product safety. We assess possible health and environmental risks along the entire value chain and implement the appropriate measures to mitigate risks based on this.

We strictly observe the legal requirements, and our voluntary commitment and internal standards go beyond these in many areas. This is steered by the Corporate Health, Safety & Sustainability function, which is responsible for implementing the related policies and maintaining the HSE management systems.

Implementing statutory requirements

https://echa.europa.eu/regulations/reach

Extensive legal regulations apply to all Bayer products. Chemical substances are subject to the European chemicals regulation REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) and the CLP regulation (Regulation on Classification, Labelling and Packaging of Substances and Mixtures). The classification and labeling of chemicals enables users in the European Union to become informed about the risks associated with chemicals.

Online Annex: A 1.4.3.1-1

Requirements of the REACH and CLP regulations met
The registration obligation under REACH applies irrespective of marketing activities for all substances that we produce or import in quantities of more than one metric ton. There is also an authorization procedure that limits the use of particularly hazardous substances or can lead to their replacement or ban. To fulfill the requirements of REACH, we have approved Group-wide and segment-specific policies.

Already registered substances are also regularly evaluated by the authorities. For Bayer substances this can result in additional testing requirements, new risk management measures or inclusion in the REACH authorization procedure. To date, one Bayer substance has required authorization. The authorities enforce the implementation of REACH through regular inspections. So far none of the inspections at Bayer has resulted in complaints. We also require our suppliers to confirm conformity with REACH for all substances they supply to us.

In the European Union, the Globally Harmonized System (GHS) for the classification and labeling of chemicals is implemented through the CLP regulation. The purpose of the GHS is to achieve a globally standardized system for classifying chemicals and labeling them appropriately on packaging and in safety data sheets. Bayer assesses all its marketed products and implements the GHS worldwide.

Before any product is introduced to the market, we assess it to determine whether it is safe. Furthermore, the end products from our Life Science segments – such as pharmaceuticals, crop protection products and biocides – are subject to specific approval / authorization procedures.

Biocides: see Glossary

Voluntary commitment by Bayer

Since 1994, Bayer has supported the voluntary Responsible Care™ initiative of the chemical industry and the associated Responsible Care™ Global Charter. We cover all main elements of the charter at all Group sites with our HSEQ management systems. We are also actively involved in the further development of scientific risk assessment through our work in associations and initiatives.

www.icca-chem.org/responsible-care

Online Annex: A 1.4.3.1-2

Comprehensive support for association activities

International associations such as the European and international chemical industry associations (CEFIC, ICCA) and the OECD (Organisation for Economic Cooperation and Development), as well as initiatives such as ECETOC (European Centre for Ecotoxicology and Toxicology of Chemicals), work to evolve the scientific assessment of chemicals, develop new test methods and oversee the implementation of statutory regulations. Bayer actively supports these efforts through its activities in the associations. We are also involved, for example, in the ICCA Long-Range Research Initiative and in the WHO and E.U. action plans for improving health and environmental protection. In addition, we support the Global Product Strategy (GPS), a voluntary commitment of the chemical industry initiated by the International Council of Chemical Associations (ICCA). Its objective is to improve knowledge about chemical products, especially in Emerging Markets and developing countries, and thus increase safety in the handling of these products.

We continuously evaluate our substances' properties already at the research and development stage. The development of products with undesirable properties is discontinued in application of the precautionary principle.

Online Annex: A 1.4.3.1-3

We accept the precautionary principle as explained in Principle 15 of the Rio Declaration of the United Nations and communiqué COM (2000) 1 of the European Commission as a possible consumer protection and risk management tool. It is applied whenever there is no final scientific certainty in a given area and evidence also exists that people or the environment could suffer significant or irreversible damage. In our view, the focus should not be unilaterally on hazard potential, but rather on a balanced benefit-risk evaluation.

↗ Group target 2020: assessment of the hazard potential of all substances > 1 metric ton p.a.; see also A 1.2.1

In Europe we operate under strict legal requirements. We voluntarily apply comparable standards around the world, independent of the respective national legislation. In this way we are ensuring that substance assessments comparable to those established under REACH will also be applied at all non-European Bayer sites. We support this through our Group target for product stewardship: by 2020, we will assess the hazard potential of all substances of our Life Sciences (> 99%) used in quantities exceeding one metric ton per annum. By the end of 2016 we had assessed 66% of these substances. The applicable assessment steps and measures are established in our Corporate Policy "Substance Information and Availability."

We carry out risk assessments for chemicals according to recognized scientific methods such as those described in the Guidance on Information Requirements and Chemical Safety Assessment of the ECHA (European Chemicals Agency). Should the analysis reveal that it is not safe to use a certain chemical, we take the steps to mitigate risks.

Product information for safe use

We pay special attention to our customers in the safe handling and use of our products. Bayer compiles safety data sheets for all products regardless of whether or not these are legally required. We offer suitable packaging information for all end consumer products, an example being package inserts for pharmaceuticals.

Online Annex: A 1.4.3.1-4

Continuous examination and communication

Risk mitigation measures can range from revised application recommendations to the substitution of a substance. In this case, the use of the substitute must be economically and technically feasible. The substitution of chemicals is basically a continuous task for the chemical and pharmaceutical industry in order to generate new or substantially improved products and processes. This is integral to our commitment to Responsible Care.

Safety data sheets are the central means of communication for safety-relevant information about substances and mixtures in the supply chain. Targeting professional users, they contain information on the substance's properties and on its safe use. In addition, technical information is provided for professional use.

In accordance with the respective product safety and information obligations, all segments compile product information both for raw materials and for intermediates or end products. IT systems enable worldwide access to this information, including as regards product labeling.

Risk assessment of products on the market

Our stewardship also involves the monitoring of all products that are already available on the market. We have established processes throughout the company aimed at addressing inquiries on product safety or problems with our products. This feedback is consistently accounted for in our risk assessment, which also covers substances that are regarded as potentially high-risk by regulatory authorities and independent institutions.

Responsible use of biotechnology

We currently use biotechnological methods in pharmaceutical product development and production and in the area of crop protection. At Pharmaceuticals, the products involved include Betaferon™/Betaseron™, Eylea™ and Kogenate™, while at Animal Health this concerns Zelnate™ – a nonantibiotic immunostimulant product. Further biotechnologically manufactured active ingredients are undergoing clinical development. Plant biotechnology can improve and secure crop yields and the stress tolerance of plants.

For Bayer, safety is a priority in the use of biotechnology. In addition to legal and regulatory requirements, Bayer has formulated a corporate policy on the responsible use of gene technology. We provide our stakeholders with comprehensive information about our products and services in accordance with our Corporate Policy “Responsible Marketing & Sales.”

Online Annex: A 1.4.3.1-5

Activities of the segments

Pharmaceuticals, Consumer Health and Animal Health have established strict safety measures for handling biological agents in the global “Biological Safety” and the “Requirements for the safe handling of biological agents” procedural instructions.

Crop Science has established the necessary requirements for the responsible use of biotechnology in both the Product Stewardship Policy and the Seeds Stewardship Directives. Furthermore, Crop Science maintained its focus on the conscientious use of plant biotechnology products through its membership of the Excellence Through Stewardship (ETS) organization. Audits by ETS-certified auditors are required to maintain ETS membership, and in 2016 Crop Science completed eight audits in Europe, the United States and Africa.

Our commitment to preserving biodiversity

We take into account influences on biodiversity throughout the entire value chain and have established our principles in our own position. There we commit ourselves to the United Nations Convention on Biological Diversity and the associated Nagoya Protocol, which regulates access to genetic resources and the balanced and fair sharing of the arising benefits. Crop Science commits itself through an internal policy to ensure that Bayer only acquires and uses genetic resources in harmony with international and national legislation.

Online Annex: A 1.4.3.1-6

Biodiversity strengthens the resilience of ecosystems and is a key condition for the maintenance of sustainable agriculture. With its products and services, Crop Science contributes to this. Our goal is to help our customers to integrate responsible crop protection methods into agricultural operations and to preserve soil and water quality and the habitats of insects, pollinators and birds. We work together with farmers on solutions for producing more food through sustainable agriculture without, for example, increasing the use of crop protection products.

Various ecological enhancement measures are undertaken to support resilient ecosystems, such as enhancing the biodiversity of pollinators by planting flowering strips and the more extensive cultivation of slopes to protect against erosion. These can help farmers improve, for example, soil fertility and water regulation in their fields, or boost the pollination activities of insects and thus increase their yields and biodiversity. At the Bayer ForwardFarms, the host farmers and the company demonstrate to the public how sustainable agriculture and ecological enhancement measures work in practice.

www.forwardfarming.com

In addition, as a member of the Association of Research-Based Pharmaceutical Companies, Bayer supports the association’s position on the U.N. Convention on Biological Diversity. Among other things, a corresponding policy, which applies to all sites of Pharmaceuticals and Consumer Health, takes into account that both segments concentrate on the chemical synthesis of substances using state-of-the-art technologies in medicinal, combinatorial and computational chemistry. If natural substances are used during research into new pharmaceuticals, they are first checked with respect to compliance with the Convention on Biological Diversity.

Commitment to animal welfare

www.animalstudies.bayer.com

Animal studies are legally required and essential from a scientific viewpoint to assess the safety and efficacy of our products. We aim to minimize the use of study animals and to employ alternative methods whenever possible. We respect all legal requirements pertaining to animal welfare, compliance with which is verified through both regulatory authorities and internal audits. Bayer's principles on animal welfare and animal studies apply in countries without special legislation. Bayer's Global Animal Welfare Committee monitors compliance with these guidelines within the Bayer Group and in external studies. Our principles also apply to both the research institutes we commission and our suppliers, whose compliance with our animal welfare requirements we regularly monitor.

Online Annex: A 1.4.3.1-7

Commitment to reducing animal studies

3Rs principle: see Glossary

Based on the performance indicators of our Animal Welfare Committee, we each year analyze the development of animal numbers, the distribution according to species and the burden placed on our test animals, as well as evaluate studies and discuss possible steps in accordance with the 3Rs principle (replace, reduce, refine). We are able to demonstrate that since 2005, the number of study animals used per €1 million research budget (including animals in Bayer studies performed by contract research organizations) has declined from 96 animals to around 27 animals in 2016.

www.etoxproject.eu/ www.imi-marcar.eu/project.html www.imi.europa.eu/content/k4dd

Innovative Medicines Initiative (IMI): see Glossary

Bayer participates in several consortia and projects that aim to reduce the number of animals used in studies or improve the studies' validity. We participate, for example, in the Center for Alternatives to Animal Testing (CAAT), and scientists from Pharmaceuticals are involved in the leadership of the eTOX project and in the MARCAR and K4DD projects within the scope of the Innovative Medicines Initiative (IMI). Employees from Crop Science are represented on the Board of Administration and the Scientific Committee of the European Centre for Ecotoxicology and Toxicology of Chemicals (ECETOC). In Germany, we are active in the Centre for Documentation and Evaluation of Alternative Methods to Animal Experiments.

Protection against product counterfeiting

Counterfeit medicines and crop protection products harbor substantial risks for patients and consumers. Product counterfeiting can only be addressed internationally through a joint approach by industry, associations, governmental agencies and nongovernmental organizations. Bayer consistently advocates the strengthening and expansion of existing laws and provisions aimed at the identification and confiscation of illegal products. We want to additionally protect customers and products through extensive measures of our own.

Online Annex: A 1.4.3.1-8

Combating counterfeit medications

www.bayer.com/counterfeits

Through the "Beware of Counterfeits" campaign, Bayer informs patients on the internet about the risks of counterfeit pharmaceuticals and provides patients with tips on how they can protect themselves. Through the use of various technological means in production, we constantly strive to ensure that patients, too, can distinguish between original and counterfeit products.

We support the establishment of a Europe-wide system for the identification of original pharmaceuticals that satisfies the requirements of the E.U. Falsified Medicine Directive. In addition, Bayer participates in the Pharmaceutical Industry Initiative to Combat Crime of Interpol to counteract pharmaceutical counterfeiting. In 2016, a research project (ALPhA) supported by the German Ministry of Education and Research with Bayer's participation was completed. This established the need for a minimum harmonization of criminal conduct definitions and penalties at the E.U. level in criminal law relating to medicine. Close cooperation between all stakeholders is necessary in the future to achieve practical success in fighting counterfeiting and prevent the sale of counterfeit pharmaceuticals on the internet. Bayer is intensively involved in such alliances and has been a partner to the "Innovation Power for Safety in Industry" initiative since 2016.

Combating illegal crop protection products

To protect against the import of counterfeit and illegal crop protection products into the E.U., Crop Science intensively advocates the uniform interpretation and implementation of existing E.U. regulations in all E.U. member states. We support regulatory authorities worldwide through chemical analysis to identify counterfeit products. In addition, we conduct our own inspections in the market in all countries and actively support initiatives by associations. In 2016, we reviewed our strategy to protect against illegal crop protection products and rolled the revised version out worldwide.

As part of our product stewardship programs, we provide information material about the risks of counterfeit and illegal crop protection products and train customers, dealers, farmers and regulatory authorities. We document all indications of suspicious and potentially counterfeit or illegal Crop Science products. We work constantly to counterfeit-proof our products through the use of security features. In 2016, we identified patent and trademark violations in China, India and Brazil, and successfully defended our rights.

Pharmaceuticals and Consumer Health

Benefit-risk management for pharmaceuticals and medicinal products

The Pharmaceuticals and Consumer Health segments continuously assess the medical benefit-risk profile of their pharmaceuticals and medicinal products throughout their entire product life cycle. The efficacy, safety and tolerability of pharmaceuticals are studied in Phases I-III of preclinical and clinical development. The documentation submitted to the regulatory authorities contains the results of these studies and a comprehensive benefit-risk assessment. It is essential for a new pharmaceutical or medicinal product to satisfy regulatory safety requirements if it is to receive marketing authorization. According to these regulations, the segments continue to compile safety-relevant information in a dedicated database following market launch. This information is continuously assessed and the benefit-risk balance regularly evaluated by medical experts of various disciplines in the global Pharmacovigilance Department. In this process, Bayer works closely with the regulatory and supervisory authorities at international and national levels. Further safety-relevant information is compiled using Post-Authorization Safety Studies (PASS) conducted after approval. The results are entered into the PASS registry in compliance with E.U. pharmacovigilance legislation.

The most important regulatory authorities for Bayer are:
– the U.S. Food and Drug Administration (FDA)
– the European Medicines Agency (EMA)
– the Pharmaceuticals and Medical Devices Agency Japan (PMDA)
– the China Food and Drug Administration (CFDA)

Pharmacovigilance: see Glossary

Online Annex: A 1.4.3.1-9

Responsibility of safety management teams

The Pharmaceuticals and Consumer Health segments have a global pharmaceutical monitoring system in which experts from various disciplines work together in safety management teams (SMTs). These teams evaluate the benefit and safety data and other relevant product information so as to identify potential safety concerns at an early stage or detect possible changes in the benefit-risk ratio.

In addition to internal safety data from clinical trials, post-marketing studies and spontaneous adverse event reports, the company uses external databases and information from scientific publications to conduct assessments. SMTs produce detailed safety risk management plans that are updated as soon as relevant new benefit-risk data become available. Implementation of risk mitigation activities is coordinated by local SMTs in the country organizations. All processes are documented, regularly updated and integrated into the quality management system.

Should risks be identified, Bayer immediately undertakes steps to safeguard the health of patients and consumers in coordination with the authorities. These measures range from updating product information for patients, consumers and physicians through patient education brochures and further training measures for medical specialists to direct communication with medical experts (Direct Healthcare Professional Communication, DHPC) and even product withdrawals if necessary.

Analysis of residues of pharmaceuticals in the environment

Active pharmaceutical ingredients can enter the environment through human or animal excreta, through improper disposal or during production. Surface waters are particularly relevant here. Pharmaceuticals and Consumer Health carry out their own ecotoxicological investigations of pharmaceutical residues and degradation products to assess the potential environmental impact of these products. In connection with the approval process for human and veterinary pharmaceuticals in Europe and the United States, an environmental risk assessment takes place for all new active ingredients. Based on currently available information, the existing concentrations of individual active pharmaceutical ingredients in drinking water do not have any relevant adverse effects on human health. This subject is dealt with in particular by a WHO report on pharmaceuticals in drinking water published in 2012 that comes to the conclusion that traceable effects on human health through the current extent of exposure via drinking water are highly improbable. We are following the discussion and actively participating in the stakeholder dialogue.

Bayer complies worldwide with all statutory requirements regarding wastewater thresholds at its production sites. In line with the regulatory requirements, these are reviewed by supervisory authorities and external consultants and also at regular intervals through audits by internal experts.

To further reduce or completely avoid traces of pharmaceuticals entering the environment, we are taking our own measures in production. In addition, as part of the Eco-Pharmaco-Stewardship initiative of European pharmaceutical associations, we have adopted their methods for the risk assessment of pharmaceutical traces in production wastewater. Bayer has reviewed its production sites according to these methods and, where necessary, taken site-specific measures aimed at a further reduction. We are also participating actively in various research projects to develop reduction measures.

Online Annex: A 1.4.3.1-10

Participation in extensive research projects

www.medicinesforeurope.com/key-topics/#section-5

Bayer coordinates the “Intelligence-led Assessment of Pharmaceuticals in the Environment” project in Europe, which seeks new ways to improve environmental risk assessment. The goal is to develop models and methods for determining possible environmental risks of pharmaceutical substances in early development stages and to prioritize for further environmental assessment existing substances that previously have not been evaluated.

In Germany, Bayer, as member of the steering committee, participated in the “Risk Management of Emerging Compounds and Pathogens in the Water Cycle” initiative sponsored by the German Ministry for Education and Research (BMBF). At the conclusion of the initiative in 2016, the results were presented and, overall, Germany’s flowing waters were attested to be in good condition. Within the scope of the precautionary principle, however, further-reaching purification of wastewater is recommended for the future.

Bayer is also involved in the stakeholder dialogue initiated by the German government in 2016 on the issue of micropollutant strategy. This dialogue process is aimed at developing a strategy to prevent the water-polluting effects of certain chemicals, including active pharmaceutical ingredients. The results and recommended measures are expected to be summarized in a position paper in the summer of 2017.

Crop Science

Focusing on product safety

Product safety and environmental compatibility play a central role in the development of crop protection products and technologies so that they are harmless to people and animals and can be used without constituting an unjustifiable ecological burden. For this they require official authorization, which is regulated by numerous international and national laws and provisions. The requirements for marketing authorization, particularly as pertains to the environment, have risen sharply in recent years. Crop Science satisfies all the regulatory requirements of the countries in which our products are sold.

In tests required by law, Crop Science already examines the products during the development phase with regard to their mode of action, their (eco)toxicological properties and the extent of potential remaining trace concentrations in plants and the environment. Each new crop protection active ingredient and each new technology must undergo these studies and tests to ensure that the active ingredient can be applied effectively as a product and that its use or that of the relevant technology is safe for people, animals and the environment.

Furthermore, Bayer has made a voluntary commitment to market only those crop protection products whose active ingredients are registered in at least one OECD country. In its sale and application of crop protection products and technologies, Crop Science observes the International Code of Conduct on Pesticide Management of the United Nations Food and Agriculture Organization (FAO). We implement all major aspects of responsible product handling in our Product Stewardship Program, which is based on the principles of our Product Stewardship Policy.

Online Annex: A 1.4.3.1-11

Model projects for water protection in agriculture

The targeted use of crop protection products that minimize discharge outside of the treated crops is very important to Crop Science. Through best management practices, Crop Science supports agriculture in safe and environmentally friendly land cultivation and the disposal of residual liquids following the application of crop protection products.

In the area of water pollution mitigation, we give recommendations and advice to our customers particularly with regard to biological remediation systems such as Phytobac™. These systems are intended to prevent point source discharges of crop protection active ingredients into water bodies that are generated during the filling and cleaning of spraying devices or the disposal of residual liquids. The system is now being tested in numerous E.U. countries and offered commercially by suppliers. In Europe, around 4,100 remediation systems are currently in operation.

www.bayer.com/phytobac

Erosion and runoff processes on agricultural land can also lead to substance emissions into adjacent water systems. In this context, we are collaborating with external partners on the development of a web-based geoinformation system for water protection in agriculture. This enables the visualization of site-related risks by means of high-resolution risk maps supplemented with proposals for proven procedures. It is planned for this system to be used as an advisory tool for water protection in agriculture.

To more effectively account for increasing demands with regard to environmental protection and occupational health and safety, Crop Science and its external partner agrotop GmbH have developed a closed, contamination-preventing discharge system for liquid crop protection products. It consists of sealed canisters that enable partial and full discharge and completely clean themselves.

www.beecare.bayer.com

Bayer Bee Care: strengthening bee health

As a Life Science company, we know how important healthy bees are as pollinators for sustainable food production and are aware of the key role they play in ecosystems. Promoting the health of pollinators and sustainable agriculture is of tremendous importance for our business. Within our Bee Care Program, we combine all activities in the area of pollinator health and safety. We operate Bee Care Centers in Germany and the United States for this purpose and have also established a global Bee Care network.

Online Annex: A 1.4.3.1-12

Objectives of the Bee Care Program

Health problems among bees and other pollinators are caused by a number of complex factors. These include pests, parasites, disease, extreme environmental and weather conditions, the availability of food, and certain agricultural and beekeeping practices. Bayer is involved in numerous projects and partnerships to more closely study these factors and strengthen bee health.

Within the framework of the Bee Care Program, we proactively approach numerous stakeholder groups – including industry partners, scientists, farmers, beekeepers, governmental agencies, nongovernmental organizations, investors and representatives of the food value chain. Our goal is together to seek opportunities for cooperating in the field of bee and general pollinator health and to make our activities more transparent. For example, in 2016 we participated in a round of discussions in London on bee protection organized by Hermes Investment Management.

Activities to effectively protect bees

In North America, Bayer has launched a public appeal to create new foraging habitat for bees as part of its “Feed a bee” initiative. In addition, in the United States, through the partnership with the bee research society “Apis m.,” important stimulus was gained in 2016 for implementing research projects whose results benefit beekeeping (Healthy Hives 2020 program).

In Germany, Bayer looks at how insect biodiversity-enhancing measures work and is conducting a major, multi-year study on this subject in agriculturally oriented regions. In South America, we finance projects studying the attractiveness of various crops so as to better understand the relationship between pollinators and local crops and to optimize the use of crop protection products.

In connection with research into controlling the Varroa mite, a dangerous parasite for honey bees, Bayer has developed a plastic strip treated with an active ingredient that protects beehives from mite infestation. The product is expected to be available to beekeepers by 2017 to combat the Varroa mite.

We do everything possible to minimize risks to bees – through extensive safety testing, risk assessment, product stewardship measures and the development of bee-friendly crop protection products and processes.

Ongoing re-evaluation of neonicotinoids

Neonicotinoids: see Glossary

We are convinced that neonicotinoids are user-safe insecticides with a positive environmental profile, and are not dangerous to bees when used responsibly and according to labeling instructions. This was confirmed by risk evaluations performed during marketing authorization reviews by the responsible authorities of countries outside Europe. In Europe, however, Bayer products that contain two of our neonicotinoid compounds have been prohibited since 2013 from use in crops that are attractive to bees. The European Commission has recently instructed the European Food Safety Authority (EFSA) to examine all newly available data and reports from the past two years. The results are expected for the beginning of 2017.

Bayer has brought the restriction on neonicotinoid use in the E.U. before the Court of Justice of the European Union in order to clarify the legal basis of the Commission's decision. This decision is based on an assessment by the EFSA that in turn is based on neither a validated nor an officially recognized risk assessment system. With a view to future investment decisions, the company is primarily asking that the court clarify the regulatory framework.

Involving customers and partners

The application of crop protection products requires the greatest possible care. We therefore support our customers and partners worldwide in the proper and safe handling of our seed and crop protection products. Targeted training measures particularly for farmers and dealers are designed to improve safety for users and thus also the environment and consumers. The objective is to increase the scope of our training activities worldwide.

Online Annex: A 1.4.3.1-13

Training for farmers and Bayer employees

We continued our training activities worldwide in 2016. Farmers were taught how to use crop protection products effectively and safely, and thus increase the yield and quality of their harvested goods. Subsequently, new marketing possibililties can arise that offer smallholder farmers in particular the chance to generate higher profits.

Safe use training offerings are an important aspect here. In 2016, around 950,000 farmers worldwide were trained in the safe use of crop protection products. The majority of these training measures took place as part of customer events since safety training is an integral part of our business activity. We also conducted safe use training courses in numerous countries in 2016 in cooperation with partners such as local, regional and international associations.

Bayer focuses on training activities in countries where there are no statutory requirements as regards certification in the safe handling of crop protection products. We therefore establish plans of action with our regional organizations for the respective prioritized countries that are then implemented locally.

Our product stewardship measures also include internal employee training measures. Our Product Stewardship Policy provides information on all principles for the responsible handling of our products, combined with specific instructions for use for our employees and those who work with our products.

Users of our products can contact Crop Science through a range of communication channels should they have complaints or feedback or wish to report any incidents. These include direct contact with our sales staff; our standard hotline, which is printed on all our product packaging; and, in Germany for example, the "Agrar Telefon" expert hotline.

Animal Health

Safety standards for animal health products

In line with the statutory requirements, strict safety and quality standards also apply to animal health products, animal feed and feed additives. Within the scope of the approval / authorization procedures, Animal Health carries out detailed studies in order to ensure the safety of its products for the treated animals, people and the environment alike. A particular focus lies on monitoring veterinary pharmaceutical safety and on activities aimed at responsible product use.

Online Annex: A 1.4.3.1-14

Safety and control system for animal health products

We continuously compile all safety-relevant information such as reports of suspected adverse effects of pharmaceuticals in our own global safety database. This information is evaluated and reported to the responsible authorities in accordance with national regulations. In this process, Animal Health works closely with the responsible regulatory and supervisory authorities at the national and supranational levels. This includes especially the European Medicines Agency (EMA) and the national agencies in the EEA, the U.S. Food and Drug Administration (FDA), the Environmental Protection Agency (EPA) and the responsible authorities in other countries.

Responsible use of antibacterial active ingredients

We work together with veterinarians, pharmacists, farmers and private animal-owners worldwide to promote the correct handling of our products. We participate in the "European Platform for the responsible use of medicines in animals" and engage in dialogue with stakeholders from academia, politics and society.

In line with our "Prudent Use Policy," we support the responsible use of antibiotics, in particular of fluoroquinolones. We are convinced that effective antibacterial active ingredients are essential for the treatment of infectious diseases in animals. Animal Health promotes their proper use, for example through strict guidelines. We also work intensively on the development of alternative strategies to antimicrobial treatment. Since 2015, we have been marketing Zelnate™, a nonantibiotic immunostimulant.

Covestro

Comprehensive assessment of health, safety and environmental risks

The safe handling and use of our products are of utmost importance. Besides statutorily required safety information, therefore, Covestro provides additional information such as safety summaries within the scope of the Global Product Strategy (GPS) of the International Council of Chemical Associations (ICCA). Covestro complies with all regulatory requirements for the protection of consumer health, including the use of the chemical bisphenol A. The company makes available both GPS information and product safety assessments through the "Product Safety First" internet portal.

www.productsafetyfirst.covestro.com

Online Annex: A 1.4.3.1-15

As a contribution to the safe handling of chemicals, risk assessments are conducted according to recognized scientific principles. Here Covestro makes use, for example, of the Guidance on Information Requirements and Chemical Safety Assessment of the ECHA (European Chemicals Agency). On the basis of a hazard assessment and an exposure assessment, it is determined what additional information is required to describe the risk posed by a product. All product groups undergo a multi-stage product safety assessment.

1.4.3.2 Safety

Safety management and the continuous development of a safety culture are a cornerstone of corporate responsibility in the Bayer Group. Preventing accidents and incidents in day-to-day work, when operating production facilities, and on work-related travel and transportation routes where people or the environment may suffer harm or damage has top priority for us. Responsibility for safety is defined through appropriate directives such as our Corporate Policy "Safety at the Bayer Group." Our safety management is based on four pillars:

A 1.4.3.2/1

Safety Pillars

Occupational health and safety

Safeguarding the occupational health and safety of our employees, and of the employees of contractors and suppliers on our company premises and under the supervision of Bayer, is one of our core tasks. This entails preventing work-related accidents and occupational illnesses, assessing potential hazards, ensuring comprehensive risk management and creating a healthy working environment. The rate of occupational injuries has been falling for several years. Intensive training once again contributed to this success in 2016.

See also A 1.4.1

The basis of our reporting on occupational injuries is the Recordable Incident Rate (RIR), which covers all injuries to employees requiring medical treatment that goes beyond simple first aid. This includes injuries both with and without lost workdays. In 2016, the RIR rate dropped to 0.39 cases per 200,000 hours worked, corresponding to 489 occupational injuries worldwide. This means that, in statistical terms, one recordable incident occurred for almost every 516,000 hours worked. We were also able to improve with respect to our Group target (RIR excl. Covestro). The Lost Time Recordable Incident Rate (LTRIR), which exclusively records reportable injuries with lost workdays, was higher than in the previous year.

Group target 2020: reduction of 35% in occupational safety incident rate (RIR); see also A 1.2.1

Online Annex: A 1.4.3.2-1

Occupational illnesses are included in both parameters (LTRIR and RIR), regardless of whether or not they are listed in national registers of occupational diseases. As lists of occupational diseases are not globally standardized and in many countries do not exist at all, we document all occupational illnesses, provided they have been diagnosed and recognized by a physician. 14 new cases of occupational illnesses were reported throughout the Bayer Group in 2016. Most of these were related to the musculoskeletal system and were caused, for example, by computer work or lifting.

Bayer universally and regularly subjects all workplaces to a risk assessment and a hazard analysis. These analyses are used to derive risk mitigation measures that, in conjunction with targeted studies, are designed to prevent occupational illnesses from arising. In accordance with our occupational health and safety policy, we offer our employees regular medical examinations – in some cases on a mandatory basis – in all countries in which this is legally permissible. The focus here is on the risks that exist at each workplace. Furthermore, all respective country-specific provisions for mandatory examinations are complied with.

Regrettably, four people lost their lives in work-related accidents in 2016. Two Bayer employees were killed in traffic accidents and two contractor employees died after falling from heights, including from scaffolding. All the fatalities occurred in India.

A 1.4.3.2/2

Recordable Occupational Injuries

	2012	2013	2014	2015	2016
Occupational injuries without lost workdays (RIR[1])	0.49	0.47	0.43	0.42	0.39
Occupational injuries without lost workdays (RIR[1]) Life Sciences	0.50	0.49	0.44	0.43	0.40
Occupational injuries with lost workdays (LTRIR[2])	0.27	0.26	0.22	0.21	0.23
Fatal injuries (total)	2	2	4	2	4
of which Bayer employees	2	1	3	2	2
of which contractor employees[3]	–	1	1	–	2

[1] RIR = Recordable Incident Rate
[2] LTRIR = Lost Time Recordable Incident Rate
[3] Employees working for third parties whose accidents occurred on our company premises and under Bayer supervision

Online Annex: A 1.4.3.2-2

A 1.4.3.2-2/1

Recordable Incident Rate (RIR) by Region

	2012	2013	2014	2015	2016
Europe/Middle East/Africa	0.58	0.75	0.68	0.62	0.46
North America	0.53	0.49	0.64	0.58	0.65
Asia/Pacific	0.21	0.20	0.14	0.12	0.14
Latin America	0.42	0.31	0.25	0.32	0.38
Total	**0.49**	**0.47**	**0.43**	**0.42**	**0.39**

2015 figures restated

As in previous years, we hardly recorded any accidents involving contact with chemicals in 2016. A significant proportion of our accidents and injuries have behavior-linked causes. Our Behavioral Safety Program launched by the Group Board of Management is addressing this problem.

Online Annex: A 1.4.3.2-3

Behavioral Safety Program heightens safety awareness

This initiative focuses on safety-conscious conduct by our employees. To prevent behavior-related accidents, we introduced an extensive Behavioral Safety Program in 2015. To this end, the existing safety culture was recorded and evaluated in all fields of work, primarily, however, in the production units. We evaluated 54 sites of the Crop Science, Pharmaceuticals and Consumer Health segments around the world in 2016 and, based on the results of these evaluations, drew up plans of action. Intensive training measures are in place to prevent accidents and injuries in the future before they happen. Initial behavioral improvements have been identified in areas in which the program has already been implemented. Specific training goals are designed to help reduce the Recordable Incident Rate.

Process and plant safety

We aim to design and operate our processes and facilities in such a way that they do not pose any inappropriate risks to employees, the environment or the community. To improve the safety of our production facilities and processes worldwide, Bayer is continually working to further develop the safety culture, the expertise of employees and the relevant standards for assessing risks. The corresponding Corporate Policy “Process and Plant Safety” updated in 2016 specifies globally harmonized procedures and standards. This is regularly reviewed to take into account changes in legislation, new procedures and additional quality assurance processes.

Online Annex: A 1.4.3.2-4

In a key move to maintain and improve safety awareness, the globally binding training program TOPPS (Top Performance in Process and Plant Safety) has been further extended. Participation in this program is compulsory for all Bayer employees who are able to influence process and plant safety at production and auxiliary facilities and is documented in the Bayer training system. This rule has become an integral part of the Group's HSEQ management systems. TOPPS training documentation for face-to-face training and web-based training is available in several languages.

The central Bayer competence center for process and plant safety in Leverkusen, Germany, the regional centers in Asia and the United States, and plant safety experts at all production sites work together in a global network.

Online Annex: A 1.4.3.2-5

Our experts work in international working groups such as the European Chemical Industry Council (CEFIC) on developing a global reporting standard for key performance indicators in plant safety and are also heavily involved in sharing experiences in this area, both nationally and internationally, at an industrial level.

A globally standardized KPI – Loss of Primary Containment (LoPC) – applies as an early indicator for plant safety incidents and is integrated into Group-wide safety reporting. LoPC refers to the leakage of chemical substances or energy in amounts above defined thresholds from their primary containers, such as pipelines, pumps, tanks or drums. The LoPC Incident Rate (LoPC-IR) indicates the number of LoPC incidents per 200,000 hours worked. In 2016, the LoPC-IR was 0.32 (2015: 0.22). Bayer's LoPC reporting is based on the standards of the European Chemical Industry Council (CEFIC), which apply throughout Europe.

Online Annex: A 1.4.3.2-6

The causes of every reported LoPC incident are analyzed to further improve safety at existing plants. The results of the cause analyses are publicized across the Group. The LoPC-IR parameter and the globally established training program for process and plant safety are helping us to improve employees' safety awareness.

The reporting threshold was set at such a low level that even material and energy leaks that have no impact on employees, neighbors or the environment are systematically recorded and reported. This approach supports our commitment to maintain the integrity of our facilities.

A 1.4.3.2/3

Rate of Plant Safety Incidents (LoPC-IR)

	2012	2013	2014	2015	2016
Loss of Primary Containment Incident Rate (LoPC-IR)[1]	0.38	0.35	0.23	0.22	0.32
LoPC-IR[1] Life Sciences	0.21	0.16	0.13	0.11	0.17

[1] Number of LoPC incidents per 200,000 working hours

↗ Group target 2020: reduction of 30% in process and plant safety incidents; see also A 1.2.1

As part of its Group-wide crisis management, Bayer operates a global early warning system – the Bayer Emergency Response System.

Online Annex: A 1.4.3.2-7

A corporate policy provides a globally applicable standard procedure for recording and reporting unusual incidents such as hazards to the safety of our employees, plants or facilities, and regulates the Bayer Group's crisis management. The handling of such incidents is the responsibility of the local crisis organization/emergency response team. For this purpose, organizational precautions with defined responsibilities and procedures have been implemented at the sites/in the countries. Depending on the situation, these involve business partners and the local community around the sites.

Transportation safety

Great importance is attached to transportation safety within the Bayer safety culture. This applies both to the transportation of our products on public routes, particularly of hazardous goods, and to processes such as loading, unloading, classification, labeling, packaging and selecting the right logistics partners. These are decided on using a defined procedure, and their fulfillment of safety and quality standards is assessed. The implementation of a dedicated corporate policy ensures that all materials are handled in line with applicable regulations and the potential hazard they pose. As part of our voluntary Responsible Care activities, transportation safety instructions are also drawn up for nonhazardous materials and corresponding distribution safety audits performed. Our transportation safety management is an integral part of HSE management and is implemented by a network of experts and users with practical experience.

Online Annex: A 1.4.3.2-8

Details are specified in the corporate policies "Health, Safety, Environment and Quality (HSEQ) Audits" and "Transportation Safety." A globally aligned transportation safety committee acts as a forum for exchanging information and standardizing procedures between the segments. In 2016, the panel focused on issues such as training in transportation safety, the review of internal process instructions and the evaluation, selection and auditing of our logistics service providers.

In total, well over three million transport movements took place in 2016. Bayer aims to minimize the number of incidents through preventive measures. Despite our extensive safety precautions and training activities, residual risks can result in transport incidents. These include accidents that cause personal injury or significant damage to property and environmental impact resulting from the release of substances or leakage of hazardous goods. They are recorded in detail and assessed based on defined criteria. The 12 transport incidents in 2016 were mainly traffic accidents.

Online Annex: A 1.4.3.2-9

A 1.4.3.2-9/1

Transport Incidents by Means of Transport

	2012	2013	2014	2015	2016
Road	6	8	11	11	12
Rail	0	0	1	1	0
Sea	0	3	0	0	0
Total	**6**	**11**	**12**	**12**	**12**

The following table provides an overview of the transport incidents in 2016.

A 1.4.3.2-9/2

Transport Incidents 2016[1]

	Personal injury
Crop Science, Belford Roxo, Brazil, February 13, 2016 During transportation, a truck loaded with Bayer product tipped over, causing a product spill. This was cleaned up and disposed of in a professional manner.	No
Covestro, Verona, Italy, March 18, 2016 During transportation, the packaging of a pallet was damaged, leading to leakage of a product. The product was cleaned up and disposed of in a professional manner.	No
Covestro, Erftstadt, Germany, April 12, 2016 During an evasive maneuver, a tank trailer loaded with a Covestro product tipped over on a highway. No product leaked out.	Yes
Crop Science, Thane, India, June 13, 2016 A truck loaded with Bayer product was involved in a traffic accident. A passer-by died as a result of the accident.	Yes
Covestro, Le Muy, France, June 27, 2016 A truck loaded with Covestro product collided with other vehicles at the tail end of a traffic jam. A driver from a transport company died as a result of the accident. No product leaked out.	Yes
Covestro, São Paulo, Brazil, July 5, 2016 During transportation, drums containing product were damaged. These and the product that had leaked into the catchment space were cleaned up and disposed of in a professional manner.	No
Covestro, Springfield, Missouri, United States, July 10, 2016 A truck trailer overturned during transportation. Around 2,500 kg of granules escaped. The content of the container and the released granules were taken up and disposed of in a professional manner. The driver suffered minor injuries.	Yes
Covestro, Oldenburg, Germany, August 17, 2016 During loading at a logistics service provider, a product container was damaged. The material that had leaked inside the truck and the residual amount still in the container were taken up and disposed of in a professional manner.	No
Pharmaceuticals, Leverkusen, Germany, October 27, 2016 A truck loaded with Bayer product collided with a mobile sign truck. A highway maintenance worker died as a result.	Yes
Covestro, Tashkent, Uzbekistan, November 3, 2016 During transportation, two product containers were damaged. The material that had leaked inside the tank and the residual amount still in the containers were taken up and disposed of in a professional manner. One of the customer's employees suffered a slight injury.	Yes
Crop Science, Belford Roxo, Brazil, November 19, 2016 Following a collision with another vehicle, a truck loaded with Bayer product tipped over, spilling the content of one container on the road. This was cleaned up and disposed of in a professional manner.	No
Crop Science, Villefranche, France, November 22, 2016 While loading a truck, a container of product was damaged by a forklift truck. The product was cleaned up and disposed of in a professional manner.	No

[1] Standard practice at Bayer is to record every fatality reported to us relating to our business activities. A difference between the number of fatalities in Table A 1.4.3.2/2 and Table A 1.4.3.2-9/2 may occur because for occupational injuries, by definition, we show only fatalities of Bayer and contractor employees who were under immediate Bayer supervision.

1.4.3.3 Environmental Protection

We meet our responsibility to protect the environment in many different ways. We are continuously working to reduce the environmental impact of our business activities and develop product solutions that benefit the environment. For us, an efficient approach to raw materials and energy makes both ecological and economic sense. Our measures help reduce environmental impact and at the same time cut the costs associated with materials, energy, emissions and disposal.

We use many means to make our production processes more resource-friendly and lower the emissions they generate. In line with our claim we are also committed to minimizing wastewater pollution. Systematic waste management and recycling activities reduce the amount of materials to be disposed of.

Responsibilities and framework conditions are stipulated at Group level, e.g. by corporate policies, targets and key performance indicators (KPIs). We use certified HSEQ management systems to control operational implementation. Our environmental standards apply worldwide.

Energy consumption

Total energy consumption slightly higher than last year

In 2016, the Group's total energy consumption rose by 1.6% to 84.5 petajoules. In calculating the total energy consumption, we differentiate between primary energy consumption – mainly of fossil fuels for our own generation of electricity and steam – and secondary energy consumption, which reflects the purchase of electricity, steam and refrigeration energy and the use of process heat. Primary energy consumption rose in 2016 by 1.0% and secondary energy consumption by 2.2%. This increase in energy requirements is due to increased production activities at the Leverkusen and Krefeld-Uerdingen sites in Germany.

A 1.4.3.3/1

Energy Consumption in the Bayer Group[1]

TJ	2012	2013	2014	2015	2016
Primary energy consumption for the in-house generation of electricity & steam	**49,047**	**47,582**	**45,572**	**42,996**	**43,424**
Natural gas	30,411	29,796	31,580	28,813	27,552
Coal	15,954	15,094	12,611	12,755	13,420
Liquid fuels	656	416	421	350	465
Waste	1,005	1,282	833	1,523	1,800
Other[2]	1,021	994	127	(445)	187
Secondary energy consumption	**34,137**	**33,266**	**39,745**	**40,186**	**41,070**
Electricity[3]	25,849	25,560	27,177	25,977	28,070
Steam	(121)	(801)	3,579	4,694	3,576
Steam from waste heat (process heat)	9,144	9,146	9,639	9,974	10,010
Refrigeration energy	(735)	(639)	(650)	(459)	(586)
Total energy consumption	**83,184**	**80,848**	**85,317**	**83,182**	**84,494**
Total energy consumption Life Sciences	28,481	27,972	26,288	24,677	26,243

[1] Energy consumption is netted which may result in negative values.
[2] E.g. hydrogen
[3] The proportion of primary energy sources used in generating the electricity consumed depends on the respective national electricity mix.

Energy efficiency target of Life Science areas achieved and newly formulated

We measure energy efficiency based on the relationship between energy consumption in mega-watt hours (MWh) and manufactured sales volume (in metric tons). With a reduction of 0.5%, the manufactured sales volume of the Life Sciences was about the same level as the previous year, while energy consumption rose by around 6.3%, mainly at our service company Currenta, which serves among other functions as the energy provider for Bayer and third parties. As a result, our energy efficiency deteriorated by around 6.8% compared with the previous year.

A 1.4.3.3/2

Energy Efficiency

in MWh/t	2012	2013	2014	2015	2016
Energy efficiency of Life Sciences	8.86	8.54	7.62	6.34	6.77

↗ Group target 2020: improvement of 10% in energy efficiency; see also A 1.2.1

In line with our Group target, we are endeavoring to improve energy efficiency by 10% by 2020 compared to 2012. With an increase in energy efficiency of almost 24% compared with the base year 2012, we had achieved this target by the end of 2016.

On account of Covestro becoming legally independent, the magnitude of our manufactured sales volume and also our energy requirement has significantly fallen. For that reason, when calculating

our energy efficiency in the future we want to use a more appropriate reference value for our product portfolio. With effect from reporting year 2017, we shall indicate energy efficiency for our Life Science areas Pharmaceuticals, Consumer Health, Crop Science and Animal Health as the relationship between the energy we use and our external sales, instead of the manufactured sales volume. For that reason, we have adjusted our previous target so that it is now to improve our energy efficiency by 10% by 2020 compared with the base year of 2015.

Combined heat and power processes account for high proportion of in-house energy generation

Around 90% of our own energy generation comes from highly efficient combined heat and power processes. In addition, we purchase electricity on the market – through energy exchanges, for example. The electricity and heat generated and purchased are used in our own production facilities and third-party facilities (especially of Lanxess Deutschland GmbH as the other shareholder of our service company Currenta). The proportion of renewable energies is determined by the energy mix of our energy suppliers. We comment in detail on these issues in our CDP Report.

CDP: see Glossary

www.bayer.com/CDP-Climate

Air emissions

At Bayer, air emissions are caused mainly by the generation and consumption of electricity, steam and process heat. Thanks to the various measures in our Bayer Climate Program – such as introducing energy management systems and production / process innovations – we have achieved a significant reduction in emissions over the past 10 years, which goes hand in hand with an improvement in energy efficiency. We have documented our successful reduction of greenhouse gas (GHG) emissions in the CDP reports and in 2016 received an excellent rating, the leadership status with the highest score of A.

As a Life Science company too, we want to continue helping to protect the climate on several levels. This includes reducing our production-related emissions with ambitious targets relating to energy efficiency and cutting specific greenhouse gas emissions. In the future, we will be focusing more on lowering emissions in nonproduction areas. These include our vehicle fleet (Sustainable Fleet initiative), looking into increased use of electric vehicles (electric mobility programs), further developing our information and communication technologies (Green IT) in terms of environmental aspects and investigating potential ways to lower greenhouse gas emissions along the value chain.

Online Annex: A 1.4.3.3-1

We are also working further to reduce our CO_2 emissions in connection with our global fleet of over 25,000 vehicles. At an average level of 145 g/km for the just over 5,000 vehicles newly registered in 2016, these remained at approximately the same level as in 2015 (141 g/km). Our goal is to reduce average CO_2 emissions to 110 g/km for new vehicles registered in 2020. To achieve this, we shall implement further measures in 2017 such as pilot projects on e-mobility.

Transparency on greenhouse gas emissions

Bayer reports all Group greenhouse gas emissions in line with the requirements of the Greenhouse Gas Protocol (GHG Protocol). Direct emissions from our own power plants, waste incineration plants and production facilities (Scope 1) and indirect emissions from the procurement of electricity, steam and refrigeration energy (Scope 2) are determined at all production locations and relevant research and administrative sites.

GHG Protocol: see Glossary

Since 2015, we have reported in line with the updated GHG Protocol guideline for Scope 2, which states that indirect emissions must be reported according to both the location-based and the market-based methods.

A 1.4.3.3/3

Group Greenhouse Gas Emissions[1]

Million metric tons of CO_2 equivalents	2012	2013	2014	2015	2016
Total direct emissions[2]	4.24	4.09	4.02	4.41	4.30
of which from Life Sciences[3]	0.75	0.73	0.69	0.91	0.73
Total indirect emissions[4] according to the location-based method	4.71	4.85	5.03	4.94	5.00
of which from Life Sciences[3]	0.88	0.89	0.90	0.88	0.88
Total indirect emissions[4] according to the market-based method	4.72	4.91	5.53	5.30	5.57
of which from Life Sciences[3]	0.93	0.93	0.96	0.92	0.93
Total greenhouse gas emissions according to the market-based method[5]	**8.96**	**9.00**	**9.55**	**9.71**	**9.87**
of which from Life Sciences[3]	1.68	1.66	1.65	1.83	1.66
Specific greenhouse gas emissions from Life Sciences[3] ($t\ CO_2e/t$) according to the market-based method[5,6]	1.88	1.83	1.72	1.69	1.54

[1] Portfolio-adjusted in accordance with the GHG Protocol
[2] In 2016, 84.21% of emissions were CO_2 emissions, 15.38% N_2O emissions, just under 0.37% partially fluorinated hydrocarbons and 0.04% methane.
[3] Excluding Currenta
[4] Typically, CO_2 in incineration processes accounts for over 99% of all greenhouse gas emissions. When determining indirect emissions, our calculations are therefore limited to CO_2 and indicate direct emissions in CO_2 equivalents.
[5] The market-based method of the new Scope 2 GHG Protocol most reliably reflects the indirect emissions and the success of emissions reduction measures, so we used emissions volumes calculated using this method when calculating the total and specific greenhouse gas emissions.
[6] Specific Group emissions are calculated from the total volume of direct emissions, indirect emissions calculated using the market-based method of the new Scope 2 GHG Protocol and emissions from the vehicle fleet, divided by the manufactured sales volume of the segments in metric tons. Quantities attributable to the supply of energy to external companies are deducted from the direct and indirect emissions.

In line with the GHG Protocol, in our energy balance we include all greenhouse gas (GHG) emissions from the conversion of primary energy sources into electricity, steam or refrigeration energy, even though a significant proportion of our direct emissions comes from the generation of energy that is delivered to other companies. Consequently, our absolute figures for greenhouse gas emissions are higher than the actual emissions resulting from Bayer's business activities alone.

In 2016, we recorded a slight increase of 1.7% in total GHG emissions in the Group, although those of the Life Sciences without Currenta fell by 9.5%. Direct emissions diminished across the Group by 2.4%, mainly due to the sale of the chemical park infrastructure at the site in Institute, West Virginia, United States. Indirect emissions (market-based method) rose by 5.1%. This was essentially due to enhanced energy requirements as a result of increased production activities at the Chempark Leverkusen, Dormagen and Krefeld-Uerdingen sites in Germany. We were again able to reduce the specific greenhouse gas emissions (total emissions divided by the manufactured sales volume) of our Life Sciences (here excluding Currenta). With a reduction of 18% compared with 2012 levels, we have already achieved our previous Group target of reducing specific greenhouse gas emissions by 15% by the year 2020.

↗
Group target 2020: reduction of 15% in specific greenhouse gas emissions; see also A 1.2.1

As with the calculation method for our energy efficiency, we are also intending to change our reporting of specific greenhouse gas emissions from 2017 onward. We are planning to indicate these as the relationship between the greenhouse gas emissions of our Life Sciences and our external sales instead of the manufactured sales volume. We have thus adjusted our Group target accordingly and are looking to achieve a 20% reduction in specific greenhouse gas emissions by 2020 compared with 2015. This new target more adequately reflects our contribution to climate protection and takes into account our new corporate orientation as a Life Science company.

The reporting of all relevant indirect emissions from the value chain is bindingly regulated by the GHG Protocol Corporate Value Chain (Scope 3) Accounting & Reporting Standard. Following a thorough examination, Bayer has identified nine essential Scope 3 categories, which we report on in detail in the CDP Report.

www.bayer.com/CDP-Climate

In 2016, the Bayer Group was involved in European emissions trading with 18 plants in total. The greenhouse gas emissions of these plants amounted to approximately 2.32 million metric tons of CO_2 equivalents.

Other direct emissions into the air reduced

Emissions of ozone-depleting substances (ODS) fell by 23.0% in 2016. Emissions of volatile organic compounds (VOCs) excluding methane decreased by 30.5%.

Online Annex: A 1.4.3.3-2

The main source of both types of emissions is the Crop Science site in Vapi, India, which accounts for 96.0% of ODS emissions and 48.0% of VOC emissions at Bayer. The project initiated at this site four years ago to reduce these emissions continues to have an impact. Group-wide VOC emissions fell by 30.5% compared with the previous year, and ODS emissions by 23.0%. Another subproject was implemented at Vapi in 2016: a central waste air treatment facility brings together the many different sources of emissions at the site, which in the future will lead to a further significant reduction in these emissions.

Through the optimized operation of the power plants at the German sites in Leverkusen and Krefeld-Uerdingen, total emissions of sulfur dioxides fell by 15.3%. Particulate emissions also declined, in this case by 29.1%, caused by the reduction at the Covestro site in Baytown, Texas, United States. Nitrogen oxide emissions were 2.2% lower. Carbon monoxide emissions increased by 7.4%, on the other hand. This is the result of an improved analysis method at the German sites in Dormagen and Krefeld-Uerdingen.

A 1.4.3.3-2/1

Other Direct Air Emissions

1,000 metric tons	2012	2013	2014	2015	2016
ODS [1]	0.0163	0.0157	0.0148	0.0117	0.0090
VOC [2]	2.60	2.27	2.12	1.61	1.12
CO	1.00	0.94	0.91	0.93	1.00
NO_X	3.07	2.51	2.36	2.42	2.36
SO_X	1.85	1.32	1.22	1.17	0.99
Particulates	0.18	0.16	0.25	0.23	0.16

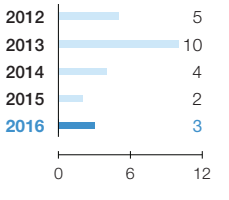
[1] Ozone-depleting substances (ODS) in CFC-11 equivalents
[2] Volatile organic compounds (VOC) excluding methane

Higher number of environmental incidents

The number of environmental incidents – i.e. incidents that result in the release of substances into the environment – increased from two to three in 2016. Factors that determine whether there is a reporting obligation include, in particular, the nature and quantity of the substance, the amount of damage caused and any consequences for nearby residents. In accordance with our internal voluntary commitment, we report any leakage of substances with a high hazard potential from a quantity of 100 kg upward.

A 1.4.3.3/4

Number of Environmental Incidents



Online Annex: A 1.4.3.3-3

A 1.4.3.3-3/1

Environmental Incidents 2016

	Personal injury
Pharmaceuticals, Wuppertal, Germany, April 18, 2016 A large volume of wastewater flowed into a nearby river on account of a leak at a sewer shaft. The leak could be repaired.	No
Pharmaceuticals, Karachi, Pakistan, June 23, 2016 During transfer from a main container to a day tank, 2,000 l of diesel accidentally leaked into a drain.	No
Covestro, Antwerp, Belgium, July 28, 2016 An unintentional leak of solvent occurred upon starting a pump. The contaminated soil was taken up and disposed of in a professional manner after consultation with the relevant authorities.	No

The following incident was registered and analyzed but does not count as an environmental incident under Bayer criteria.

A 1.4.3.3-3/2

Incident Not Considered an Environmental or Transport Incident under Bayer Criteria

	Description	Comments
Animal Health, Kiel, Germany, April 3, 2016	Spillage of liquid waste in a storeroom	A waste container fell down causing the spillage of a flammable liquid product. This was cleaned up and disposed of in a professional manner. Due to the small quantity involved, the incident was not recorded as an environmental incident but as a plant safety incident (LoPC).

Use of water and emissions into water

Effective water management at sites in water-scarce areas

Clean water in sufficient quantities is essential for supplying our production sites and the surrounding areas. In the future too, industrial water usage must not lead to local problems such as a shortage of water for the people living in the area. Our Water Position commits us to compliance with international and local legislation to protect water resources and use them efficiently.

↗ Group target 2017: establishment of water management at all sites in water-scarce areas; see also A 1.2.1

We used the WBCSD Global Water Tool™ to identify all Bayer sites that are located in regions affected or threatened by water shortage. In line with our Group target, these sites are to establish a water management system that takes the local conditions sufficiently into account by 2017. This involves analyzing their water usage, quality and discharge data annually along with site-specific initiatives using a method developed at Bayer. During the evaluation in 2015, specific measures were agreed to initiate more effective water management at the sites where there is room for improvement. The analysis in the reporting year revealed that the proportion of sites examined that have effective water management has increased from around 58% (2015) to 95% (2016).

Online Annex: A 1.4.3.3-4

This has been achieved, for example, by establishing measures to control water consumption more closely and make greater use of rainwater. In addition, the efficiency of treatment cycles in production processes has been further improved and measures have been taken to recycle water. Employee training and awareness campaigns encouraging economical water usage have also proved productive.

Bayer supports the CEO Water Mandate of the U.N. Global Compact with the goal of working with key stakeholders to develop sustainable strategies for water usage. In our annual response to the CDP Water Disclosure, we report in detail on our water usage, the company-specific water footprint and the associated opportunities and risks. This represents a progress report for the CEO Water Mandate.

CDP: see Glossary

www.bayer.com/CDP-Water

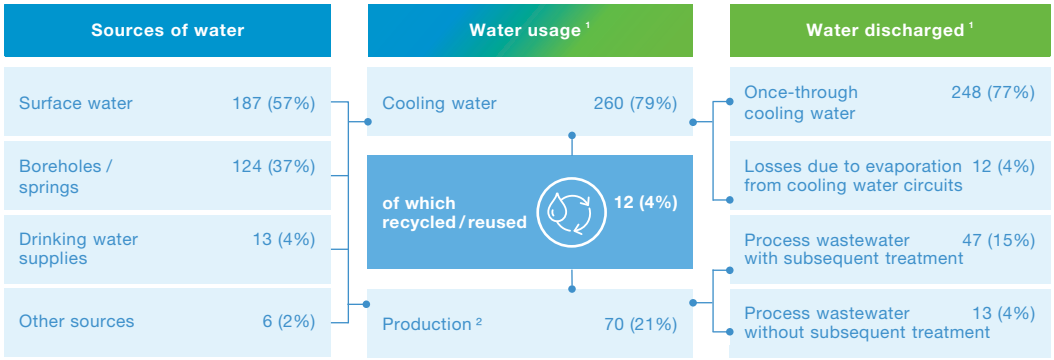
Water use

In 2016, total water use in the Group fell by 4.8% to around 330 million cubic meters. Some 79% of all water used by Bayer is cooling water that is only heated and does not come into contact with products. It can be returned to the water cycle without further treatment in line with the relevant official permits. At our production facilities, we endeavor to use water several times and to recycle it. Water is currently recycled at 36 sites, accounting for 42% of the total water use. The various forms of recycling include closed cooling cycles, reuse of treated wastewater and recirculation of steam condensates as process water. A total of around 11.8 million cubic meters of water was reused in 2016.

Online Annex: A 1.4.3.3-5

A 1.4.3.3-5/1

Water Use in the Bayer Group in 2016 (million m³)



1 The differences between volumes of water consumed and water discharged can be explained, for example, by unquantified losses due to evaporation, leaks, quantities of water used as raw materials in products and volumes of condensate generated through the use of steam as a source of energy.
2 Sum from production processes, sanitary wastewater and rinsing and cleaning processes in production

The amounts of water from each source have remained at a comparable level since 2012.

Online Annex: A 1.4.3.3-6

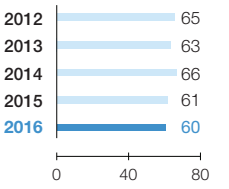
A 1.4.3.3-6/1

Net Water Intake by Source

million m³	2012	2013	2014	2015	2016
Water consumption	384	361	350	346	330
of which from surface water	248	226	223	212	187
of which from boreholes / springs	123	120	112	118	124
of which from public drinking water supplies	7	9	9	10	13
of which from other sources, e.g. rainwater	6	6	6	6	6

A 1.4.3.3/5

Process Wastewater Volume
million m^3



Wastewater treatment benefits environment

All wastewater is subject to strict controls before it is discharged into the various disposal channels. The total quantity of wastewater, including process and sanitary wastewater, was 60 million cubic meters in 2016, which is 3.1% down on 2015. 78.5% of Bayer's wastewater worldwide was purified in wastewater treatment plants (Bayer or third-party facilities). Following careful analysis, the remaining volume was categorized as environmentally safe according to official provisions. Part of it was used to water gardens and agricultural land.

The goal is to minimize our emissions into wastewater. For this reason, in 2016, alternative means were applied, for example, for the disposal of 0.148 million cubic meters of product-containing wastewater such as incineration, distillation or chemical treatment. Discharges of phosphorus into wastewater fell by 14.2%, due among other reasons to reduced production volumes at the Kaohsiung site in Taiwan. All other emissions into water were lower than last year or at the same level.

A 1.4.3.3/6

Emissions into Water

1,000 metric tons	2012	2013	2014	2015	2016
Phosphorus	0.15	0.11	0.10	0.10	0.09
Nitrogen	0.70	0.69	0.76	0.56	0.57
TOC [1]	1.42	1.53	1.20	1.16	1.14
Heavy metals	0.0098	0.0091	0.0063	0.0064	0.0054
Inorganic salts	1,048	946	845	927	931
COD [2]	4.25	4.58	3.59	3.48	3.42

[1] Total organic carbon
[2] Chemical oxygen demand; calculated value based on TOC figures (TOC x 3 = COD)

Waste and recycling

Systematic waste management minimizes material consumption and disposal volumes. Safe disposal channels with separation according to the type of waste and economically expedient recycling processes serve this purpose. Production fluctuations and building refurbishment / land remediation work also influence waste volumes and recycling paths.

Higher volumes of waste

In 2016, the total volume of waste generated rose by 1.9% and the volume of nonhazardous waste by 3.1%, in particular due to demolition work at the Crop Science site in Institute, West Virginia, United States. With regard to hazardous waste generated, the volume from the power plant at the Chempark Leverkusen site rose by 1% owing to the recent categorization of fluidized bed ash as hazardous waste.

A 1.4.3.3/7

Waste Generated [1]

1,000 metric tons	2012	2013	2014	2015	2016
Total waste generated	1,014	899	896	940	958
Hazardous waste [2]	603	467	487	541	547
of which hazardous waste from production	397	417	442	488	507

[1] Waste generated by Bayer only
[2] Definition of hazardous waste in accordance with the local laws in each instance

The volume of waste disposed of rose by 2.2% in total. The volume proportions for the three main types of disposal (landfill, incineration and recycling) have remained similar over the past five years.

Online Annex: A 1.4.3.3-7

Recycling refers to processes that reutilize waste in some way. In 2016, the volume of recycled waste was 290,000 metric tons. Expressed as a proportion of the total waste disposed of, this represented a level of 30%. The amount of recycled waste depends on site-specific conditions such as changes to the product portfolio, other production volumes, variations in the intensity of construction measures and recycling projects.

A 1.4.3.3-7/1

Waste by Means of Disposal

1,000 metric tons	2012	2013	2014	2015	2016
Total volume of waste disposed of[1]	**1,021**	**915**	**898**	**949**	**969**
Volume removed to landfill	360	293	248	248	267
Volume incinerated	341	351	363	371	336
Volume recycled	301	249	260	296	290
Others[2]	19	22	27	34	76
Total volume of hazardous waste disposed of[3]	**603**	**467**	**487**	**541**	**547**
Volume removed to landfill	175	53	65	75	67
Volume incinerated / recycled	428	414	422	466	480

[1] Bayer serves as a certified waste disposal plant operator at various sites. At these locations, Bayer disposes not only of its own waste but also of waste from third parties (companies not belonging to the Bayer Group). For that reason, the volume of waste disposed of differs slightly from the volume of waste generated by Bayer.
[2] E.g. passed on to third parties (e.g. providers / waste disposal companies)
[3] Waste generated by Bayer only; definition of hazardous waste in accordance with the local laws in each instance

In 2016, the waste incineration plants operated by Currenta generated approximately 675,000 metric tons of steam from the incineration of around 230,000 metric tons of hazardous waste from the Chempark sites and some external production companies. Compared to using fossil energy sources, this reduced CO_2 emissions in 2016 by approximately 160,000 metric tons.

Recycling potential realized

In addition to satisfying economic and environmental criteria, the recycling and treatment of our materials also has to comply with legal requirements. This results in restrictions, in particular in the areas of pharmaceuticals and crop protection. Throughout the Group, we make use of opportunities for recycling within the framework of legal regulations.

Online Annex: A 1.4.3.3-8

Pharmaceuticals, Consumer Health and Animal Health

Production-related recycling takes place in line with the requirements of the relevant production site. When determining the best means of disposal, recycling options are explicitly included, and are to be considered preferable to landfilling or incineration. The disposal of pharmaceutical products is subject to strict safety criteria, so no recycling is possible for the portfolios of these segments. Packaging materials are recycled in line with national regulations as part of the country-specific infrastructure for waste disposal.

Crop Science

Material-based recycling is important in Crop Science's active ingredient and intermediate product manufacture. Solvents, catalysts and intermediates are repeatedly processed and returned to the production process. Since these are recycling steps that are closely linked with the process, there is no global regulation. Material-based recycling is regulated separately at each production site. In the global process development of active ingredients and intermediates, material recycling is considered an important development criterion. In accordance with Crop Science's global Environment Policy, all Crop Science sites are obliged to prevent, recycle and reduce waste and dispose of it safely and in line with good environmental practices.

Crop Science does not take back crop protection products it has sold, except in the case of production defects. Packaging materials are disposed of or recycled in line with national legislation. In many countries with no legal regulation, the industry has set up a returns system in collaboration with other providers.

Returns of obsolete stocks of crop protection products are limited to justifiable individual cases. However, the crop protection product industry has set up voluntary initiatives in various countries for the proper disposal of obsolete stocks. As part of its activities in the CropLife association, Crop Science is working with the United Nations' Food and Agriculture Organization (FAO) and the World Bank to support the proper collection and disposal of obsolete stocks in Africa.

Covestro

Covestro supports the reuse and processing of its materials. For example, some waste with a high calorific value generated by production processes can undergo thermal recycling to produce steam for the company's own production facilities.

In parallel to this, Covestro is endeavoring to reduce the amount of waste resulting from product usage. Examples include its involvement in associations such as PlasticsEurope. Covestro continues to support, for example, the "Zero Pellet Loss" initiative, with the goal of preventing the loss of plastic pellets on the way from production to the finished article delivered to the customer.

2. Report on Economic Position

2.1 Overview of Business Performance

2.1.1 Target Attainment 2016

A 2.1.1/1

↗ Group targets 2016: growth and profitability; see also A 1.2.1

	Forecast 2016[1]	Adjusted forecast 2016[2]	Target attainment
Group sales	Low-single-digit percentage increase[3]	Unchanged	3.5% increase[3]
	More than €47 billion	€46 – 47 billion	€46.8 billion
EBITDA before special items	Mid-single-digit percentage increase	High-single-digit percentage increase	10.2% increase
Core earnings per share	Mid-single-digit percentage increase	High-single-digit percentage increase	7.3% increase

[1] Issued in February 2016 [2] Issued in October 2016 [3] Currency- and portfolio-adjusted

2.1.2 Economic Position of the Bayer Group

Record operating performance

The Bayer Group had a very successful year in 2016 – both strategically and operationally. We achieved a new record in terms of operating performance. Sales improved by 3.5% on a currency- and portfolio-adjusted basis and EBITDA before special items increased by a substantial 10.2%. Pharmaceuticals again showed a convincing performance, with pleasing sales and earnings growth. This was chiefly attributable to the continued strong development of our key growth products Xarelto™, Eylea™, Xofigo™, Stivarga™ and Adempas™. Consumer Health increased sales but earnings declined. Despite a persistently difficult market environment, sales and EBITDA before special items of Crop Science were constant. Animal Health posted sales gains but earnings were at the prior-year level. Overall, sales and earnings of our Life Science businesses continued to develop positively. Covestro saw strong earnings growth due to lower raw material costs, while sales were level year on year. Core earnings per share of the Bayer Group increased by 7.3%. We thus met our full-year forecasts for these key data, some of which were raised in October 2016.

2.1.3 Key Events

On September 14, 2016, Bayer signed a definitive merger agreement with Monsanto Company, headquartered in St. Louis, Missouri, United States, for US$128 per share. This represents a transaction value of around US$66 billion. At a special meeting on December 13, 2016, Monsanto's stockholders approved the company's merger with a wholly owned subsidiary of Bayer AG. The agreed acquisition reinforces our leadership position as a Life Science company and is a major strategic step forward for our Crop Science business. The transaction is subject to customary closing conditions, including receipt of required approvals from the relevant antitrust and other authorities. We expect closing of the transaction by the end of 2017.

2.1.4 Economic Environment

See also A 2.2.2

Global economy remains weak

The global economy grew somewhat more slowly in 2016 than in the previous year. The pace of growth in the United States was much slower, especially as a result of restrained investment activity. The economy in Europe also clouded somewhat, despite low interest rates. This was due particularly to the uncertainty surrounding the schedule and shape of the United Kingdom's exit from the European Union. The Emerging Markets once again registered solid growth that was down only slightly against the previous year.

A 2.1.4/1

Economic Environment

	Growth[1] 2015	Growth[1] 2016
World	+2.8%	+2.5%
European Union	+2.2%	+1.9%
of which Germany	+1.5%	+1.8%
United States	+2.6%	+1.6%
Emerging Markets[2]	+4.0%	+3.8%

2015 figures restated
[1] Real GDP growth, source: IHS Global Insight
[2] Including about 50 countries defined by Global Insight as Emerging Markets in line with the World Bank
As of February 2017

Currency development

Sales and EBITDA before special items of the Bayer Group in 2016 were impacted by negative currency effects of approximately €900 million (–1.9%) and about €15 million (–0.1%), respectively. Sales and EBITDA before special items of our Life Science businesses included negative currency effects of around €750 million (–2.1%) and about €10 million (+0.1%), respectively.

A 2.1.4/2

Currency Development Life Sciences

€ million	2015	2016	Delta Fx effect on sales	Delta Fx effect on clean EBITDA	Of which delta Fx effect from hedging
CAD	1.42	1.47	(75)	(15)	37
CNY	6.97	7.36	(133)	26	80
GBP	0.73	0.82	(123)	10	54
JPY	134.28	120.06	228	43	(36)
RUB	67.23	73.79	(73)	(85)	(31)
USD	1.11	1.11	9	162	171
All currencies			(755)	8	329

Source: Bloomberg, annual average closing rates

While hedging transactions had a negative effect on earnings of €308 million in 2015, they made a positive contribution of €21 million in 2016. This represents a year-on-year increase of €329 million in the effect of hedging transactions on earnings. Sales, on the other hand, were impacted by conversion to currencies which appeared weaker. The margin for our Life Science businesses gained 0.6 percentage points from these opposing effects.

2.2 Earnings; Asset and Financial Position of the Bayer Group

2.2.1 Earnings Performance of the Bayer Group

See also A 2.4

A 2.2.1/1

Bayer Group Summary Income Statements

€ million	Q4 2015	Q4 2016	Change %	2015	2016	Change %
Net sales	11,285	11,820	+4.7	46,085	46,769	+1.5
Cost of goods sold	(5,397)	(5,395)	0.0	(21,040)	(20,295)	–3.5
Selling expenses	(3,320)	(3,537)	+6.5	(12,272)	(12,474)	+1.6
Research and development expenses	(1,256)	(1,313)	+4.5	(4,274)	(4,666)	+9.2
General administration expenses	(566)	(685)	+21.0	(2,092)	(2,256)	+7.8
Other operating income (+) and expenses (–)	175	(101)		(166)	(36)	–78.3
EBIT[1]	**921**	**789**	**–14.3**	**6,241**	**7,042**	**+12.8**
Financial result	**(164)**	**(252)**	**+53.7**	**(1,005)**	**(1,155)**	**+14.9**
Income before income taxes	**757**	**537**	**–29.1**	**5,236**	**5,887**	**+12.4**
Income taxes	(166)	(119)	–28.3	(1,223)	(1,329)	+8.7
Income after income taxes (total)	**583**	**507**	**–13.0**	**4,098**	**4,826**	**+17.8**
of which attributable to non-controlling interest	(30)	54		(12)	295	
of which attributable to Bayer AG stockholders (net income)	**613**	**453**	**–26.1**	**4,110**	**4,531**	**+10.2**

2015 figures restated

[1] For definition see Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”

Group sales up 3.5% (Fx & portfolio adj.)

Sales of the Bayer Group rose by 3.5% (Fx & portfolio adj.) to €46,769 million (reported: +1.5%) in 2016, including €4,809 million in Germany. Our Life Science businesses contributed to this performance, growing sales by 4.7% (Fx & portfolio adj.) to €34,943 million.

Sales of Pharmaceuticals advanced by an encouraging 8.7% (Fx & portfolio adj.) to €16,420 million. This development continued to be driven primarily by our key growth products. Consumer Health also raised sales by 3.5% (Fx & portfolio adj.) to €6,037 million. Despite a weak market environment, Crop Science posted sales of €9,915 million to match the prior-year level (Fx & portfolio adj.: +0.1%). Sales of Animal Health rose by 4.8% (Fx & portfolio adj.) to €1,523 million. Covestro sales were level year on year at €11,826 million (Fx & portfolio adj.: 0.0%).

A 2.2.1/2

Changes in Sales

	Life Sciences		Group	
%	2015	2016	2015	2016
Volume	+5.1	+3.9	+4.4	+4.2
Price	+0.6	+0.8	– 1.7	– 0.7
Currency	+5.0	–2.2	+5.8	– 2.0
Portfolio	+5.0	0.0	+3.6	0.0
Total	**+15.7**	**+2.5**	**+12.1**	**+1.5**

2015 figures restated

The cost of goods sold fell by 3.5% to €20,295 million in 2016, mainly due to lower raw material costs at Covestro. The ratio of the cost of goods sold to total sales therefore declined year on year to 43.4% (2015: 45.7%). The selling expenses of €12,474 million (+ 1.6%) amounted to 26.7% of sales (2015: 26.6%). Research and development (R&D) expenses rose by 9.2% to €4,666 million, mainly due to higher R&D investment at Pharmaceuticals. The ratio of R&D expenses to sales was 10.0% (2015: 9.3%). General administration expenses climbed by 7.8% to €2,256 million, due especially to the establishment of administrative functions at Covestro. The ratio of general administration expenses to total sales therefore increased to 4.8% (2015: 4.5%). The substantially lower balance of other operating expenses and other operating income of minus €36 million (2015: minus €166 million) resulted mainly from positive effects from derivatives to hedge planned sales.

EBITDA before special items considerably improved

+10.2%
growth in EBITDA before special items

EBITDA before special items of the Bayer Group moved forward by 10.2% to €11,302 million (2015: €10,256 million). Pharmaceuticals improved EBITDA before special items by 13.8% to €5,251 million (2015: €4,616 million). This substantial increase in earnings was largely due to the good development of business, particularly for our key growth products. Consumer Health saw a decline in EBITDA before special items by 3.1% to €1,411 million. Favorable business development and cost synergies only partly offset the higher cost of goods sold and negative currency effects of about €65 million. EBITDA before special items of Crop Science came in at the prior-year level, up 0.6% to €2,421 million. A positive currency effect of about €140 million and higher selling prices stood against lower volumes, higher research and development expenses and higher impairment losses on trade accounts receivable in particular. EBITDA before special items of Animal Health was also level with the previous year with a change of 0.6%, while Covestro registered a substantial 19.6% increase in EBITDA before special items to €1,984 million.

Depreciation, amortization and special items

See also A 2.4

Depreciation, amortization and impairment losses were 12.3% higher in 2016 at €3,743 million (2015: €3,332 million), comprising €2,235 million (2015: €1,802 million) in amortization and impairments on intangible assets and €1,508 million (2015: €1,530 million) in depreciation and impairments on property, plant and equipment. A total of €566 million (2015: €136 million) in impairments constituted special items. EBITDA for the reporting year amounted to €10,785 million. In 2016, the following special effects were taken into account in calculating EBIT and EBITDA before special items:

A 2.2.1/3

Special Items Reconciliation[1]

€ million	EBIT Q4 2015	EBIT Q4 2016	EBIT 2015	EBIT 2016	EBITDA Q4 2015	EBITDA Q4 2016	EBITDA 2015	EBITDA 2016
Before special items	**1,037**	**1,376**	**7,060**	**8,130**	**1,916**	**2,179**	**10,256**	**11,302**
Pharmaceuticals	**(190)**	**(310)**	**(299)**	**(558)**	**(136)**	**(152)**	**(241)**	**(167)**
Consumer Health	**(55)**	**(199)**	**(237)**	**(292)**	**(52)**	**(38)**	**(234)**	**(115)**
Crop Science	**301**	**(39)**	**222**	**(143)**	**295**	**(37)**	**222**	**(141)**
Animal Health	**(19)**	**(5)**	**(64)**	**(7)**	**(8)**	**(4)**	**(30)**	**(6)**
Reconciliation	**(9)**	**(34)**	**(109)**	**(88)**	**(9)**	**(34)**	**(109)**	**(88)**
Restructuring	(9)	(34)	(76)	(83)	(9)	(34)	(76)	(83)
Litigations	–	–	(32)	(5)	–	–	(32)	(5)
Revaluation of other receivables	–	–	(1)	–	–	–	(1)	–

A 2.2.1/3 (continued)

Special Items Reconciliation[1]

€ million	EBIT Q4 2015	EBIT Q4 2016	EBIT 2015	EBIT 2016	EBITDA Q4 2015	EBITDA Q4 2016	EBITDA 2015	EBITDA 2016
Total special items Life Sciences	**28**	**(587)**	**(487)**	**(1,088)**	**90**	**(265)**	**(392)**	**(517)**
Covestro	**(144)**	**–**	**(332)**	**–**	**(128)**	**–**	**(291)**	**–**
Total special items	**(116)**	**(587)**	**(819)**	**(1,088)**	**(38)**	**(265)**	**(683)**	**(517)**
of which cost of goods sold	(169)	(193)	(440)	(412)	(144)	(53)	(363)	(93)
of which selling expenses	(118)	(221)	(198)	(317)	(107)	(39)	(183)	(99)
of which research and development expenses	(51)	(18)	(67)	(84)	(9)	(17)	(23)	(50)
of which general administration expenses	(43)	(69)	(203)	(185)	(43)	(69)	(203)	(185)
of which other operating income / expenses	265	(86)	89	(90)	265	(87)	89	(90)
After special items	**921**	**789**	**6,241**	**7,042**	**1,878**	**1,914**	**9,573**	**10,785**

2015 figures restated

[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

EBIT

EBIT increased by 12.8% in 2016 to €7,042 million, including special charges of €1,088 million (2015: €819 million). These mainly comprised €561 million for impairment losses on intangible assets, charges of €242 million in connection with efficiency improvement programs and €100 million in costs for the integration of acquired businesses. Further special charges of €94 million were related to provisions for litigations, while €86 million were connected with the agreed acquisition of Monsanto. EBIT before special items rose by 15.2% to €8,130 million (2015: €7,060 million).

See also A 2.4

+12.8%
growth in EBIT

Net income increased by 10.2%

Including a financial result of minus €1,155 million (2015: minus €1,005 million), income before income taxes was €5,887 million (2015: €5,236 million). The financial result comprised items including net interest expense of €548 million (2015: €455 million), interest cost of €294 million (2015: €287 million) for pension and other provisions, and currency hedging costs of €193 million (2015: €254 million). After tax expense of €1,329 million (2015: €1,223 million), income after income taxes was €4,826 million (2015: €4,098 million). Including income after income taxes from discontinued operations and income attributable to noncontrolling interest, net income for 2016 amounted to €4,531 million (2015: €4,110 million; +10.2%).

Core earnings per share increased by 7.3%

Earnings per share (total) rose by 9.5% to €5.44, while core earnings per share from continuing operations increased by 7.3% to €7.32. In November 2016, Bayer placed €4 billion in mandatory convertible notes without granting subscription rights to existing stockholders of the company. According to IAS 33.23, the weighted average number of shares increases as soon as the notes contract is signed, and this increase must be taken into account in calculating undiluted and diluted earnings per share. The new weighted average number of shares is based on the minimum conversion price of €90, which determines the maximum conversion ratio.

See also A 2.2.4

A 2.2.1/4

Core Earnings per Share[1]

€ million	Q4 2015	Q4 2016	2015	2016
EBIT (as per income statements)	**921**	**789**	**6,241**	**7,042**
Amortization and impairment losses / loss reversals on intangible assets	529	724	1,802	2,235
Impairment losses / loss reversals on property, plant and equipment	55	14	115	35
Special items (other than amortization and impairment losses / loss reversals)	38	265	683	517
Core EBIT	**1,543**	**1,792**	**8,841**	**9,829**
Financial result (as per income statements)	(164)	(252)	(1,005)	(1,155)
Special items in the financial result	(120)	(61)	(150)	(105)
Income taxes (as per income statements)	(166)	(119)	(1,223)	(1,329)
Special items in income taxes	(39)	–	(39)	–
Tax effects related to amortization, impairment losses / loss reversals and special items	(149)	(294)	(755)	(838)
Income after income taxes attributable to noncontrolling interest (as per income statements)	30	(54)	12	(295)
Above-mentioned adjustments attributable to noncontrolling interest	(39)	(3)	(39)	(13)
Core net income from continuing operations	**896**	**1,009**	**5,642**	**6,094**
Shares				
Weighted average number of shares	**826,947,808**	**849,167,808**	**826,947,808**	**832,502,808**
€				
Core earnings per share from continuing operations	**1.08**	**1.19**	**6.82**	**7.32**
Core earnings per share from discontinued operations	–	0.10	0.13	0.41
Core earnings per share from continuing and discontinued operations	1.08	1.29	6.95	7.73

2015 figures restated
[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

↗ Group targets 2016: growth and profitability; see also A 1.2.1

Online Annex: A 2.2.1-1

Development in the fourth quarter of 2016

Group sales in the fourth quarter of 2016 rose by 4.8% (Fx & portfolio adj.) to €11,820 million (reported: +4.7%). Germany accounted for €1,103 million of this figure.

Sales of Pharmaceuticals improved by 7.1% (Fx & portfolio adj.) to €4,275 million (reported: +7.3%), due especially to the strong business development of our key growth products. Consumer Health increased sales by 4.4% (Fx & portfolio adj.) to €1,539 million (reported: +2.2%). Sales of Crop Science were down slightly year on year, falling by 1.6% (Fx & portfolio adj.) to €2,404 million (reported: +0.0%). Animal Health posted a 3.1% gain in sales to €329 million. Sales of the Life Science businesses amounted to €8,823 million overall (Fx & portfolio adj.: +3.6%). Business at Covestro expanded by 8.6% (Fx & portfolio adj.) to €2,997 million (reported: +8.0%).

EBITDA before special items of the Bayer Group improved by 13.7% to €2,179 million in the fourth quarter of 2016 (Q4 2015: €1,916 million). At Pharmaceuticals, EBITDA before special items climbed by 12.2% to €1,217 million (Q4 2015: €1,085 million). This increase in earnings was due to the very good development of business, particularly for our key growth products. EBITDA before special items of Consumer Health receded by 3.4% to €372 million. At Crop Science, EBITDA before special items edged ahead by 1.2% to €351 million (Q4 2015: €347 million). EBITDA before special items of Covestro moved forward by a substantial 45.1% to €373 million (Q4 2015: €257 million).

EBIT of the Bayer Group declined by 14.3% to €789 million in the fourth quarter of 2016 (Q4 2015: €921 million) after special charges of €587 million (Q4 2015: €116 million). These mainly comprised €330 million for impairment losses on intangible assets as well as charges of €104 million in connection with efficiency improvement programs and charges of €85 million related to litigations. Also included were costs of €34 million in connection with the agreed acquisition of Monsanto and €30 million for the integration of acquired businesses. EBIT before special items advanced by 32.7% to €1,376 million (Q4 2015: €1,037 million).

A 2.2.1-1/1

Bayer Group Quarterly Sales, EBIT and EBITDA before Special Items

	Q1		Q2		Q3		Q4		Total	
€ millions	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**
Sales	11,793	11,854	12,003	11,833	11,004	11,262	11,285	11,820	46,085	46,769
EBIT	1,925	2,320	1,823	2,138	1,572	1,795	921	789	6,241	7,042
EBITDA before special items	2,922	3,387	2,888	3,054	2,530	2,682	1,916	2,179	10,256	11,302

After a **financial result** of minus €252 million (Q4 2015: minus €164 million), **income before income** taxes was €537 million (Q4 2015: €757 million). The financial result mainly comprised net interest expense of €147 million (Q4 2015: €46 million), interest cost of €85 million (Q4 2015: €67 million) for pension and other provisions, and currency hedging gains of €39 million (Q4 2015: currency hedging losses of €67 million). Net interest expense in the prior year included interest income of €109 million in connection with a litigation (DOW). After income tax expense of €119 million, income from discontinued operations after taxes and noncontrolling interest, **net income** in the fourth quarter of 2015 came to €453 million (Q4 2015: €613 million). Earnings per share decreased to €0.53 (Q4 2015: €0.74). Core earnings per share from continuing operations rose to €1.19 (Q4 2015: €1.08).

Cash inflows from operating activities (total) climbed by a substantial 45.6% to €2,732 million (Q4 2015: €1,877 million) and resulted mainly from the significant increase in EBIT and a tangible decrease in additional cash tied up in working capital. In the fourth quarter of 2016, we paid income taxes amounting to €119 million (Q4 2015: €166 million). Net financial debt fell by €4 billion in the fourth quarter of 2016 to €11.8 billion (September 30, 2016: €15.8 billion), largely as a result of cash inflows from operating activities and the issuance of mandatory convertible notes. The **net defined benefit liability for post-employment benefits** decreased by €3.4 billion against September 30, 2016, to €11.1 billion, due primarily to a rise in long-term capital market interest rates for high-quality corporate bonds.

2.2.2 Business Development by Segment

Pharmaceuticals

Market growth below the prior-year level

In 2016, growth in the pharmaceuticals market slowed to 6% (2015: 10%). Growth in demand weakened particularly in the United States, but also in Europe and Japan. The pace of growth held steady in Asian and Latin American markets.

A 2.2.2/1

Key Data – Pharmaceuticals

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx & p adj.	2015	2016	Reported	Fx & p adj.
Sales	**3,986**	**4,275**	**+7.3**	**+7.1**	**15,308**	**16,420**	**+7.3**	**+8.7**
Change in sales								
Volume	+9.2%	+7.2%			+9.1%	+9.0%		
Price	−0.6%	−0.1%			0.0%	−0.3%		
Currency	+0.2%	+0.2%			+4.6%	−1.4%		
Portfolio	0.0%	0.0%			−0.4%	0.0%		
			Reported	**Fx adj.**			**Reported**	**Fx adj.**
Sales by region								
Europe / Middle East / Africa	1,618	1,684	+4.1	+6.0	5,981	6,417	+7.3	+9.7
North America	972	1,107	+13.9	+12.6	3,937	4,194	+6.5	+6.7
Asia / Pacific	1,121	1,203	+7.3	+3.6	4,319	4,775	+10.6	+8.6
Latin America	275	281	+2.2	+8.0	1,071	1,034	−3.5	+11.0
EBITDA[1]	**949**	**1,065**	**+12.2**		**4,375**	**5,084**	**+16.2**	
Special items	(136)	(152)			(241)	(167)		
EBITDA before special items[1]	**1,085**	**1,217**	**+12.2**		**4,616**	**5,251**	**+13.8**	
EBITDA margin before special items[1]	27.2%	28.5%			30.2%	32.0%		
EBIT	**569**	**606**	**+6.5**		**3,028**	**3,389**	**+11.9**	
Special items	(190)	(310)			(299)	(558)		
EBIT before special items[1]	**759**	**916**	**+20.7**		**3,327**	**3,947**	**+18.6**	
Net cash provided by operating activities	**911**	**1,326**	**+45.6**		**3,157**	**3,368**	**+6.7**	

2015 figures restated; Fx & p adj. = currency- and portfolio-adjusted; Fx adj. = currency-adjusted
[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

+8.7%
growth in sales at Pharmaceuticals (Fx & portfolio adj.)

Significant increase in sales

Sales of Pharmaceuticals rose by an encouraging 8.7% (Fx & portfolio adj.) to €16,420 million in 2016, driven mainly by our key growth products. Xarelto™, Eylea™, Stivarga™, Xofigo™ and Adempas™ posted total combined sales of €5,413 million (2015: €4,231 million). The Pharmaceuticals business expanded noticeably in all regions.

A 2.2.2/2

Best-Selling Pharmaceuticals Products

€ million	Q4 2015	Q4 2016	Change % Reported	Change % Fx adj.	2015	2016	Change % Reported	Change % Fx adj.
Xarelto™	650	836	+28.6	+27.9	2,252	2,928	+30.0	+30.8
of which U.S.A.	122	161	+32.0	+32.6	393	489	+24.4	+24.5
Eylea™	354	426	+20.3	+20.9	1,228	1,625	+32.3	+33.0
of which U.S.A.[1]	0	0	.	.	0	0	.	.
Kogenate™ / Kovaltry™	286	288	+0.7	+0.4	1,155	1,166	+1.0	+1.1
of which U.S.A.	92	106	+15.2	+13.7	370	394	+6.5	+6.0
Mirena™ product family	226	268	+18.6	+17.2	968	1,043	+7.7	+8.8
of which U.S.A.	141	178	+26.2	+23.4	639	701	+9.7	+9.3
Nexavar™	231	224	−3.0	−3.7	892	870	−2.5	−1.6
of which U.S.A.	84	80	−4.8	−6.6	324	312	−3.7	−4.0
Betaferon™ / Betaseron™	190	185	−2.6	−2.9	824	734	−10.9	−9.9
of which U.S.A.	84	94	+11.9	+10.2	394	386	−2.0	−2.1
YAZ™ / Yasmin™ / Yasminelle™	168	159	−5.4	−4.5	706	678	−4.0	+0.1
of which U.S.A.	25	21	−16.0	−14.7	134	128	−4.5	−4.4
Adalat™	152	147	−3.3	0.0	633	624	−1.4	+2.7
of which U.S.A.	1	0	.	.	4	1	.	.
Aspirin™ Cardio	131	135	+3.1	+5.8	524	538	+2.7	+7.4
of which U.S.A.	0	0	.	.	0	0	.	.
Glucobay™	142	123	−13.4	−9.8	523	515	−1.5	+3.3
of which U.S.A.	1	1	.	.	2	3	.	.
Avalox™ / Avelox™	85	81	−4.7	−0.2	379	353	−6.9	−2.0
of which U.S.A.	(2)	1	.	.	2	5	.	.
Gadavist™ / Gadovist™	79	88	+11.4	+11.0	290	346	+19.3	+19.7
of which U.S.A.	21	24	+14.3	+14.5	86	104	+20.9	+20.5
Xofigo™	69	90	+30.4	+29.7	257	331	+28.8	+29.3
of which U.S.A.	47	59	+25.5	+25.7	182	225	+23.6	+23.6
Ultravist™	83	80	−3.6	−1.9	318	316	−0.6	+3.5
of which U.S.A.	2	2	.	−2.5	6	6	.	+1.2
Stivarga™	77	77	.	−2.2	313	275	−12.1	−11.7
of which U.S.A.	43	42	−2.3	−6.9	181	142	−21.5	−22.0
Total best-selling products	**2,923**	**3,207**	**+9.7**	**+10.0**	**11,262**	**12,342**	**+9.6**	**+11.3**
Proportion of Pharmaceuticals sales	73%	75%			74%	75%		
Total best-selling products in U.S.A.	**661**	**769**			**2,717**	**2,896**		

Fx adj. = currency-adjusted
[1] Marketing rights owned by Regeneron Pharmaceuticals Inc., U.S.A.

Sales by product

+28.6%
growth in sales of our key growth products (Fx adj.)

- Sales of **Xarelto™** increased substantially in 2016, due particularly to expanded volumes in Europe and Japan. We also posted significant gains for our license revenues – recognized as sales – in the United States, where Xarelto™ is marketed by a subsidiary of Johnson & Johnson.
- We once again recorded strong growth with our eye medicine **Eylea™**, due especially to the successful development of business in Europe, Canada and Japan.
- Sales of the blood-clotting medicines **Kogenate™ / Kovaltry™** increased slightly, mainly because of the successful introduction of Kovaltry™ in the United States.
- The considerable increase in sales of the hormone-releasing intrauterine devices of our **Mirena™** product family (Mirena™, Jaydess™ / Skyla™ and Kyleena™) resulted particularly from the positive development in prices in the United States and from the introduction of the new low-dose product Kyleena™.
- We registered a slight decline in sales of our cancer drug **Nexavar™** that was chiefly attributable to higher competitive pressure in the United States.

- The decline in sales of our multiple sclerosis treatment **Betaferon™/Betaseron™** resulted mainly from weaker business performance in Europe and the United States.
- Currency-adjusted sales of our **YAZ™/Yasmin™/Yasminelle™** line of oral contraceptives were level with the previous year. Higher demand in China and Russia stood against weaker business development in Europe, Brazil and the United States.
- Sales of **Adalat™**, our product to treat hypertension and coronary heart disease, rose slightly compared with the previous year; this was due especially to expanded volumes in China.
- The increase in sales of **Aspirin™ Cardio** for the secondary prevention of heart attacks was owed mostly to an improved business situation in China and Latin America.
- Business with our diabetes treatment **Glucobay™** expanded; here we benefited from continuing high demand in China.
- Sales of our antibiotic **Avalox™/Avelox™** fell slightly. The weak development of business in Canada and Europe was only partly offset by higher demand in China.
- We once again posted strong growth in sales of our MRI contrast agent **Gadavist™/Gadovist™** that was attributable particularly to the significant expansion of volumes in Japan and the United States.
- Sales of our cancer drug **Xofigo™** advanced substantially, due particularly to the positive development of business in the United States and Europe.
- Our X-ray contrast agent **Ultravist™** posted an increase in sales that resulted mainly from higher volumes in Latin America and Europe.
- Sales of our cancer drug **Stivarga™** were well below the prior-year level, due especially to stronger competition in the United States.
- Sales of **Adempas™** to treat hypertension came in at €254 million (2015: €181 million; Fx adj. +39.3%) and included the proportionate recognition of the one-time payment resulting from the sGC collaboration with Merck & Co., United States, as was previously the case. Business developed especially positively in the United States.

Earnings

In 2016, we raised **EBITDA before special items** by 13.8% to €5,251 million. The substantial growth in earnings was largely attributable to our very good business development. Significantly higher investments in research and development and negative currency effects of around €65 million had an opposing effect.

EBIT of Pharmaceuticals increased by 11.9% to €3,389 million, including special charges of €558 million (2015: €299 million). These resulted particularly from charges of €401 million associated with Essure™, mainly for impairment losses on intangible assets. Further charges were associated with accounting measures of €88 million in connection with litigations and charges of €69 million for efficiency enhancement programs.

A 2.2.2/3

Special Items[1] Pharmaceuticals

€ million	EBIT Q4 2015	EBIT Q4 2016	EBIT 2015	EBIT 2016	EBITDA Q4 2015	EBITDA Q4 2016	EBITDA 2015	EBITDA 2016
Restructuring	(132)	(51)	(174)	(69)	(120)	(51)	(158)	(67)
Litigations	(2)	(89)	(16)	(88)	(2)	(89)	(16)	(88)
Integration costs	–	–	(2)	–	–	–	(2)	–
Impairment losses/ impairment loss reversals	(43)	(170)	(43)	(401)	(1)	(12)	(1)	(12)
Divestments	–	–	3	–	–	–	3	–
Revaluation of other receivables	(13)	–	(67)	–	(13)	–	(67)	–
Total special items	**(190)**	**(310)**	**(299)**	**(558)**	**(136)**	**(152)**	**(241)**	**(167)**

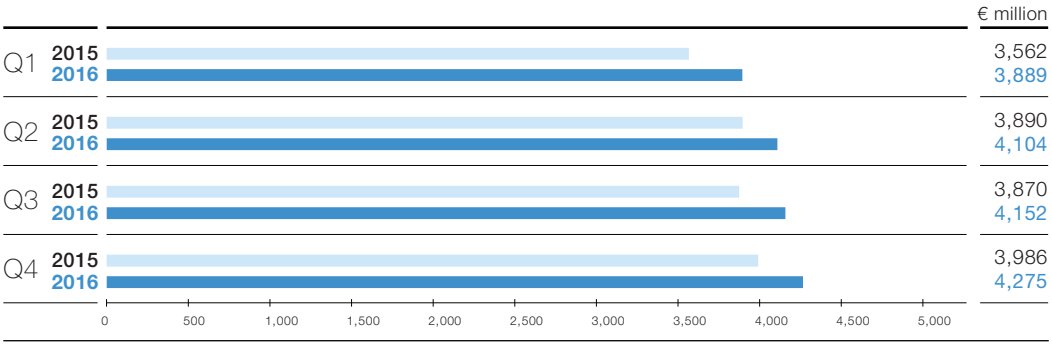
[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

Online Annex: A 2.2.2-1

The development of Pharmaceuticals in 2016 is shown in the following graphics (A 2.2.2-1/1, A 2.2.2-1/2 and A 2.2.2-1/3).

A 2.2.2-1/1

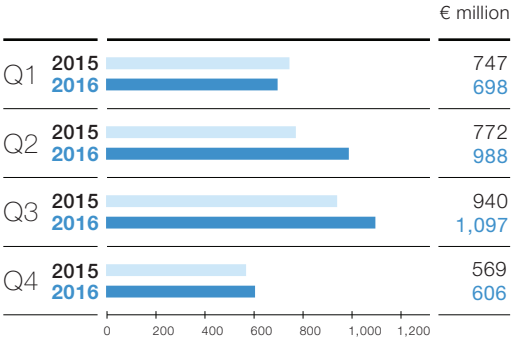
Pharmaceuticals Quarterly Sales



2015 figures restated

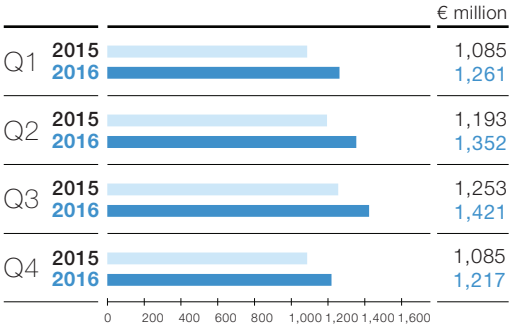
A 2.2.2-1/2

Pharmaceuticals Quarterly EBIT



A 2.2.2-1/3

Pharmaceuticals Quarterly EBITDA before Special Items



2015 figures restated

Consumer Health

Market growth weaker than in the prior year

In 2016, global development of the Consumer Health market was below the prior-year level at 4% (2015: 5%). Reasons for this included particularly the low rate of transitioning prescription medicines to over-the-counter status (Rx-to-OTC switch), a weaker cold season and reduced demand in the Emerging Markets.

A 2.2.2/4

Key Data – Consumer Health

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx & p adj.	2015	2016	Reported	Fx & p adj.
Sales	**1,506**	**1,539**	**+2.2**	**+4.4**	**6,076**	**6,037**	**–0.6**	**+3.5**
Changes in sales								
Volume	+6.8%	+1.5%			+3.0%	+0.6%		
Price	+3.0%	+2.9%			+3.1%	+2.9%		
Currency	–1.2%	–2.2%			+2.7%	–4.1%		
Portfolio	+0.2%	0.0%			+34.3%	0.0%		
Sales by region								
Europe / Middle East / Africa	490	499	+1.8	+2.7	1,955	1,918	–1.9	+1.5
North America	630	649	+3.0	+1.6	2,635	2,627	–0.3	–0.1
Asia / Pacific	188	194	+3.2	+3.2	738	781	+5.8	+8.1
Latin America	198	197	–0.5	+18.7	748	711	–4.9	+17.1
EBITDA[1]	**333**	**334**	**+0.3**		**1,222**	**1,296**	**+6.1**	
Special items	(52)	(38)			(234)	(115)		
EBITDA before special items[1]	**385**	**372**	**–3.4**		**1,456**	**1,411**	**–3.1**	
EBITDA margin before special items[1]	25.6%	24.2%			24.0%	23.4%		
EBIT	**194**	**68**	**–64.9**		**768**	**695**	**–9.5**	
Special items	(55)	(199)			(237)	(292)		
EBIT before special items[1]	**249**	**267**	**+7.2**		**1,005**	**987**	**–1.8**	
Net cash provided by operating activities	**140**	**221**	**+57.9**		**816**	**874**	**+7.1**	

2015 figures restated; Fx & p adj. = currency- and portfolio-adjusted; Fx adj. = currency-adjusted
[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

+3.5%
growth in sales at Consumer Health (Fx & portfolio adj.)

Sales up year on year

Sales of Consumer Health rose by 3.5% (Fx & portfolio adj.) in 2016 to €6,037 million. We achieved significant gains in Latin America and Asia / Pacific on a currency-adjusted basis, and Europe / Middle East / Africa contributed to sales growth with a slight increase. Sales in North America came in at the prior-year level.

A 2.2.2/5

Best-Selling Consumer Health Products

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx adj.	2015	2016	Reported	Fx adj.
Claritin™ [1]	134	122	–9.0	–12.6	627	605	–3.5	–2.6
Aspirin™	128	126	–1.6	+0.5	473	463	–2.1	+2.4
Aleve™	105	115	+9.5	+8.6	413	416	+0.7	+2.1
Bepanthen™/Bepanthol™	85	90	+5.9	+6.2	355	362	+2.0	+9.2
Canesten™	66	64	–3.0	+10.0	267	269	+0.7	+13.4
Alka-Seltzer™ product family	81	87	+7.4	+7.7	251	253	+0.8	+2.2
Dr. Scholl's™ [1]	62	55	–11.3	–11.7	253	235	–7.1	–6.9
One A Day™	65	67	+3.1	+1.7	211	222	+5.2	+5.3
Coppertone™ [1]	8	17	+112.5	+96.0	217	219	+0.9	+1.4
Elevit™	43	48	+11.6	+10.4	162	182	+12.3	+17.2
Total	**777**	**791**	**+1.8**	**+2.2**	**3,229**	**3,226**	**–0.1**	**+3.2**
Proportion of Consumer Health sales	52%	51%			53%	53%		

Fx adj. = currency-adjusted
[1] Trademark rights and distribution only in certain countries outside the European Union

Sales by product

- Business with our antihistamine **Claritin™** receded overall. Sales in Asia/Pacific were down against the strong prior year due to intensified competition and to price controls for prescription medicines in Japan. The gratifying increase in the United States due to a product line extension with ClariSpray™ only partly offset this effect.
- Sales of our analgesic **Aspirin™** increased moderately. The gains in the United States and Latin America more than offset declines in Europe that resulted from a weak cold season. Including business with Aspirin™ Cardio, which is reported under Pharmaceuticals, sales climbed by 5.0% (Fx adj.) to €1,001 million (2015: €997 million).
- We registered a slight increase in sales of our analgesic **Aleve™** that resulted from very favorable development in the United States, where we benefited from the addition of Aleve Tens™ to our product portfolio.
- Sales of our **Bepanthen™/Bepanthol™** wound healing and skin care products advanced strongly, especially in Europe and particularly in France, Germany and Russia.
- We achieved significant growth with our skin and intimate health brand **Canesten™** thanks to expanded volumes in all regions. Business developed especially well in Germany, due primarily to Canesten Gyn™.
- The **Alka-Seltzer™** family of products to treat gastrointestinal complaints and cold symptoms registered slight growth that was mainly attributable to a product line extension in the United States.
- Sales of our **Dr. Scholl's™** foot care products declined due to higher competitive pressure and a weak market environment in the United States.
- We recorded pleasing sales development in the United States with our **One A Day™** vitamin product, largely as the result of product line extensions and the expansion of our distribution channels.
- Sales of our sunscreen product **Coppertone™** were up slightly against the previous year. Higher demand in Asia/Pacific and Latin America more than offset declines in the United States.
- Business with our prenatal vitamin **Elevit™** saw particularly strong development. We posted double-digit-percentage growth rates in Asia/Pacific and Europe/Middle East/Africa.

Earnings

In 2016, **EBITDA before special items** declined by 3.1% to €1,411 million. Earnings were diminished by a higher cost of goods sold and negative currency effects of approximately €65 million. These factors were partly compensated by the positive development of sales and cost synergies.

EBIT of Consumer Health decreased by 9.5% to €695 million due to special charges of €292 million (2015: €237 million). These included €160 million for impairment losses on intangible assets (Triderm™ and Citracal™), €100 million for the integration of acquired businesses and €32 million for efficiency enhancement measures.

A 2.2.2/6

Special Items[1] Consumer Health

€ million	EBIT Q4 2015	EBIT Q4 2016	EBIT 2015	EBIT 2016	EBITDA Q4 2015	EBITDA Q4 2016	EBITDA 2015	EBITDA 2016
Restructuring	(4)	(9)	(5)	(32)	(1)	(8)	(2)	(15)
Integration costs	(50)	(30)	(225)	(100)	(50)	(30)	(225)	(100)
Impairment losses / impairment loss reversals	–	(160)	–	(160)	–	–	–	–
Revaluation of other receivables	(1)	–	(7)	–	(1)	–	(7)	–
Total Special Items	**(55)**	**(199)**	**(237)**	**(292)**	**(52)**	**(38)**	**(234)**	**(115)**

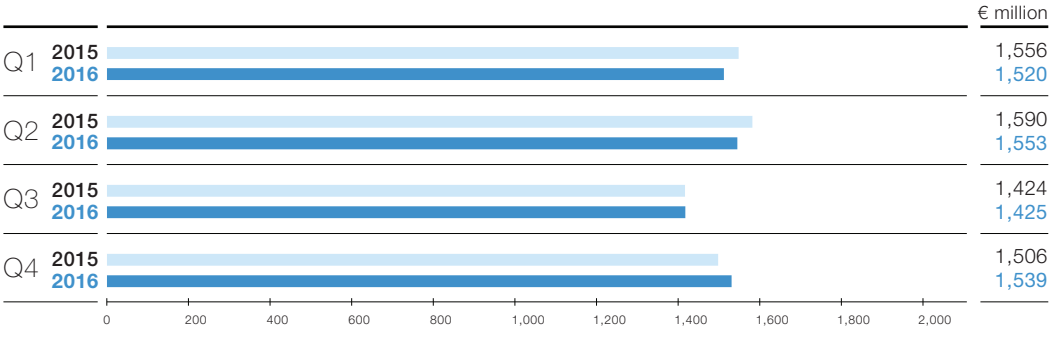
[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

Online Annex: A 2.2.2-2

The development of Consumer Health in 2016 is shown in the following graphics (A 2.2.2-2/1, A 2.2.2-2/2 and A 2.2.2-2/3).

A 2.2.2-2/1

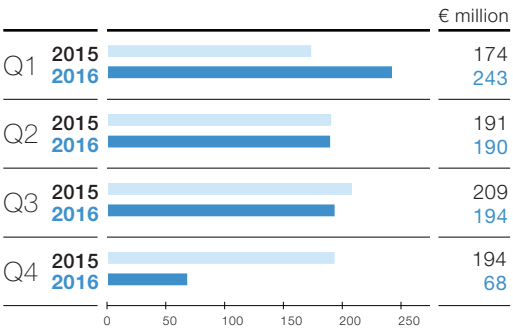
Quarterly Sales Consumer Health



2015 figures restated

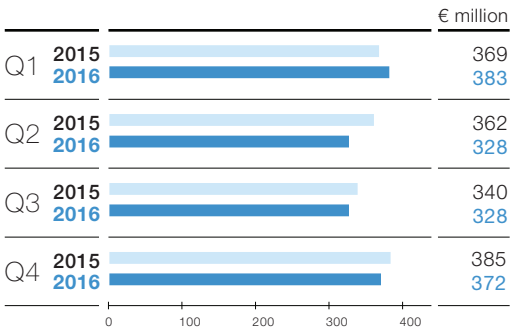
A 2.2.2-2/2

Consumer Health
Quarterly EBIT



A 2.2.2-2/3

Consumer Health
Quarterly EBITDA before Special Items



2015 figures restated

Crop Science

Persistently weak market environment

Overall, the global **seed and crop protection market** contracted slightly by around 1% in 2016 (2015: –2%). Whereas there was a small increase in demand for high-quality seed, sales of crop protection products decreased worldwide.

Positive growth momentum in 2016 came from the North America and Eastern Europe regions. Market volumes decreased in Latin America, due especially to macroeconomic developments, unfavorable weather conditions and high inventories of crop protection products, particularly in Brazil.

A 2.2.2/7

Key Data – Crop Science

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx & p adj.	2015	2016	Reported	Fx & p adj.
Sales	**2,405**	**2,404**	**0.0**	**–1.6**	**10,128**	**9,915**	**–2.1**	**+0.1**
Change in sales								
Volume	+5.8%	–0.4%			+1.3%	–1.3%		
Price	–0.4%	–1.2%			+0.4%	+1.4%		
Currency	+5.1%	+1.6%			+6.9%	–2.3%		
Portfolio	+0.7%	0.0%			+0.7%	+0.1%		
			Reported	**Fx adj.**			**Reported**	**Fx adj.**
Sales by region								
Europe / Middle East / Africa	470	431	–8.3	–7.0	3,368	3,290	–2.3	+1.8
North America	438	527	+20.3	+18.5	2,570	2,616	+1.8	+3.9
Asia / Pacific	365	384	+5.2	+2.5	1,530	1,548	+1.2	+2.7
Latin America	1,132	1,062	–6.2	–8.6	2,660	2,461	–7.5	–6.9
EBITDA[1]	**642**	**314**	**–51.1**		**2,628**	**2,280**	**–13.2**	
Special items	295	(37)			222	(141)		
EBITDA before special items[1]	**347**	**351**	**+1.2**		**2,406**	**2,421**	**+0.6**	
EBITDA margin before special items[1]	14.4%	14.6%			23.8%	24.4%		
EBIT	**491**	**153**	**–68.8**		**2,094**	**1,755**	**–16.2**	
Special items	301	(39)			222	(143)		
EBIT before special items[1]	**190**	**192**	**+1.1**		**1,872**	**1,898**	**+1.4**	
Net cash provided by operating activities	**175**	**622**	**.**		**749**	**2,071**	**+176.5**	

2015 figures restated; Fx & p adj. = currency- and portfolio-adjusted; Fx adj. = currency-adjusted
[1] For definition see Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”

Sales level year on year

Crop Science posted sales of €9,915 million (Fx & portfolio adj. +0.1%) in 2016. At Crop Protection / Seeds, we matched the prior-year level despite a persisting weak market environment, particularly in Latin America. Environmental Science posted gratifying sales growth.

Since the conclusion in May 2016 of an agreement to divest the consumer business of Environmental Science, these activities are reported retrospectively for 2015 and 2016 under discontinued operations. Environmental Science therefore now comprises only the business for professional users. The divestment was closed at the start of October 2016.

A 2.2.2/8

Sales by Business Unit

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx & p adj.	2015	2016	Reported	Fx & p adj.
Crop Protection / Seeds	**2,230**	**2,224**	**– 0.3**	**– 1.8**	**9,548**	**9,317**	**– 2.4**	**– 0.2**
Crop Protection	2,009	1,965	– 2.2	– 3.1	8,271	7,961	– 3.7	– 1.5
Herbicides	650	599	– 7.8	– 8.5	2,830	2,693	– 4.8	– 2.2
Fungicides	677	679	+ 0.3	– 0.9	2,911	2,961	+ 1.7	+ 4.0
Insecticides	430	386	– 10.2	– 11.4	1,596	1,357	– 15.0	– 13.3
SeedGrowth	252	301	+ 19.4	+ 18.7	934	950	+ 1.7	+ 4.1
Seeds	221	259	+ 17.2	+ 10.4	1,277	1,356	+ 6.2	+ 8.3
Environmental Science [1]	**175**	**180**	**+ 2.9**	**+ 1.1**	**580**	**598**	**+ 3.1**	**+ 4.5**

2015 figures restated; Fx & p adj. = currency- and portfolio-adjusted
[1] Environmental Science now comprises only the business for professional users. The key data and prior-year figures are restated accordingly.

Sales by region

- Sales in the **Europe / Middle East / Africa** region improved by 1.8% (Fx adj.) to €3,290 million. SeedGrowth registered gains, due particularly to higher demand for products to treat cereal seed. We also slightly expanded business at Herbicides, while sales at Insecticides and Fungicides came in at the prior-year level. Sales of vegetable seed developed positively, as did sales at Environmental Science.
- In the **North America** region, we posted a 3.9% (Fx adj.) increase in sales to €2,616 million. Sales at SeedGrowth developed very positively thanks to increased demand for products to treat corn and cereal seed. Sales at Fungicides increased as well. We also achieved strong, double-digit-percentage growth with soybean seeds. By contrast, we registered a substantial decline in sales of Insecticides resulting from weak demand. Sales at Environmental Science increased slightly.
- Sales in **Asia / Pacific** increased by 2.7% (Fx adj.) year on year to €1,548 million. Our Fungicides business saw positive development particularly in Australia and India. Sales of vegetable seeds increased by a double-digit percentage. Business at Herbicides receded slightly, as did sales of Environmental Science.
- Sales in **Latin America** declined by 6.9% (Fx adj.) to €2,461 million. Business was held back by the persisting weak market environment in Brazil, particularly at Insecticides, Herbicides and SeedGrowth. Lower pest pressure had an additional negative impact on Insecticides. We recorded gains in sales at Fungicides and Seeds. Business at Environmental Science expanded by a double-digit percentage.

Earnings

In 2016, **EBITDA before special items** of Crop Science was level year on year at €2,421 million (2015: €2,406 million; +0.6%). A positive currency effect of around €140 million and higher selling prices compensated lower volumes, increased spending on research and development and higher impairment losses recognized on inventories and receivables.

EBIT decreased by 16.2% to €1,755 million, including special charges of €143 million (2015: special gains of €222 million), primarily in connection with the agreed acquisition of Monsanto and efficiency improvement measures.

A 2.2.2/9

Special Items[1] Crop Science

€ million	EBIT Q4 2015	EBIT Q4 2016	EBIT 2015	EBIT 2016	EBITDA Q4 2015	EBITDA Q4 2016	EBITDA 2015	EBITDA 2016
Restructuring	–	(5)	–	(51)	–	(3)	–	(49)
Litigations	303	4	285	(1)	303	4	285	(1)
Acquisition costs	–	(34)	–	(86)	–	(34)	–	(86)
Divestments	–	(4)	(50)	(5)	(6)	(4)	(50)	(5)
Revaluation of other receivables	(2)	–	(13)	–	(2)	–	(13)	–
Total	**301**	**(39)**	**222**	**(143)**	**295**	**(37)**	**222**	**(141)**

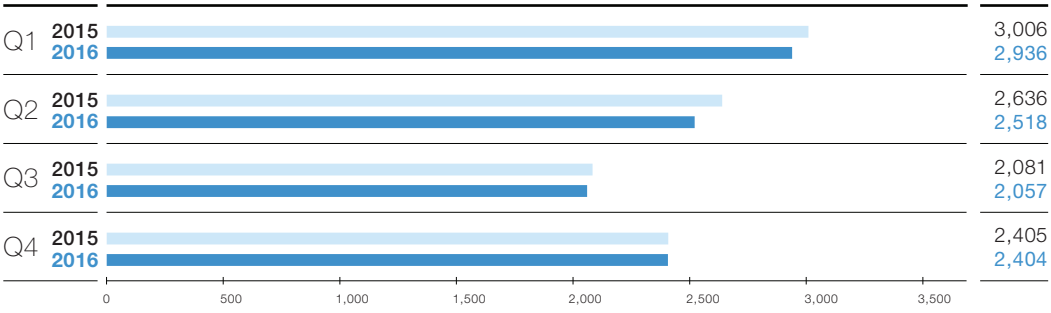
[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

Online Annex: A 2.2.2-3

The development of Crop Science in 2016 is shown in the following graphics (A 2.2.2-3/1, A 2.2.2-3/2 and A 2.2.2-3/3).

A 2.2.2-3/1

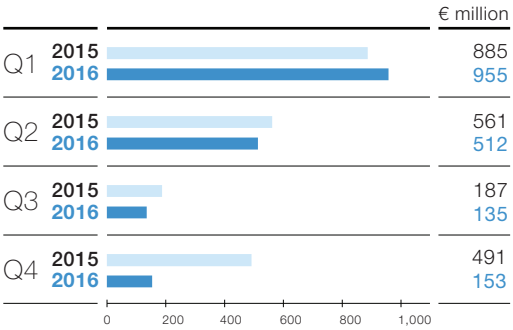
Crop Science Quarterly Sales



2015 figures restated

A 2.2.2-3/2

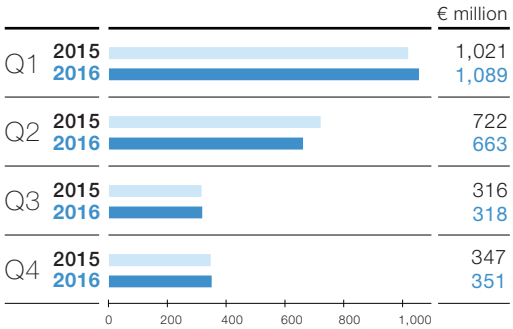
Crop Science Quarterly EBIT



2015 figures restated

A 2.2.2-3/3

Crop Science Quarterly EBITDA before Special Items



2015 figures restated

Animal Health

Ongoing market growth

In 2016, the Animal Health market continued to develop positively with growth of 5% (2015: 5%). The dynamic performance in the first half of the year was driven especially by the market for companion animal parasiticides in the United States and Europe. In the second half of the year, the market environment for the farm animal business clouded slightly.

A 2.2.2/10

Key Data – Animal Health

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx & p adj.	2015	2016	Reported	Fx & p adj.
Sales	**319**	**329**	**+3.1**	**+3.1**	**1,490**	**1,523**	**+2.2**	**+4.8**
Change in sales								
Volume	+2.7%	–1.0%			+4.0%	+2.6%		
Price	+0.3%	+4.1%			+0.5%	+2.2%		
Currency	+3.0%	0.0%			+8.6%	–2.6%		
Portfolio	0.0%	0.0%			0.0%	0.0%		
			Reported	Fx adj.			Reported	Fx adj.
Sales by region								
Europe / Middle East / Africa	91	84	–7.7	–3.3	447	445	–0.4	+3.8
North America	122	129	+5.7	+4.1	587	621	+5.8	+6.0
Asia / Pacific	67	79	+17.9	+13.4	285	300	+5.3	+5.6
Latin America	39	37	–5.1	–2.6	171	157	–8.2	+1.8
EBITDA[1]	**33**	**34**	**+3.0**		**317**	**343**	**+8.2**	
Special items	(8)	(4)			(30)	(6)		
EBITDA before special items[1]	**41**	**38**	**–7.3**		**347**	**349**	**+0.6**	
EBITDA margin before special items[1]	12.9%	11.6%			23.3%	22.9%		
EBIT	**14**	**25**	**+78.6**		**254**	**313**	**+23.2**	
Special items	(19)	(5)			(64)	(7)		
EBIT before special items[1]	**33**	**30**	**–9.1**		**318**	**320**	**+0.6**	
Net cash provided by operating activities	**43**	**85**	**+97.7**		**348**	**193**	**–44.5**	

2015 figures restated; Fx & p adj. = currency- and portfolio-adjusted; Fx adj. = currency-adjusted
[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

+4.8%
growth in sales at Animal Health (Fx & portfolio adj.)

Sales growth particularly in the United States

Sales of Animal Health in 2016 increased by 4.8% (Fx & portfolio adj.) to €1,523 million. The North America and Asia / Pacific regions developed especially positively due to higher demand. We also registered currency-adjusted sales growth in Europe / Middle East / Africa and Latin America.

A 2.2.2/11

Best-Selling Animal Health Products

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx adj.	2015	2016	Reported	Fx adj.
Advantage™ product family	105	102	–2.9	+0.3	547	535	–2.2	+0.1
Seresto™	15	28	+86.7	+75.3	113	174	+54.0	+55.4
Drontal™ product family	30	31	+3.3	+2.6	122	128	+4.9	+7.2
Baytril™	33	34	+3.0	–0.9	120	113	–5.8	–5.0
Total	**183**	**195**	**+6.6**	**+6.8**	**902**	**950**	**+5.3**	**+7.3**
Proportion of Animal Health sales	57%	59%			61%	62%		

Fx adj. = currency-adjusted

Sales by product

+55.4%
growth in sales of Seresto™ (Fx adj.)

- Currency-adjusted sales of our **Advantage™** family of flea, tick and worm control products were level with the previous year. Positive development in Europe / Middle East / Africa and Asia / Pacific stood against slight declines in North America.
- We achieved very strong sales growth with our **Seresto™** flea and tick collar that resulted chiefly from increased demand in the United States and Europe.
- Business with our **Drontal™** line of wormers benefited particularly from higher volumes in the United States and Asia / Pacific.
- Sales of our antibiotic **Baytril™** fell in North America because of a difficult market environment and generic competition. Gains in Asia / Pacific and Latin America were not sufficient to offset this development.

Earnings

In 2016, **EBITDA before special items** was steady year on year, increasing 0.6% to €349 million. Positive earnings contributions from volume and price increases stood against higher selling expenses and an increased cost of production. A negative currency effect of around €10 million additionally diminished earnings.

EBIT of Animal Health increased by a substantial 23.2% to €313 million, including special charges of €7 million (2015: €64 million).

A 2.2.2/12

Special Items[1] Animal Health

€ million	EBIT Q4 2015	EBIT Q4 2016	EBIT 2015	EBIT 2016	EBITDA Q4 2015	EBITDA Q4 2016	EBITDA 2015	EBITDA 2016
Restructuring	(19)	(5)	(64)	(7)	(8)	(4)	(30)	(6)
Total special items	**(19)**	**(5)**	**(64)**	**(7)**	**(8)**	**(4)**	**(30)**	**(6)**

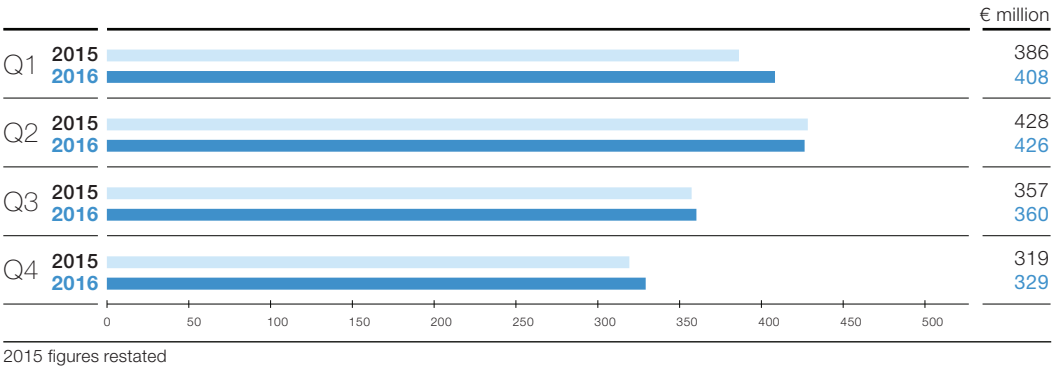
[1] For definition see Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”

Online Annex: A 2.2.2-4

The development of Animal Health in 2016 is shown in the following graphics (A 2.2.2-4/1, A 2.2.2-4/2 and A 2.2.2-4/3).

A 2.2.2-4/1

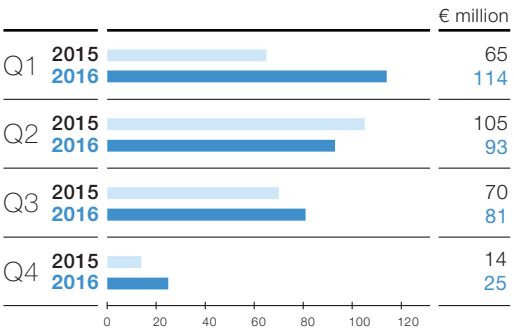
Animal Health Quarterly Sales



2015 figures restated

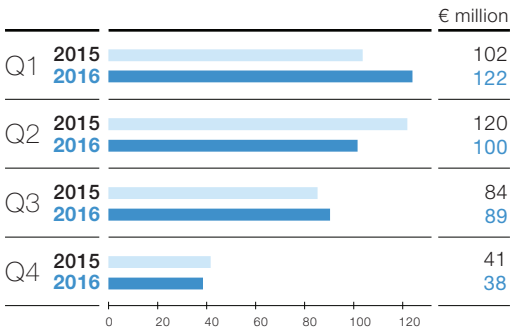
A 2.2.2-4/2

Animal Health
Quarterly EBIT



A 2.2.2-4/3

Animal Health
Quarterly EBITDA before Special Items



2015 figures restated

Covestro

Positive development in main customer industries

In 2016, Covestro's **main customer industries** (automotive, construction, electrical and electronics, and furniture) continued to develop positively.

A 2.2.2/13

Key Data – Covestro

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx & p adj.	2015	2016	Reported	Fx & p adj.
Sales	**2,774**	**2,997**	**+8.0**	**+8.6**	**11,982**	**11,826**	**–1.3**	**0.0**
Change in sales								
Volume	+1.8%	+4.0%			+2.6%	+5.3%		
Price	–12.4%	+4.6%			–7.7%	–5.3%		
Currency	+4.7%	–0.6%			+7.9%	–1.3%		
Portfolio	0.0%	0.0%			0.0%	0.0%		
			Reported	**Fx adj.**			**Reported**	**Fx adj.**
Sales by region								
Europe / Middle East / Africa	1,132	1,104	–2.5	–2.6	4,928	4,761	–3.4	–3.3
North America	672	671	–0.1	–1.6	2,885	2,740	–5.0	–5.3
Asia / Pacific	798	1,038	+30.1	+32.2	3,377	3,619	+7.2	+9.8
Latin America	172	184	+7.0	+12.2	792	706	–10.9	–1.8
EBITDA[1]	**129**	**373**	**+189.1**		**1,368**	**1,984**	**+45.0**	
Special items	(128)	–			(291)	–		
EBITDA before special items[1]	**257**	**373**	**+45.1**		**1,659**	**1,984**	**+19.6**	
EBITDA margin before special items[1]	9.3%	12.4%			13.8%	16.8%		
EBIT	**(79)**	**203**	**.**		**635**	**1,304**	**+105.4**	
Special items	(144)	–			(332)	–		
EBIT before special items[1]	**65**	**203**	**.**		**967**	**1,304**	**+34.9**	
Net cash provided by operating activities	**603**	**678**	**+12.4**		**1,452**	**1,824**	**+25.6**	

2015 figures restated; Fx & p adj. = currency- and portfolio-adjusted; Fx adj. = currency-adjusted
[1] For definition see Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

Sales level year on year

Sales of Covestro were level year on year in 2016, at €11,826 million (Fx & portfolio adj. 0.0%). Selling prices receded overall, due primarily to lower raw material prices. Volumes were above the level of the prior year overall.

A 2.2.2/14

Sales by Business Unit

			Change %				Change %	
€ million	Q4 2015	Q4 2016	Reported	Fx & p adj.	2015	2016	Reported	Fx & p adj.
Polyurethanes	1,382	1,541	+11.5	+12.2	6,084	5,926	–2.6	–1.2
Polycarbonates	759	832	+9.6	+10.7	3,169	3,297	+4.0	+5.8
Coatings, Adhesives, Specialties	477	481	+0.8	+0.8	2,092	2,039	–2.5	–1.8
Other Covestro business	156	143	–8.3	–9.0	637	564	–11.5	–11.5
Total	**2,774**	**2,997**	**+8.0**	**+8.6**	**11,982**	**11,826**	**–1.3**	**0.0**

Fx & p adj. = currency- and portfolio-adjusted

Sales by business unit

- At **Polyurethanes**, lower selling prices overall were not fully offset by higher volumes and led to a 1.2% (Fx & portfolio adj.) decline in sales to €5,926 million.
- **Polycarbonates** improved sales by 5.8% (Fx & portfolio adj.) to €3,297 million, with appreciable volume growth more than compensating for lower selling prices.
- Sales of **Coatings, Adhesives, Specialties** fell by 1.8% (Fx & portfolio adj.) to €2,039 million, primarily because of lower selling prices.

Earnings

In 2016, **EBITDA before special items** increased by a substantial 19.6% to €1,984 million. Positive earnings contributions from reductions in raw material prices and higher volumes outweighed lower selling prices and a negative currency effect of around €20 million.

Compared with the previous year, Covestro more than doubled **EBIT** to €1,304 million (+105.4%). No special items were recorded (2015: special charges of €332 million).

A 2.2.2/15

Special Items[1] Covestro

€ million	EBIT Q4 2015	EBIT Q4 2016	EBIT 2015	EBIT 2016	EBITDA Q4 2015	EBITDA Q4 2016	EBITDA 2015	EBITDA 2016
Restructuring	(143)	–	(329)	–	(127)	–	(288)	–
Revaluation of other receivables	(1)	–	(3)	–	(1)	–	(3)	–
Total special items	**(144)**	**–**	**(332)**	**–**	**(128)**	**–**	**(291)**	**–**

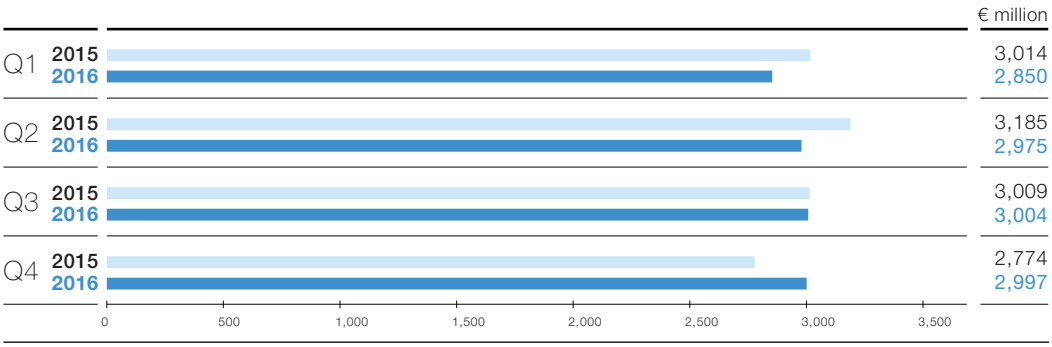
[1] For definition see Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”

Online Annex: A 2.2.2-5

The development of Covestro in 2016 is shown in the following graphics (A 2.2.2-5/1, A 2.2.2-5/2 and A 2.2.2-5/3).

A 2.2.2-5/1

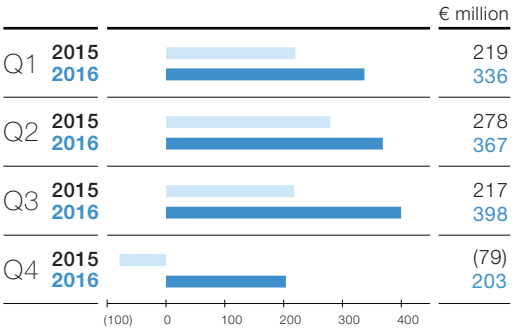
Covestro Quarterly Sales



2015 figures restated

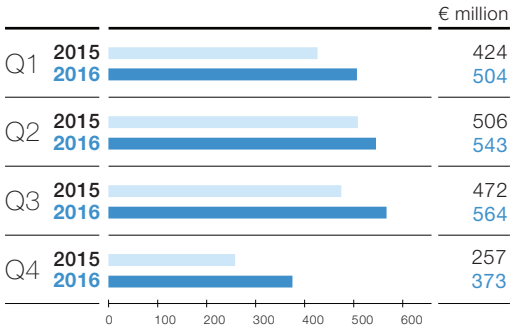
A 2.2.2-5/2

Covestro Quarterly EBIT



A 2.2.2-5/3

Covestro Quarterly EBITDA before Special Items



2015 figures restated

Business Development by Region

Online Annex: A 2.2.2-6

A.2.2.2-6/1

Business Development by Region

	Europe / Middle East / Africa				North America			
			Change in %				Change in %	
€ million	Q4 2015	Q4 2016	Reported	Fx adj.	Q4 2015	Q4 2016	Reported	Fx adj.
Pharmaceuticals	1,618	1,684	+ 4.1	+6.0	972	1,107	+ 13.9	+ 12.6
Consumer Health	490	499	+ 1.8	+2.7	630	649	+ 3.0	+ 1.6
Crop Science	470	431	– 8.3	– 7.0	438	527	+ 20.3	+ 18.5
Animal Health	91	84	– 7.7	– 3.3	122	129	+ 5.7	+ 4.1
Life Sciences (incl. reconciliation)	**2,943**	**2,962**	**+ 0.6**	**+ 2.3**	**2,163**	**2,413**	**+ 11.6**	**+ 10.1**
Covestro	1,132	1,104	– 2.5	– 2.6	672	671	– 0.1	– 1.6
Group (incl. reconciliation)	**4,075**	**4,066**	**– 0.2**	**+ 0.9**	**2,835**	**3,084**	**+ 8.8**	**+ 7.3**

2015 figures restated

A.2.2.2-6/1 (continued)

Business Development by Region

			Asia/Pacific				Latin America				Group	
			Change in %				Change in %				Change in %	
€ million	Q4 2015	Q4 2016	Reported	Fx adj.	Q4 2015	Q4 2016	Reported	Fx adj.	Q4 2015	Q4 2016	Reported	Fx adj.
Pharmaceuticals	1,121	1,203	+7.3	+3.6	275	281	+2.2	+8.0	3,986	4,275	+7.3	+7.1
Consumer Health	188	194	+3.2	+3.2	198	197	−0.5	+18.7	1,506	1,539	+2.2	+4.4
Crop Science	365	384	+5.2	+2.5	1,132	1,062	−6.2	−8.6	2,405	2,404	–	−1.6
Animal Health	67	79	+17.9	+13.4	39	37	−5.1	−2.6	319	329	+3.1	+3.1
Life Sciences (incl. reconciliation)	**1,745**	**1,862**	**+6.7**	**+3.5**	**1,660**	**1,586**	**−4.5**	**−2.7**	**8,511**	**8,823**	**+3.7**	**+3.6**
Covestro	798	1,038	+30.1	+32.2	172	184	+7.0	+12.2	2,774	2,997	+8.0	+8.6
Group (incl. reconciliation)	**2,543**	**2,900**	**+14.0**	**+12.5**	**1,832**	**1,770**	**−3.4**	**−1.3**	**11,285**	**11,820**	**+4.7**	**+4.8**

2015 figures restated

A.2.2.2-6/2

Business Development by Region

			Europe/Middle East/Africa				North America	
			Change in %				Change in %	
€ million	2015	2016	Reported	Fx adj.	2015	2016	Reported	Fx adj.
Pharmaceuticals	5,981	6,417	+7.3	+9.7	3,937	4,194	+6.5	+6.7
Consumer Health	1,955	1,918	−1.9	+1.5	2,635	2,627	−0.3	−0.1
Crop Science	3,368	3,290	−2.3	+1.8	2,570	2,616	+1.8	+3.9
Animal Health	447	445	−0.4	+3.8	587	621	+5.8	+6.0
Life Sciences (incl. reconciliation)	**12,779**	**13,062**	**+2.2**	**+5.1**	**9,736**	**10,066**	**+3.4**	**+4.1**
Covestro	4,928	4,761	−3.4	−3.3	2,885	2,740	−5.0	−5.3
Group (incl. reconciliation)	**17,707**	17,823	**+0.7**	**+2.8**	**12,621**	**12,806**	**+1.5**	**+2.0**

2015 figures restated

A.2.2.2-6/2 (continued)

Business Development by Region

			Asia/Pacific				Latin America				Group	
			Change in %				Change in %				Change in %	
€ million	2015	2016	Reported	Fx adj.	2015	2016	Reported	Fx adj.	2015	2016	Reported	Fx adj.
Pharmaceuticals	4,319	4,775	+10.6	+8.6	1,071	1,034	−3.5	+11.0	15,308	16,420	+7.3	+8.7
Consumer Health	738	781	+5.8	+8.1	748	711	−4.9	+17.1	6,076	6,037	−0.6	+3.5
Crop Science	1,530	1,548	+1.2	+2.7	2,660	2,461	−7.5	−6.9	10,128	9,915	−2.1	+0.2
Animal Health	285	300	+5.3	+5.6	171	157	−8.2	+1.8	1,490	1,523	+2.2	+4.8
Life Sciences (incl. reconciliation)	**6,886**	**7,413**	**+7.7**	**+7.0**	**4,702**	**4,402**	**−6.4**	**+1.2**	**34,103**	**34,943**	**+2.5**	**+4.7**
Covestro	3,377	3,619	+7.2	+9.8	792	706	−10.9	−1.8	11,982	11,826	−1.3	–
Group (incl. reconciliation)	**10,263**	**11,032**	**+7.5**	**+7.9**	**5,494**	**5,108**	**−7.0**	**+0.8**	**46,085**	**46,769**	**+1.5**	**+3.5**

2015 figures restated

2.2.3 Value-Based Performance

New value-based indicator: ROCE

Starting with fiscal 2016, Bayer decided to replace its previous value-based metrics – cash value added (CVA) and cash flow return on investment (CFROI) – by the return on capital employed (ROCE). The change was made in light of the much lower complexity and greater external popularity of the ROCE. Using this indicator therefore increases transparency and facilitates both communication and external comparability. The ROCE indicates the capital return over a specified period, setting economic profit against the capital used to generate it (capital employed). The ROCE is compared to the weighted average cost of capital (WACC), which corresponds to the return expected by the providers of equity and debt. If the ROCE is in line with the WACC, the expected return for the period has been achieved. If it exceeds the WACC, return expectations have been exceeded, and therefore value has been created.

Calculation of ROCE

See also A 2.4

ROCE is the ratio of net operating profit after tax (NOPAT) to the average capital employed. NOPAT is determined by deducting from EBIT the income taxes thereon, which are based on a historical average tax rate of 24%. The capital employed is an indicator of the capital used in the company's operations. Based on carrying amounts, it is calculated by subtracting from operational assets the liability items that are largely non-interest-bearing, such as trade accounts payable, or would distort the operational capital base. To reflect the change in the capital employed during the year, an average figure is determined from the amounts at the end of the previous year and the end of the year under report. For the components of the capital employed, see also Chapter 2.4.

Calculating the cost of capital

7.5%
Capital cost rate for the Bayer Group in 2016

In 2016, the capital cost rate (WACC = weighted average cost of capital) for the Bayer Group was applied uniformly for the Life Sciences for the first time. The WACC is based on an after-tax approach and was calculated at the beginning of the year as the weighted average of the equity and debt cost rates. The cost of equity is the return expected by stockholders, computed from capital market information. The debt capital cost rate we use to calculate the WACC is based on the financing terms for ten-year Eurobonds issued by industrial companies with an "A–" credit rating. The WACC for 2016 was 7.5% for the Bayer Group and for the Life Sciences. Covestro, however, determined a WACC of 6.9% for its business. In the context of impairment testing, moreover, individual capital cost factors are used for the reporting segments which explicitly take account of segment-specific parameters (see Note [4]).

Value-based business development

ROCE in 2016 of
11.0%

Bayer's ROCE in 2016 amounted to 11.0%, exceeding the cost of capital by 3.5 percentage points. It is thus an indicator for value creation. Also when measured in terms of the previous value-based steering parameters, Bayer showed positive value creation with a CFROI of 11.8%, which exceeded the cost of capital, and a positive CVA of €2,761 million.

All segments except Consumer Health exceeded the WACC in 2016 despite negative special items in all of the Life Science segments (see also Chapter 2.2.2). In Consumer Health, the acquisition of the consumer care business of Merck & Co., Inc., United States, in 2014 led to a significant increase in the capital employed. This, together with the integration costs and special charges incurred in 2016, is currently diminishing ROCE as an indicator of periodic capital return.

A 2.2.3/1

Value-Based Performance by Segment

	Pharmaceuticals		Consumer Health		Crop Science		Animal Health		Life Sciences [1]		Covestro		Group	
€ million	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
EBIT	3,028	3,389	768	695	2,094	1,755	254	313	5,606	5,738	635	1,304	6,241	7,042
Taxes [2]	(727)	(813)	(184)	(167)	(503)	(421)	(61)	(75)	(1,346)	(1,377)	(152)	(313)	(1,498)	(1,690)
NOPAT	2,301	2,576	584	528	1,591	1,334	193	238	4,260	4,361	483	991	4,743	5,352
Average capital employed	15,969	15,859	14,761	15,220	9,749	10,316	404	375	40,975	42,306	6,822	6,471	47,797	48,777
ROCE	14.4%	16.2%	4.0%	3.5%	16.3%	12.9%	47.8%	63.5%	10.4%	10.3%	7.1%	15.3%	9.9%	11.0%
WACC	7.9%	7.5%	7.9%	7.5%	7.3%	7.5%	7.9%	7.5%	7.6%	7.5%	6.9%	6.9%	7.6%	7.5%

2015 figures restated
[1] including Reconciliation
[2] 24% on EBIT; based on historical average of tax rates

2.2.4 Asset and Financial Position of the Bayer Group

Financial management of the Group

The financial management of the Bayer Group is conducted by Bayer AG. Capital is a global resource, generally procured centrally and distributed within the Group. The foremost objectives of our financial management are to help bring about a sustained increase in corporate value and to ensure the Group's liquidity and creditworthiness. This involves optimizing the capital structure and effectively managing risks. The management of currency, interest-rate, commodity price and default risks helps to reduce the volatility of our earnings.

See also A 1.2.2

The contracted rating agencies assess Bayer as follows:

A 2.2.4/1

Rating

	Long-term rating	Short-term rating
S & P Global Ratings	A–	A–2
Moody's	A3	P–2

These credit ratings reflect the company's high solvency and ensure access to a broad investor base for financing purposes. As a result of the agreed acquisition of Monsanto, both S&P Global Ratings and Moody's are reviewing the possibility of a downgrade. Bayer continues to aim for an investment-grade credit rating after the successful closing of the Monsanto acquisition and is aiming for the single "A" rating category in the long term.

As a matter of principle, we pursue a prudent debt management strategy to ensure flexibility, drawing on a balanced financing portfolio. This is fundamentally based on bonds in various currencies, syndicated credit facilities, bilateral loan agreements and a global commercial paper program.

We use financial derivatives to hedge against risks arising from business operations or financial transactions, but do not employ contracts in the absence of an underlying transaction. It is our policy to diminish default risks by selecting trading partners with a high credit standing. We closely monitor the execution of all transactions, which are conducted in accordance with Group policies.

See also A 3.2.2

Liquidity and Capital Expenditures of the Bayer Group

A 2.2.4/2

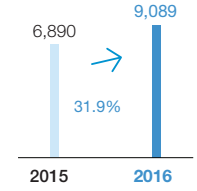
Bayer Group Summary Statements of Cash Flows

€ million	2015	2016	Change %
Net cash provided by (used in) operating activities, continuing operations	**6,836**	**8,259**	**+ 20.8**
Net cash provided by (used in) operating activities, discontinued operations	54	830	.
Net cash provided by (used in) operating activities (total)	**6,890**	**9,089**	**+ 31.9**
Net cash provided by (used in) investing activities (total)	**(2,762)**	**(8,729)**	**.**
Net cash provided by (used in) financing activities (total)	**(3,974)**	**(350)**	**+ 91.2**
Change in cash and cash equivalents due to business activities	**154**	**10**	**– 93.5**
Cash and cash equivalents at beginning of period	**1,853**	**1,859**	**+ 0.3**
Change due to exchange rate movements and to changes in scope of consolidation	(148)	30	.
Cash and cash equivalents at end of period	**1,859**	**1,899**	**+ 2.2**

2015 figures restated

A 2.2.4/3

Cash Inflows from Operating Activities (Total)
€ million



See also A 1.4.2.2

Net cash provided by operating activities

The net cash provided by operating activities (total) rose by 31.9% to €9,089 million due to a significant improvement in EBIT, a sharp decrease in additional cash tied up in working capital, and the cash inflow from the sale of the Diabetes Care business. The net cash provided by operating activities in continuing operations increased by 20.8% to €8,259 million.

Net cash used in investing activities

The net cash outflow for investing activities in 2016 amounted to €8,729 million. Cash outflows for property, plant and equipment and intangible assets were 2.4% higher at €2,578 million (2015: €2,517 million) and included €835 million (2015: €777 million) at Pharmaceuticals, €215 million (2015: €148 million) at Consumer Health, €757 million (2015: €721 million) at Crop Science, €37 million (2015: €41 million) at Animal Health and €415 million (2015: €508 million) at Covestro. Cash outflows for noncurrent and current financial assets, especially for the short-term investment of the cash inflows from the mandatory convertible notes, amounted to €6,335 million (2015: €370 million). Inflows from interest and dividends totaled €89 million (2015: €106 million).

Net cash provided by (used in) financing activities

In 2016 there was a net cash outflow of €350 million for financing activities, including net loan repayments of €730 million (2015: €2,929 million). Net interest payments were 21.8% higher at €794 million (2015: €652 million). The cash outflow for dividends amounted to €2,126 million (2015: €1,869 million). The net cash inflow from the issuance of the mandatory convertible notes amounted to €3,952 million, reported as a €3,300 million capital contribution and a €652 million borrowing. In 2015, the stock market flotation of Covestro resulted in a cash inflow of €1,490 million.

Liquid assets and net financial debt

See also A 2.4

A 2.2.4/4

Net Financial Debt[1]

€ million	Dec. 31, 2015	Dec. 31, 2016	Change %
Bonds and notes / promissory notes	15,547	15,991	+2.9
of which hybrid bonds[2]	4,525	4,529	+0.1
Liabilities to banks	2,779	1,837	–33.9
Liabilities under finance leases	474	436	–8.0
Liabilities from derivatives[3]	753	587	–22.0
Other financial liabilities	369	730	+97.8
Receivables from derivatives[3]	(350)	(313)	–10.6
Financial liabilities	**19,572**	**19,268**	**– 1.6**
Cash and cash equivalents	(1,859)	(1,899)	+2.2
Current financial assets[4]	(264)	(5,591)	.
Net financial debt	**17,449**	**11,778**	**– 32.5**

[1] Net financial debt is not defined in the International Financial Reporting Standards and is calculated as shown in this table.
[2] Classified as debt according to IFRS
[3] These include the market values of interest-rate and currency hedges of recorded transactions.
[4] These include short-term loans and receivables with maturities between 3 and 12 months outstanding from banks and other companies as well as available-for-sale financial assets that were recorded as current on initial recognition.

In 2016, net financial debt of the Bayer Group decreased by €5,671 million. Cash inflows from operating activities and the issuance of the mandatory convertible notes were set against cash outflows for dividends and negative currency effects.

Net financial debt includes three subordinated hybrid bonds with a total volume of €4,529 million, 50% of which is treated as equity by Moody's and S & P Global Ratings. The hybrid bonds thus have a more limited effect on the Group's rating-specific debt indicators than senior debt.

On November 22, 2016, Bayer issued €4,000 million in mandatory convertible notes. After deducting transaction costs and recognition of deferred taxes, €3,491 million was allocated to capital reserves and €652 million to other financial liabilities.

Asset and Capital Structure of the Bayer Group

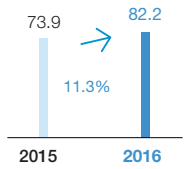
A 2.2.4/5

Bayer Group Summary Statements of Financial Position

€ million	Dec. 31, 2015	Dec. 31, 2016	Change %
Noncurrent assets	**50,096**	**51,791**	**+ 3.4**
Current assets	23,624	30,437	+ 28.8
Assets held for sale	197	10	– 94.9
Total current assets	**23,821**	**30,447**	**+ 27.8**
Total assets	**73,917**	**82,238**	**+ 11.3**
Equity	**25,445**	**31,897**	**+ 25.4**
Noncurrent liabilities	31,492	31,804	+ 1.0
Current liabilities	16,868	18,537	+ 9.9
Provisions directly related to assets held for sale	112	–	– 100.0
Total current liabilities	**16,980**	**18,537**	**+ 9.2**
Liabilities	**48,472**	**50,341**	**+ 3.9**
Total equity and liabilities	**73,917**	**82,238**	**+ 11.3**

A 2.2.4/6

Total Assets
€ billion



Increases in total assets and equity

Total assets as of December 31, 2016, rose by €8.3 billion to €82.2 billion. The increase of €1.7 billion in noncurrent assets to €51.8 billion mainly resulted from an increase in deferred taxes, while other intangible assets declined. Total current assets rose by €6.6 billion to €30.4 billion, primarily due to cash inflows from the issuance of the mandatory convertible notes. Equity advanced by €6.5 billion to €31.9 billion. Net income of €4.5 billion (2015: €4.1 billion) and an increase of €3.5 billion in the capital reserves resulting from the issuance of the mandatory convertible notes were set against a negative effect of €0.8 billion (2015: positive effect of €0.8 billion) – recognized outside profit or loss – from changes in post-employment benefit obligations, and the dividend payment of €2.1 billion (2015: €1.9 billion). The equity ratio (equity coverage of total assets) as of December 31, 2016, was 38.8% (2015: 34.4%). Liabilities rose by €1.9 billion compared with December 31, 2015, to €50.3 billion. Trade accounts payable and other liabilities increased, while financial liabilities declined. The net defined benefit liability for pensions and other post-employment benefits increased by €0.3 billion to €11.1 billion. Losses of €0.8 billion from the reevaluation of the net obligations for defined benefit plans for pensions and other post-employment benefits stood against the contribution by Bayer AG of 4.9% of the outstanding Covestro shares with a value of €0.3 billion to Bayer Pension Trust e.V. and the contribution by Covestro of bonds with a value of €0.5 billion.

Online Annex: A 2.2.4-1

A 2.2.4-1/1

Ratios

		2015	2016
Cost of sales ratio (%)	Cost of goods sold / Sales	45.7	43.4
R & D expense ratio (%)	Research and development expenses / Sales	9.3	10.0
Return on sales in (%)	Income after income taxes / Sales	8.9	10.3
EBIT margin (%)	EBIT / Sales	13.5	15.1
EBITDA margin before special items (%)	EBITDA before special items / Sales	22.3	24.2
Asset intensity (%)	Property, plant and equipment + intangible assets / Total assets	59.1	52.3
Reinvestment ratio (%)	Capital expenditures[1] / Depreciation[1]	153.0	153.5
Liability structure (%)	Current liabilities / Liabilities	35.0	36.8
Gearing	Net debt + pension provisions / Equity	1.1	0.7
Free operating cash flow (€ million)	Net operating cash flow less cash outflows for property, plant and equipment and intangible assets	4,325	5,681
Inventory turnover	Cost of goods sold / Inventories	2.5	2.4
Receivables turnover	Sales / Trade accounts receivable	4.6	4.3
Payables turnover	Cost of goods sold / Trade accounts payable	3.5	3.2
Equity ratio (%)	Equity / Total assets	34.4	38.8
Return on equity (%)	Income after income taxes / Average equity	17.9	16.8
Return on assets (%)	Income before income taxes and interest expense / Average total assets	8.2	8.5

2015 figures restated
[1] Property, plant and equipment

2.3 Earnings; Asset and Financial Position of Bayer AG

Bayer AG performs important management functions for the Group.

As the parent company of the Bayer Group, Bayer AG – represented by its Board of Management – performs the principal management functions for the entire Group. These include strategic planning, resource allocation, executive management and financial management. With the reorganization at the beginning of 2016, the three divisions at Bayer AG also assumed responsibility for managing the operational business. The financial statements of Bayer AG are prepared in accordance with the German Commercial Code (HGB) and Stock Corporation Act (AktG).

2.3.1 Earnings Performance of Bayer AG

A 2.3.1/1

Bayer AG Summary Income Statements according to the German Commercial Code

€ million	2015	2016
Net sales	86	390
Cost of goods sold	(88)	(353)
Gross profit	**(2)**	**37**
Selling expenses	(3)	(39)
Research and development expenses	–	(46)
General administration expenses	(324)	(666)
Other operating income	13	48
Other operating expenses	(86)	(227)
Operating income	**(402)**	**(893)**
Income from investments in affiliated companies – net	2,444	4,647
Interest expense / income – net	(484)	54
Other financial income – net	409	163
Non-operating income	**2,369**	**4,864**
Income taxes	(606)	(371)
Income after taxes / net income	**1,361**	**3,600**
Withdrawal from other retained earnings / allocation to other retained earnings	706	(1,367)
Distributable profit	**2,067**	**2,233**

Significant improvement in net income

The former subsidiaries Bayer HealthCare AG and Bayer Technology Services GmbH were merged into Bayer AG with effect from January 1, 2016. For this reason the operating result, in particular, has only limited comparability with the prior year with respect to both its total amount and the individual components. It came in well below the 2015 level, at minus €893 million. Taking into account the 2015 operating results of the two merged companies totaling minus €199 million, the reference figure for 2015 was minus €601 million. On this basis the operating result therefore declined by €292 million in 2016. Of the latter amount, €198 million was attributable to the first-time recognition by Bayer AG of provisions for impending losses from sales and licensing agreements transferred to Bayer AG effective January 1, 2017, with the businesses leased from Bayer Pharma AG and Bayer CropScience AG. The provisions for the same purpose established by the two subsidiaries were correspondingly reversed and recognized in profit or loss. Other components of the decline in earnings were expenses for various projects, also in connection with the planned acquisition of Monsanto Company, which increased by €74 million.

Income from investments in affiliated companies increased by €2,203 million to €4,647 million. Bayer Pharma AG made the largest contribution to the operating result with significantly improved income of €3,011 million (2015: €1,793 million). The growth in earnings was due to substantial sales increases for the high-margin products Xarelto™ and Adempas™ along with higher income from investments in affiliated companies, lower net interest expense and an improvement in the currency position. Income of Bayer CropScience AG came in slightly ahead of 2015 at €1,017 million (2015: €964 million) despite the absence of the prior year's one-time gains from a patent litigation. Earnings growth was due to an improvement in the gross operating result and a substantial net exchange gain. Significant effects of profit-and-loss transfer agreements were the transfer of a €50 million (€2015: €118 million) loss from Bayer Business Services GmbH and income of €204 million (2015: €149 million) from Siebte Bayer VV GmbH, which receives regular dividend income from a U.S. subsidiary that handles export business in the United States for Bayer Health Care LLC. Apart from profit and loss transfers there was also income of €329 million in 2016 from investments in affiliated companies, including €91 million from Covestro AG, and gains of €130 million from retirements of such investments.

Bayer AG had net interest income of €54 million in 2016, a significant improvement from the net interest expense of €484 million in the previous year. This was almost entirely due to a gain from the measurement of pension provisions and other noncurrent provisions for personnel commitments. Interest-related actuarial gains and fund asset growth overcompensated the expenses for the unwinding of discount on these provisions by €303 million. The net expenses in 2015 amounted to €276 million. Of the remaining €249 million (2015: €208 million) balance of interest expenses and income, €53 million (2015: minus €29 million) was attributable to Group companies and €196 million (2015: €179 million) to third parties, with the creditors of the bonds and commercial paper programs accounting for €189 million (2015: €228 million).

Other financial income and expenses yielded a positive balance of €163 million (2015: €409 million). The decrease was mainly due to the absence of the one-time gain of €217 million incurred in the prior year from the settlement by Covestro Deutschland AG of compensation claims with respect to pension entitlements of former employees. Gains from charging on to other subsidiaries the pension expenses for retirees who remained with Bayer AG following the hive-downs of operating businesses in 2002 and 2003 were substantially lower at only €4 million (2015: €178 million). The decrease was due to the decline in pension expenses, the interest portion of which was reflected in interest expense while the remainder was reflected in other financial income and expenses. Fees for granted credit facilities, which in 2016 pertained mainly to the financing of the planned acquisition of Monsanto, amounted to €57 million (2015: €22 million). Set against this was the result of the translation of foreign currency receivables and payables and the measurement of the relevant derivatives. This amounted to €179 million (2015: €6 million).

Income before income taxes greatly exceeded the prior-year level at €3,971 million (2015: €1,967 million). Tax expense nonetheless declined from €606 million to €371 million due to the absence of the previous year's tax effects resulting from the formation of the Covestro Group and a higher proportion of tax-free income from investments in affiliated companies. After deduction of taxes, net income was €3,600 million (2015: €1,361 million). An allocation of €1,367 million was made to other retained earnings, giving a distributable profit of €2,233 million.

Distributable profit of
€2,233 million

The Board of Management and Supervisory Board will propose to the Annual Stockholders' Meeting on April 28, 2017, that the distributable profit be used to pay a dividend of €2.70 per share (826,947,808 shares) on the capital stock of €2,117 million entitled to the dividend.

2.3.2 Asset and Financial Position of Bayer AG

A 2.3.2/1

Bayer AG Summary Statements of Financial Position according to the German Commercial Code

€ million	Dec. 31, 2015	Dec. 31, 2016
ASSETS		
Noncurrent assets		
Intangible assets, property, plant and equipment	31	58
Financial assets	43,737	49,112
	43,768	49,170
Current assets		
Receivables from subsidiaries	3,159	4,055
Remaining receivables, inventories, other assets	380	2,818
Cash and cash equivalents, marketable securities	629	803
	4,168	7,676
Total assets	**47,936**	**56,846**

A 2.3.2/1 (continued)

Bayer AG Summary Statements of Financial Position according to the German Commercial Code

€ million	Dec. 31, 2015	Dec. 31, 2016
EQUITY AND LIABILITIES		
Equity	**15,032**	**16,565**
Provisions	**2,356**	**1,905**
Other liabilities		
Bonds and notes, liabilities to banks	7,203	6,673
Payables to subsidiaries	22,752	31,146
Remaining liabilities	593	557
	30,548	38,376
Total equity and liabilities	**47,936**	**56,846**

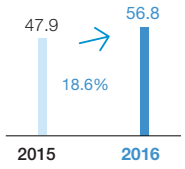
Significant increase in total assets – higher financial debt

See also A 2.3.2/1

The asset and liability structure of Bayer AG is dominated by its role in managing the subsidiaries and financing corporate activities as the parent company of the Bayer Group. This is primarily reflected in the high level of investments in affiliated companies and of the receivables from, and payables to, Group companies.

A 2.3.2/2

Total Assets
€ billion



Total assets of Bayer AG rose by €8.9 billion in 2016 to €56.8 billion. Of the increase, noncurrent assets accounted for €5.4 billion and current assets for €3.5 billion. Property, plant and equipment and intangible assets increased – mainly due to the mergers effected at the start of the year – by €26 million to €58 million, but remained of secondary importance. Financial assets increased by €5.4 billion to €49.1 billion, principally as a result of capital increases at subsidiaries. Investments in affiliated companies continued to account for by far the largest item in total assets, amounting to 84.8% (2015: 89.5%).

Receivables from subsidiaries amounted to €4.1 billion (2015: €3.2 billion), while payables to subsidiaries totaled €31.2 billion (2015: €22.8 billion). These amounts accounted for 7.2% of total assets and 54.9% of total equity and liabilities, respectively. The other receivables reflected in current assets (including deferred charges) increased to €2.8 billion (2015: €0.4 billion), mainly due to investments of €1.9 billion in commercial paper. Cash and cash equivalents also rose due to higher bank deposits, increasing by €174 million to €803 million.

Bayer AG had equity of €16.6 billion (2015: €15.0 billion). The increase represents the excess of the €3,600 million net income for 2016 over the €2,067 million dividend payment for 2015. The equity ratio declined to 29.1% (2015: 31.4%) due to the disproportionate growth in total assets.

Provisions were lower by €0.5 billion at €1.9 billion. The main reason for the decrease was a €665 million decline in pension provisions to €897 million. This was largely the result of higher fund assets, but was also partly attributable to changes in actuarial assumptions regarding the future development of employee compensation and pensions and to a higher discount rate. Provisions for taxes decreased by €123 million to €541 million, while miscellaneous provisions rose by €337 million to €467 million. The main factors here were impending losses from the businesses taken over from Bayer Pharma AG and Bayer CropScience AG by way of business leases as of January 1, 2017, and higher personnel commitments resulting from the mergers with Bayer HealthCare AG and Bayer Technology Services GmbH.

Other liabilities rose by €7.8 billion to €38.4 billion (net of deductible receivables). Financial debt, in particular, increased by €6.2 billion, partly due to the financing for the planned acquisition of Monsanto Company. Whereas external debt in the form of bonds and commercial paper was reduced by €0.6 billion and €0.3 billion, respectively, borrowings from Group companies increased by €7.0 billion. Total financial debt at year end 2016 was €36.5 billion (2015: €30.3 billion). After deduction of cash and cash equivalents of €0.8 billion (2015: €0.6 billion), net debt rose by €6.0 billion to €35.7 billion (2015: €29.7 billion).

2.4 Alternative Performance Measures Used by the Bayer Group

The Combined Management Report and the consolidated financial statements of the Bayer Group are prepared according to the applicable financial reporting standards. In addition to the disclosures and metrics required by these standards, Bayer publishes alternative performance measures (APMs) that are not defined or specified in these standards and for which there are no generally accepted reporting formats. Bayer determines APMs to enable the comparison of performance indicators over time and against those of other companies in its industry sector. These APMs are calculated by making certain adjustments to items in the statement of financial position or the income statement prepared according to the applicable financial reporting standards. Such adjustments may result from differences in calculation or measurement methods, nonuniform business activities or special factors affecting the information value of these items. The APMs determined in this way apply to all periods and are used both internally for business management purposes and externally by analysts, investors and rating agencies to assess the company's performance. Bayer determines the following APMs:

See also "About this Report" and Note 2 to B Consolidated Financial Statements

- Change in sales (reported, currency-adjusted, currency- and portfolio-adjusted)
- EBIT
- EBITDA
- EBIT before special items
- EBITDA before special items
- EBITDA margin before special items
- Core earnings per share
- Net financial debt
- Return on capital employed (ROCE)
- Net operating profit after tax (NOPAT)
- Capital employed
- Total operating performance
- Value creation
- Cost of materials / other expenses
- Other balance sheet and financial indicators

Online Annex A 2.4-1

In addition to the alternative performance measures listed, it is possible to determine balance sheet and financial indicators which help to analyze the Bayer Group's sales, earnings and financial position. Some customary indicators and the associated calculation methods are shown in Graphic 2.2.4-1/1.

See also A 2.2.4

The **(reported) change in sales** is a relative indicator. It shows the percentage by which sales varied from the previous year.

The **currency-adjusted** or **currency- and portfolio-adjusted change in sales** shows the percentage change in sales excluding the impact of exchange rate effects and disregarding the acquisitions and divestments material to each business entity. Exchange rate effects are generally calculated on the basis of the functional currency valid in the respective country. Exceptions exist in Brazil and Argentina, primarily at Crop Protection, where the respective functional currencies are restated in U.S. dollars for business reasons.

EBIT (earnings before interest and taxes) serves to present a company's operating result while eliminating the effects of differences among local taxation systems and different financing activities. EBIT is calculated as follows:

A 2.4/1

	Reconciliation to EBIT
	Income before income taxes
+/–	Financial result (net income / loss from investments accounted for using the equity method, financial income and expenses)
=	**EBIT**

EBITDA stands for earnings before interest, taxes, depreciation and amortization. This performance indicator neutralizes the effects of the financial result along with distortions of operational performance that result from divergent depreciation and amortization methods and the exercise of measurement discretion. EBITDA is EBIT plus the amortization of intangible assets and the depreciation of property, plant and equipment, plus impairment losses and minus impairment loss reversals, recognized in profit or loss during the reporting period.

A 2.4/2

	Reconciliation to EBITDA
	EBIT
+/–	Depreciation and amortization / impairment losses / impairment loss reversals on property, plant, equipment and intangible assets (as per Statements of Cash Flows)
=	**EBITDA**

EBIT before special items and **EBITDA before special items** show the development of the operational business irrespective of the effects of special items, i.e. special effects for the company with regard to their nature and magnitude. These may include litigations, restructuring, integration costs, impairment losses and impairment loss reversals. EBIT before special items and EBITDA before special items are each determined by adding special charges and subtracting special gains.

The EBITDA margin before special items is a relative indicator used by Bayer for internal and external comparisons of operational performance. It is the ratio of EBITDA before special items to net sales.

See also A 2.2.1

Core earnings per share (core EPS) is an APM based on the **earnings per share (EPS)** for the Group as defined in IAS 33. Core earnings per share are determined by neutralizing effects of the purchase price allocations for acquisitions and other special factors to enable a comparison of performance over time. In an intermediate step, further APMs – **core EBIT** and **core net income** – are calculated. Core earnings per share are then calculated by dividing core net income per share by the weighted average number of shares in circulation during the year.

A 2.4/3

	Reconciliation to Core Earnings per Share
	EBIT (as per Income Statements)
+/–	Amortization / impairment losses / impairment loss reversals on intangible assets
+/–	Impairment losses / impairment loss reversals on property, plant and equipment
+/–	Special items (excluding depreciation and amortization / impairment losses / impairment loss reversals)
=	**Core EBIT**
+/–	Financial result (as per Income Statements)
+/–	Special items in the financial result
+/–	Income taxes (as per Income Statements)
+/–	Special items in income taxes
+/–	Tax effects relating to depreciation and amortization / impairment losses / impairment loss reversals and special items
+/–	Income after income taxes attributable to noncontrolling interest (as per Income Statements)
+/–	Portion of the above-mentioned adjustments attributable to noncontrolling interest
=	**Core earnings from continuing operations**
/	Weighted average number of shares
=	**Core earnings per share from continuing operations (core EPS)**

As core earnings per share are calculated for each interim reporting period, core earnings per share for the fiscal year or for each interim reporting period up to the respective closing date may deviate from the cumulated core earnings per share for the individual interim reporting periods.

See also A 2.2.3

Core earnings per share from continuing or discontinued operations are similarly determined. Core earnings per share form the basis of the Bayer Group's dividend policy.

Net financial debt is an important financial management indicator for the Bayer Group and is used both internally and externally in assessing its liquidity, capital structure and financial flexibility. This metric is calculated as follows:

See also A 2.2.4

A 2.4/4

	Reconciliation to Net Financial Debt
	Bonds and notes / promissory notes
+	Liabilities to banks
+	Liabilities under finance leases
+	Liabilities from derivatives [1]
+	Other financial liabilities
–	Receivables from derivatives [1]
=	**Financial liabilities**
–	Cash and cash equivalents
–	Current financial assets [2]
=	**Net financial debt**

[1] These include the market values of interest-rate and currency hedges of recorded transactions.
[2] These include short-term loans and receivables with maturities between 3 and 12 months outstanding from banks and other companies as well as available-for-sale financial assets that were recorded as current on initial recognition.

The **return on capital employed (ROCE)** is the ratio of **net operating profit after tax (NOPAT)** to the average **capital employed**. NOPAT represents the operating result after taxes and is calculated by subtracting income taxes from EBIT. Income taxes are calculated by multiplying EBIT by a uniform tax rate of 24%, which is based on a historical average of tax rates. The capital employed by Bayer is the total carrying amount of operational noncurrent and current assets, minus liabilities that are largely non-interest-bearing in character or would distort the capital base. An average value, calculated from the values at the end of the prior year and of the reporting year, is used to depict the change in capital employed during the year. The components of the capital employed are as follows:

A 2.4/5

Components of capital employed

€ million	Dec. 31, 2015	Dec. 31, 2016
Goodwill	16,054	16,312
Other intangible assets	15,171	13,567
Property, plant and equipment	12,369	13,114
Other financial assets [1]	67	58
Inventories	8,493	8,408
Trade accounts receivable	9,888	10,969
Other receivables [1]	2,042	1,701
Deferred tax assets [1]	1,295	2,596
Claims for income tax refunds	509	676
Gross capital employed	**65,888**	**67,401**
Other provisions [1]	(6,713)	(7,039)
Trade accounts payable	(5,909)	(6,410)
Other liabilities [1]	(2,272)	(2,695)
Financial liabilities [1]	(13)	–
Deferred tax liabilities [1]	(804)	(1,252)
Income tax liabilities	(1,320)	(1,307)
Capital employed	**48,857**	**48,698**
Average capital employed 2016		**48,777**

2015 figures restated
[1] Selected items of the component: nonoperative or non-interest-bearing items eliminated within capital employed

The **total operating performance** is the sum of net sales, other operating income, financial income and the net income / loss from investments accounted for using the equity method. It is divided between depreciation, amortization, impairment losses and impairment loss reversals, the cost of materials / other expenses and value added. **Value added** is defined as the sum of EBIT plus personnel expenses and tax expenses not related to income taxes, and the financial result plus interest expense. The **cost of materials / other expenses** includes all expenses except depreciation, amortization, impairment losses and impairment loss reversals as well as those incorporated in the value added.

3. Report on Future Perspectives and on Opportunities and Risks

3.1 Future Perspectives

3.1.1 Economic Outlook

A 3.1.1/1

Economic Outlook

	Growth[1] 2016	Growth forecast[1] 2017
World	+2.5%	+2.8%
European Union	+1.9%	+1.6%
of which Germany	+1.8%	+1.9%
United States	+1.6%	+2.3%
Emerging markets[2]	+3.8%	+4.0%

Growth 2016 restated
[1] Real growth of gross domestic product, source: IHS Global Insight
[2] Including about 50 countries defined by IHS Global Insight as emerging markets in line with the World Bank
As of February 2017

Slight increase in the pace of global economic development

The global economy will probably grow somewhat more quickly overall in 2017 than in the previous year. In the United States, particularly, we expect better economic development than in 2016. Private consumption will likely remain a key growth driver, as employment and disposable income will probably continue to increase. Positive stimulus will presumably also come from corporate investment. We expect a slight decline in growth in the European Union. Against the background of important elections in a number of countries, uncertainty over the future political development in Europe in particular is likely to hamper growth. In addition, there are unknowns associated with the United Kingdom's exit from the European Union. On the other hand, we expect the expansionary monetary policy of the European Central Bank to have a continued positive impact. Economic output in the Emerging Markets will probably pick up overall compared with the previous year. We expect strong growth in China but at a slightly slower pace. Supported by rising raw material prices, Brazil and Russia will likely return to the growth zone after severe recession.

Moderate to declining industry forecasts

A 3.1.1/2

Economic Outlook for the Segments

	Growth[1] 2016	Growth forecast[1] 2017
Pharmaceuticals market	+6%	+4%
Consumer health market	+4%	+3-4%
Seeds and crop protection market	–1%	+1%
Animal health market	+5%	+5%

[1] Bayer's estimate; except pharmaceuticals. Source for pharmaceuticals market: IMS Health. IMS Market Prognosis. Copyright 2016. All rights reserved; currency-adjusted; 2017 data provisional
As of February 2017

We expect growth in the **pharmaceuticals market** to decline to 4% in 2017. This expectation is based on the assumption of continued positive stimulus from the United States. We anticipate low-single-digit percentage growth in Europe.

We also anticipate that growth of the **consumer health market** in 2017 will be roughly level with the previous year, at 3 to 4%. We expect similar market conditions to 2016.

We predict that the environment for the world **seed and crop protection market** will remain volatile in 2017 after a weak prior year. Growth stimuli are expected to come from Latin America, the Asia / Pacific region and Eastern Europe. In North America and Western Europe, on the other hand, the pace of growth will presumably lag behind global development. Overall we anticipate a slight recovery in the market as a whole.

Based on the continued positive development of innovative products in the **animal health market**, we expect the growth trend to continue in 2017. In the companion animals business, a positive performance is expected particularly in the United States and Europe. In the farm animals business, we expect the pace of growth in the Emerging Markets to pick up again slightly.

For 2017, Covestro expects a continuation of the growth trend in its **main customer industries** construction, electrical engineering & electronics, and furniture. However, growth in the automotive industry will likely be far weaker than in the previous year.

3.1.2 Corporate Outlook

The following forecast is based on the current business development, taking into account the potential risks and opportunities. It is based on the exchange rates at the closing date on December 31, 2016, including rates of US$1.05 to the euro. A 1% appreciation (depreciation) of the euro against all other currencies would decrease (increase) sales on an annual basis by some €300 million and EBITDA before special items by about €80 million.

Sales to rise to more than €49 billion in 2017 after €46.8 billion in 2016

See also A 2.4

The Board of Management expects the positive development of the Bayer Group to continue in fiscal 2017. Sales of the Bayer Group including Covestro are targeted to increase to more than €49 billion. This corresponds to a low- to mid-single-digit percentage increase on a currency- and portfolio-adjusted basis. EBITDA before special items is forecast to grow by a mid-single-digit percentage. We aim to grow core earnings per share from continuing operations by a mid-single-digit percentage as well. It should be noted that only 64% of Covestro will be reflected for the full year 2017. In addition, it should be noted that the weighted average number of shares has increased following the placement of the mandatory convertible notes in November 2016.

Sales and earnings forecast by segment

We plan sales of approximately €37 billion for the **Life Science** businesses. This corresponds to a mid-single-digit percentage increase on a currency- and portfolio-adjusted basis. EBITDA before special items is targeted to rise by a mid- to high-single-digit percentage.

At **Pharmaceuticals**, we expect sales of more than €17 billion. This corresponds to a mid-single-digit percentage increase on a currency- and portfolio-adjusted basis. We plan to raise sales of our key growth products Xarelto™, Eylea™, Stivarga™, Xofigo™ and Adempas™ to more than €6 billion. We expect a high-single-digit percentage increase in EBITDA before special items. We aim to improve the EBITDA margin before special items.

In the **Consumer Health** segment, we expect sales to come in at more than €6 billion. In line with anticipated market development, we plan to grow sales by a low- to mid-single-digit percentage on a currency- and portfolio-adjusted basis. We expect EBITDA before special items to increase by a low- to mid-single-digit percentage.

For **Crop Science** we are assuming sales of more than €10 billion. This corresponds to a low-single-digit percentage increase on a currency- and portfolio-adjusted basis. We expect EBITDA before special items to be at the prior-year level.

In the **Animal Health** segment, we expect a currency- and portfolio-adjusted increase in sales by a low- to mid-single-digit percentage. We plan to raise EBITDA before special items by a high-single-digit percentage.

For the **Reconciliation**, we expect sales of around €1 billion in 2017. We plan EBITDA before special items in the region of minus €0.2 billion.

For 2017, **Covestro** is budgeting a sales increase. EBITDA after adjustment for special items should be on or above the prior-year level.

Development of further key data

Net financial debt is targeted to improve to around €10 billion.

In 2017, we expect to take special charges in EBITDA in the region of €0.5 billion for the Bayer Group as a whole. Most of this amount is accounted for by costs in connection with the agreed acquisition of Monsanto and with restructuring and efficiency improvement measures. We aim to increase research and development spending to €4.8 billion. Capital expenditures will amount to about €2.5 billion for property, plant and equipment and around €0.4 billion for intangible assets. Depreciation and amortization are estimated at about €2.9 billion, including €1.4 billion in amortization of intangible assets. We also predict a financial result of around minus €1.4 billion. The effective tax rate is likely to be about 23%. Excluding capital and portfolio measures, net financial debt is targeted to be around €10 billion at the end of 2017.

Outlook for Bayer AG

On the basis of the business operating leases with Bayer Pharma AG and Bayer CropScience AG that came into effect at the start of 2017, the operational business of these two entities has been transferred to Bayer AG. As a result, the sales of these two entities now accrue to Bayer AG, for which we are predicting sales of more than €14 billion. The budgeted positive earnings of the Pharmaceuticals and Crop Science segments in 2017 will also accrue directly to Bayer AG as a result of the business operating leases. In addition, the earnings of most major Bayer subsidiaries in Germany are transferred directly to Bayer AG under profit and loss transfer agreements. Also, specific intra-company dividend measures ensure the availability of sufficient distributable income. Business development at Bayer AG is subject in principle to the same risks and opportunities as that of the Bayer Group. On account of the interdependencies between Bayer AG and its subsidiaries, the outlook for the Bayer Group thus largely also reflects the expectations for Bayer AG. Therefore, the forecast for the Bayer Group outlined above applies equally to Bayer AG. In the coming year, based on these factors, we expect Bayer AG to report a distributable profit that will again enable our stockholders to adequately participate in the Bayer Group's earnings.

3.2 Opportunity and Risk Report

3.2.1 Group-wide Opportunity and Risk Management System

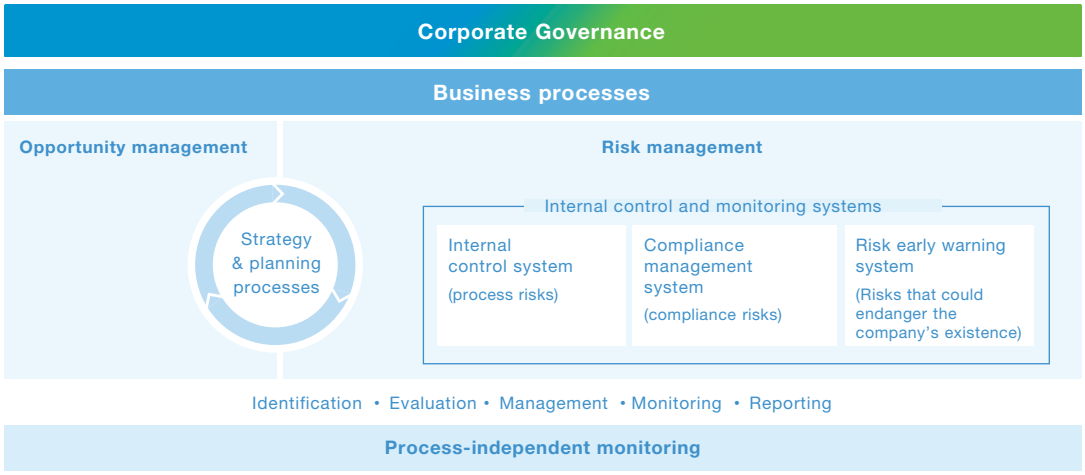
As a global enterprise with a diversified portfolio, the Bayer Group is constantly exposed to a wide range of internal or external developments and events that could significantly impact the achievement of our financial and nonfinancial objectives. Rooted in our strategy and planning processes, opportunity and risk management is an integral part of corporate management at Bayer. We regard opportunities as positive deviations, and risks as negative deviations, from projected or target values for potential future developments. Opportunity and risk management at Covestro has a similar structure to that of Bayer.

Structure of opportunity and risk management

The opportunities and risks the Bayer Group encounters vary in terms of their nature, the organizational level concerned and the time horizon. Different processes, methods and IT systems are therefore employed to identify, evaluate, manage and monitor risks and report on them. The principles underlying the various systems are documented in Group policies. While there are still named owners and coordinators at the management level, overall responsibility for the effectiveness and appropriateness of the systems lies with the Chief Financial Officer.

A 3.2.1/1

Corporate Governance



From identification to monitoring

Bayer continuously identifies opportunities and risks by observing macroeconomic, industry-specific, regional and local developments and analyzing trends. The opportunities and risks identified are then evaluated. We attempt to avoid or mitigate risks by taking appropriate countermeasures, or to transfer them to third parties (such as insurers) to the extent possible and economically acceptable. We consciously accept and bear manageable and controllable risks that stand in a reasonable relation to the anticipated opportunities – as an aspect of general entrepreneurial risk.

We have established and documented specific processes to manage financial opportunities and risks. One component is financial planning, which serves as the basis for determining the liquidity risk and the future foreign currency and interest-rate risks and includes all Group companies that are relevant from a cash flow perspective. Financial planning covers a twelve-month planning horizon and is regularly updated.

Opportunity management

We identify opportunities as part of the annual strategic planning cycle, during which the segments analyze internal and external factors that may positively affect the development of our business. These may be factors of a social, economic or environmental nature. The core phase of our strategic planning process normally takes place in the first half of the year and starts with a comprehensive analysis of the markets. The segments build on this by analyzing their respective market environments to identify their opportunities. They base these analyses on different time periods to take into account the fact that trends may affect developments over the short, medium or long term.

Risk management

To enable the Board of Management and the Supervisory Board to monitor material business risks as required by law, the Bayer Group has implemented an internal control system, a compliance management system and a risk early warning system. Covestro's risk management also comprises these three components. ICS-related matters are regularly reported to the Chief Financial Officer of Covestro AG, who also chairs Covestro's Compliance Committee and Corporate Risk Committee. The three systems in place at Bayer are described on the next page.

Internal control system for (Group) accounting and financial reporting

(Report pursuant to Sections 289, Paragraph 5 and 315, Paragraph 2, No. 5 of the German Commercial Code)

As part of the comprehensive risk management system, Bayer has an internal control system (ICS) in place for the (Group) accounting and financial reporting process. This process comprises defined structures and workflows implemented throughout the organization. The purpose of our ICS is to ensure proper and effective accounting and financial reporting in accordance with Section 289, Paragraph 5 and Section 315, Paragraph 2, No. 5 of the German Commercial Code. The ICS is designed to guarantee timely, uniform and accurate accounting for all business processes and transactions based on applicable statutory regulations, accounting and financial reporting standards and the internal Group policies that are binding upon all consolidated companies. Risks are identified and evaluated, and steps are taken to counter them. Mandatory ICS standards such as system-based and manual reconciliation processes and functional separation have been derived from these frameworks and promulgated throughout the Group by the Risk Management function on behalf of the Chief Financial Officer of Bayer AG. The management of each Group company holds responsibility for implementing the ICS standards at the local level. Using Bayer's shared service centers, the Group companies prepare their financial statements locally and transmit them with the aid of a standard Group data model that is based on the Group accounting policy. This ensures the regulatory compliance of the consolidated financial statements. The Board of Management has confirmed the effective functioning of the internal control system for accounting and financial reporting and the relevant criteria for the 2016 fiscal year. However, it should be noted that an internal control system, irrespective of its design, cannot provide absolute assurance that material misstatements in the financial reporting will be avoided or identified.

Compliance management system

See also A 4.2

Our compliance management system is aimed at ensuring lawful, responsible and sustainable conduct by our employees. It is designed to identify potential violations in advance and systematically prevent their occurrence. The compliance management system thus contributes significantly to the integration of compliance into our operating units and their processes. Bayer has implemented an integrated compliance management system for material risk areas worldwide to strengthen the systematic and preventive identification and evaluation of risks. Risks are identified both from the bottom up via the country organizations and from the top down via the global functions, taking global, local and business-specific aspects into account. Additionally, compliance risks are identified by performing a trend analysis based on compliance cases reported from around the world. The findings are discussed by the local business units, the local compliance functions and representatives of the central functions at a round table and are entered into a Group-wide compliance risk management database.

Risk early warning system

We have established a process known as BayRisk as an early warning system pursuant to Section 91, Paragraph 2 of the German Stock Corporation Act to identify at an early stage any developments that are material and/or could endanger the company's continued existence. The process owner is the risk management department, which reports directly to the Chief Financial Officer. This establishes a consistent framework and uniform standards for the risk early warning system throughout the Group. The segments, service companies and central functions are included in this system so that corporate risks are captured as fully as possible. The early identification, evaluation, management and reporting of risks is the responsibility of named risk officers.

The BayRisk database maps the Group's risks – together with the respective countermeasures – that exceed defined, annually updated financial value thresholds as well as risks that are materially relevant for the company but from a financial point of view may not be directly or reliably quantifiable, if at all. The risk portfolio is reviewed three times a year. Significant changes are documented and reported to the Chief Financial Officer. A report on the risk portfolio is submitted to the Supervisory Board once a year.

Process-independent monitoring

The effectiveness of our management systems is audited and evaluated at regular intervals by Internal Audit, which has an independent and objective audit function focused on compliance with laws and internal policies. Risks in the areas of occupational health and safety, plant safety, environmental protection and product quality are assessed by dedicated HSEQ audits.

During the audit of the annual financial statements, the external auditor assesses the fundamental suitability of the early warning system to identify at an early stage any risks that could endanger the company's continued existence. A report on the internal control and monitoring systems and their effectiveness is presented annually to the Supervisory Board. Any weaknesses identified in the internal control system must be reported to the Board of Management and the Supervisory Board. The audit outcomes are used in the continuous improvement of our management and business processes.

3.2.2 Opportunity and Risk Status

We classify the risks identified by the risk early warning system as high, medium or low – depending on the potential loss or damage and the probability of occurrence – according to the following matrix.

A 3.2.2/1

Risk Rating Matrix According to Financial Criteria

	Likelihood of occurrence		
	Low	Medium	High
Cumulative impact (€ million)			
> 1,250	H	H	H
500 – 1,250	M	M	H
< 500	L	L	L

H = high risk, M = medium risk, L = low risk

Here we report the risks classified as "medium" or "high" along with the material opportunities identified by our opportunity management. In addition, we report significant risks that from a financial point of view may not be directly or reliably quantifiable, if at all. Comparable risks existing in different parts of the company are aggregated in some cases. The order in which the risks are listed does not imply any order of importance. The opportunities and risks described may apply to all segments unless otherwise indicated. The impact on the Bayer Group of risks attaching to Covestro is affected by the size of Bayer's shareholding. Comprehensive information on Covestro's opportunity and risk status is provided in the current opportunity and risk report forming part of the management report of Covestro AG.

Corporate environment

Ethical conduct is a matter of essential importance for society. The Bayer Group is dedicated to sustainable development in all areas of its commercial activity. This voluntary commitment is reflected in our responsible corporate governance.

See also A 1.2

Opportunities arising from macrotrends

The increase in quality of life and life expectancy is leading to a heightened focus on the medical care needs of elderly patients. Our concentration on certain partly age-related diseases such as cancer or chronic cardiovascular disorders harbors opportunities for us. In response to the growing demand for innovative health care products to treat age-related diseases, Bayer's Pharmaceuticals segment is concentrating its research and development activities on relevant therapeutic areas such as oncology and cardiology.

The opportunities for our agricultural businesses arise from global population growth and the increasing demand for food. In addition, consumer behavior in some regions is shifting toward higher demand for food products of animal origin. Agricultural productivity therefore needs to increase in view of declining per-capita acreages, the challenges presented by climate change, and increasing pesticide resistance. We expect the demand for high-value seed and crop protection products to rise in light of the need to produce sufficient food and animal feed to meet the growing demand in spite of limited acreages. In response, Crop Science is developing processes to more effectively protect plants against climatic and environmental stress and raise crop yields, for example.

Economic environment

There is a risk that our growth could be impeded by increasing global cost pressure on health care systems. The prices of pharmaceutical products are subject to regulatory monitoring and control in many markets, and government reimbursement systems often favor less expensive generic medicines over branded products. In addition, in some markets, major health care providers can exert substantial pressure on prices. Price controls and pricing pressure reduce earnings from our pharmaceutical products and may occasionally make the market launch of a new product unprofitable. As a result, it may be necessary to choose indirect marketing options in order to provide access to pharmaceuticals. We expect the current extent of regulatory controls and pricing pressure to persist or increase. A further factor is that our Life Science businesses operate in highly competitive markets. Corporate mergers, along with business practices such as aggressive pricing strategies – not only in the field of generic competition – may adversely affect our earnings.

However, the pressure on health care systems also presents us with opportunities in the area of nonprescription medicines. Patients are sometimes directed toward non-reimbursable, nonprescription medicines, some of which are manufactured in Bayer's Consumer Health segment. Moreover, the consumption of health products is increasing due to the aging population.

Modern agricultural methods, the application of certain classes of crop protection products and the use of genetic engineering are repeatedly the subject of intense public debate. This political opinion-forming may yield legislative and regulatory decisions that significantly limit the use of our products or even result in voluntary or mandated product withdrawals. In addition, decisions by the European Union, for example, also affect agricultural imports from other parts of the world and therefore our business in those regions. For these reasons we are engaged in a constant dialogue with interest groups and regulators to promote a scientifically founded, rational and responsible discussion and decision-making process.

In the Crop Science segment, risks may arise from seasonal fluctuations in the weather, market volatility for agricultural products and our customers' financial situations, for example. These may adversely affect both our crop protection and our seeds businesses.

The current global consolidation process in the seeds and crop protection industry could greatly alter our future competitive environment. We are responding to this trend with acquisitions, collaborations and the expansion of in-house research and development capacities.

Negative economic developments generally have an adverse effect on the sales markets for Covestro's products, usually leading to lower sales volumes and a drop in the company's operational earnings. The extent of these effects on volumes and the operating result also depend on capacity utilization in the industry, which in turn varies according to the supply-demand ratio for industry-specific products. A decline in demand leads to lower sales volumes and ultimately to lower capacity utilization, which adversely impacts margins.

See also A 3.1

Further opportunities and risks may arise if the future economic development of our markets varies from our estimates. If macroeconomic development is out of line with forecasts, this may positively or negatively impact our sales and earnings expectations.

Continuous analysis of the economic and regulatory environment and of economic forecasts enables us to pursue the opportunities we identify and address risks. We also closely monitor political developments in key markets.

Innovation

See also A 1.3

We believe that our innovation strength holds opportunities both for the continued development of our brands and for the expansion of the research pipeline in all of our businesses. In the Pharmaceuticals segment, opportunities are inherent in the digitization taking place along the entire value chain – from new, time-saving and efficiency-enhancing research and development methods to new technologies that give us access to innovative business models. In Consumer Health, digital platforms for products and services are opening up new potential for us alongside the conventional business with nonprescription medicines. In the Crop Science segment, the digitization of agriculture presents a major opportunity for achieving greater efficiency and sustainability. We also rely on networking, both within the company and with external partners, to boost our innovation strength. This stimulates the development of new products in the long term. Despite all our efforts, we cannot assure that all of the products we are currently developing or will develop in the future will achieve planned approval / registration or commercial success. For example, a drug candidate may fail to meet trial endpoints. The Bayer Group seeks to counter this risk by way of holistic portfolio management in order to estimate the probability of success and prioritize its development projects.

There is steady growth in public and regulatory expectations with regard to the safety and efficacy of chemical, biological and pharmaceutical products so we continue to anticipate increasing regulatory requirements for clinical or (eco)toxicological studies, for example. This leads to higher product development costs and longer timeframes. Projects are set up to coordinate the proper implementation of new regulatory requirements.

Acquisitions

Where it appears strategically advantageous, we supplement our organic growth by acquiring companies or parts of companies. The integration of new businesses has contributed to our success in the past and will result in opportunities in the future as well. However, failure to successfully integrate a newly acquired business or unexpectedly high integration costs, for example, could jeopardize the achievement of qualitative or quantitative targets and adversely impact earnings. In the course of due diligence and throughout the subsequent integration process, we seek to identify and classify the potential risks of an acquisition target such as compliance with applicable environmental regulations and occupational health and safety standards at production sites.

See also A 1.2

In connection with the acquisition of Monsanto, the merger agreement provides for payment by Bayer of a US$2 billion reverse break fee including, in particular, in the event that the necessary antitrust approvals are not granted by June 14, 2018, and Bayer or Monsanto therefore terminates the merger agreement. Further risks that may arise in connection with the agreed acquisition of Monsanto are described in Chapter 3.2.3.

See also A 3.2.3

Collaborations

We have collaborations in place along the value chain of our products. Suboptimum performance by collaboration partners may affect the development, manufacture or marketing of our products and services and adversely impact our business. In some countries, for example, the marketing rights for certain pharmaceutical products are held by third parties. Inadequate performance by these marketing partners could adversely affect the development of our sales and costs. Therefore, we have established an Alliance Management unit to monitor the most important collaborations and provide relevant support to the operational functions.

Patent protection

Patents protect our intellectual property. The Bayer Group, now as in the past, has a portfolio that largely consists of patent-protected products. When our products are successfully commercialized, some of the profits can be used to continue investing in research and development. Due to the long period of time between the patent application and the market launch of a product, Bayer generally only has a few years in which to earn an adequate return on its investment in research and development. This makes effective and reliable patent protection all the more important. Generic manufacturers, in particular, attempt to contest patents prior to their expiration. Sometimes a generic version of a product may even be launched “at risk” prior to the issuance of a final patent decision. We are currently involved in legal proceedings to enforce patent protection for our products. When a patent defense is unsuccessful, or if one of our patents expires, our prices are likely to come under pressure because of increased competition from generic products entering the market. Legal action by third parties for alleged infringement of patent or proprietary rights by Bayer may impede or even halt the development or manufacturing of certain products or require us to pay monetary damages or royalties to third parties. Our patents department regularly reviews the patent situation in collaboration with the respective operating units and monitors for potential patent infringements so that legal action can be taken if necessary.

See also Note 32 to B Consolidated Financial Statements

Products and product stewardship

Bayer evaluates the potential health and environmental risks of a product along the entire value chain. Despite extensive studies prior to approval or registration, it is possible that products could be partially or completely withdrawn from the market due to the occurrence of unexpected side effects or other factors. Such a withdrawal may be voluntary or result from legal or regulatory measures. Furthermore, the presence of traces of unwanted genetically modified organisms in agricultural products and/or foodstuffs cannot be entirely excluded. Potential payments of damages in connection with the above risks may have a substantial negative impact on our earnings. Our businesses counter these risks through their organizational and operational structure in the areas of pharmaceutical and crop protection product safety and testing. In addition, Crop Science has a comprehensive stewardship program in place. Stewardship refers to the responsible and ethical management of products over their entire life cycles.

See also A 1.4.3.1

Another risk we face is that of illegal trading in counterfeit medicines and crop protection products by criminal third parties. In most cases, the composition and the quality of counterfeit products do not correspond to those of the original products. In addition, the fact that no local regulatory authority is involved in assuring the quality of the manufacturing or distribution process precludes any official product recall. Products originating from illegal third-party manufacturing not only endanger patients, users, animals and the environment, but also jeopardize the good reputation of our company and products and undermine our competitive position. Bayer actively assists authorities' efforts to combat product counterfeiting by adopting preventive measures and prosecuting offenders.

Procurement and production

See also A 1.4.2.1, A 1.4.2.2

Our Supplier Code of Conduct includes legal and ethical standards to which Bayer attaches the utmost importance. Violations of the Code may also harm our company's reputation. On the basis of supplier assessments and audits, we verify whether our partners along the supply chain actually comply with our Code of Conduct.

www.bayer.com/en/supplier-code-of-conduct.aspx

We attach great importance not only to product safety but also to protecting our employees and the environment. Risks associated with the manufacturing, filling, storage or shipping of products are mitigated by means of integrated HSEQ management. The materialization of such risks may result in personal injury, property and environmental damage, loss of production, business interruptions and / or liability for compensation payments.

Despite all precautions, operations at our sites may be disrupted by natural disasters, fires or explosions, sabotage or supply shortages for our principal raw materials or intermediates. This also applies to external partners along the value chain. Disruption may also result from possible regulatory or legislative changes in the respective countries. If we are unable to meet demand for our products, sales may undergo a structural decline. We counter this risk by distributing production for certain products among multiple sites or by building up safety stocks. Furthermore, an emergency response system based on the respective Corporate Policy has been implemented at all our production sites as a mandatory component of our HSEQ management.

Employees

See also A 1.4.1

Skilled and dedicated employees are essential for the company's success. There is keen competition among companies for highly qualified personnel, particularly in countries with full employment and in the emerging economies of Asia and Latin America. If we are unable to recruit a sufficient number of employees in these countries and retain them within Bayer, this could have significant adverse consequences for the company's future development. Based on our analysis of future requirements, we design appropriate employee recruitment and development measures. In addition, our employee diversity policy enables us to tap the full potential of the employment market. In times of considerable strategic and organizational change at Bayer, deliberate and transparent change management forms an integral part of our human resources management, enabling us to constantly motivate our employees.

Information technology

Business and production processes and the internal and external communications of the Bayer Group are increasingly dependent on global IT systems. A significant technical disruption or failure of IT systems could severely impair our business and production processes. Technical precautions such as data recovery and continuity plans are defined and continuously evolved in close cooperation with our internal IT organization. The confidentiality of internal and external data is of fundamental importance to Bayer. A loss of data confidentiality, integrity or authenticity could lead to manipulation and / or the uncontrolled outflow of data and know-how. We have measures in place to counter this risk, including an authorization system. Furthermore, a committee has been established to determine the fundamental strategy, architecture and safety measures for the Bayer Group. Through these measures, we aim to provide optimum protection based on state-of-the-art technology.

Law and compliance

The Bayer Group is exposed to risks from legal disputes or proceedings to which we are currently a party or which could arise in the future, particularly in the areas of product liability, competition and antitrust law, anticorruption law, patent law, tax law and environmental protection. Investigations of possible legal or regulatory violations, such as potential infringements of antitrust law or certain marketing and / or distribution methods, may result in the imposition of civil or criminal penalties – including substantial monetary fines – and / or other adverse financial consequences, harm Bayer's reputation and ultimately hamper our commercial success. Bayer has established a global compliance management system to ensure the observance of laws and regulations.

See also A 3.2.1, A 4.2 and Note 32 to B Consolidated Financial Statements

Tax risks

Bayer AG and its subsidiaries operate worldwide and are thus subject to many different local tax laws and regulations. Bayer Group companies are regularly audited by the tax authorities in various countries. Amendments to tax laws and regulations, legal judgments and their interpretation by the tax authorities, and the findings of tax audits in these countries may result in higher tax expense and payments, thus also influencing the level of tax receivables, tax liabilities and deferred tax assets and liabilities.

Financial opportunities and risks

The Bayer Group sees financial opportunities in the market prices it can command, and is exposed to financial risks in the form of liquidity, credit and market price risks, as well as risks resulting from pension obligations.

Liquidity risk

Liquidity risks result from the possible inability of the Bayer Group to meet current or future payment obligations due to a lack of cash or cash equivalents. The liquidity risk is determined and managed by the Finance department as part of our same-day and medium-term liquidity planning. The Bayer Group holds sufficient liquidity to ensure the fulfillment of all planned payment obligations at maturity. In addition, a reserve is maintained for unbudgeted shortfalls in cash receipts or unexpected disbursements. The amount of this liquidity reserve is regularly reviewed and adjusted as necessary according to circumstances. Liquidity is mainly ensured through overnight and term deposits. Credit facilities also exist with banks. These include, in particular, an undrawn €3.5 billion syndicated credit facility. Additionally, credit facilities totaling €1.5 billion are available to the Covestro Group.

See also A 3.2.3 and Note 30.2 to B Consolidated Financial Statements

Credit risks

See also Note 22 to B Consolidated Financial Statements

Credit risks arise from the possibility that the value of receivables or other financial assets of the Bayer Group may be impaired because counterparties cannot meet their payment or other performance obligations. The maximum default risk is reduced by existing collateral, especially our global credit insurance programs.

Positive and negative fair values of derivative financial instruments may be netted when certain conditions are fulfilled. To manage credit risks from trade receivables, the respective invoicing companies appoint credit managers who regularly analyze customers' creditworthiness. Some of these receivables are collateralized, and the collateral is used according to local conditions. It includes credit insurance, advance payments, letters of credit and guarantees. We generally agree reservation of title with our customers. Credit limits are set for all customers. All credit limits for debtors where total exposure is €10 million or more are evaluated by local credit management and submitted to the Group-wide risk committee of the Finance function. Credit risks from financial transactions are managed centrally in the Finance department. To minimize risks, financial transactions are only conducted within predefined exposure limits and with banks and other partners that preferably have investment-grade ratings. All risk limits are based on methodical models, and adherence to them is continuously monitored.

Opportunities and risks resulting from market price changes

See also Note 30.3 to B Consolidated Financial Statements

Opportunities and risks resulting from fluctuating exchange and interest rates in the market are managed by the Finance function. Risks are avoided or mitigated through the use of derivative financial instruments. The type and level of currency and interest-rate risks are explained using sensitivity analyses based on hypothetical changes in risk variables (such as interest curves) to determine the potential effects of market price fluctuations on equity and earnings. The assumptions used in the sensitivity analyses reflect our view of the changes in currency exchange and interest rates that are reasonably possible over a one-year period. These assumptions are regularly reviewed.

Foreign currencies

Foreign currency opportunities and risks for the Bayer Group result from changes in exchange rates and the related changes in the value of financial instruments (including receivables and payables) and of anticipated payment receipts and disbursements in the functional currency. Receivables and payables in liquid currencies from operating activities and financial items are generally fully exchange-hedged through forward exchange contracts and cross-currency interest-rate swaps. Anticipated exposure from planned payment receipts and disbursements in the future is hedged according to the rules agreed between the Board of Management, the Finance function and the operating units. Hedging takes place through forward exchange contracts and currency options.

Sensitivities were determined on the basis of a hypothetical adverse scenario in which the euro depreciates by 10% against all other currencies compared with the year-end exchange rates. In this scenario, the estimated hypothetical loss of cash flows from derivative and nonderivative financial instruments would have diminished earnings and equity (other comprehensive income) as of December 31, 2016, by €380 million (December 31, 2015: €303 million). Of this amount, €174 million is related to the U.S. dollar, €58 million to the Chinese renminbi, €57 million to the Japanese yen and €33 million to the Canadian dollar. Currency effects on anticipated exposure are not taken into account. Derivatives used to hedge anticipated currency exposure that are designated for hedge accounting would have diminished other comprehensive income by €365 million.

Interest rates

Interest-rate opportunities and risks result for the Bayer Group through changes in capital market interest rates, which in turn could lead to changes in the fair value of fixed-rate financial instruments and changes in interest payments in the case of floating-rate instruments. Interest-rate opportunities and risks are managed over a target duration established by management for Bayer Group debt. This target duration is subject to regular review. Interest-rate swaps are concluded to achieve the target structure for Bayer Group debt. A sensitivity analysis based on our net floating-rate receivables and payables position at year end 2016, taking into account the interest rates relevant for our receivables and payables in all principal currencies, produced the following result: a hypothetical increase of one percentage point in these interest rates (assuming constant currency exchange rates) as of January 1, 2016, would have raised our interest expense for the year ended December 31, 2016, by €31 million (December 31, 2015: €29 million).

Financial risks associated with pension obligations

The Bayer Group has obligations to current and former employees related to pensions and other post-employment benefits. Changes in relevant measurement parameters such as interest rates, mortality and salary increase rates may raise the present value of our pension obligations. This may lead to increased costs for pension plans or diminish equity due to actuarial losses being recognized as other comprehensive income in the statement of comprehensive income. A large proportion of our pension and other post-employment benefit obligations is covered by plan assets including fixed-income securities, shares, real estate and other investments. Declining or even negative returns on these investments may adversely affect the future fair value of plan assets. Both these effects may negatively impact the development of equity and / or earnings and / or may necessitate additional payments by our company. We address the risk of market-related fluctuations in the fair value of our plan assets through balanced strategic investment, and we constantly monitor investment risks in regard to our global pension obligations.

See also Note 25 to B Consolidated Financial Statements

3.2.3 Planned Acquisition of Monsanto

On September 14, 2016, Bayer signed a definitive merger agreement with Monsanto Company, St. Louis, Missouri, United States, under which Bayer will acquire all outstanding shares of Monsanto Company. On December 13, 2016, the shareholders of Monsanto Company approved the transaction by the necessary majority. In order to prepare the future integration of the Monsanto business, Bayer has initiated a project which will carefully plan the integration process in all business areas so that integration can be achieved after all regulatory approvals have been received. This process will include risk management applying our existing methods. The integration process will start after the transaction is closed, which we currently expect before the end of 2017. Bayer is experienced in successfully integrating acquisitions from a business, geographical and cultural perspective, and in so doing remains committed to its strong culture of innovation, sustainability and social responsibility.

Opportunities

Following the successful integration of the Monsanto business, we see additional opportunities for combining our complementary innovative expertise.

See also A 1.2.1 for Crop Science strategy

The range and depth of our research and development activities should make it possible to optimize the various technologies so that we can accelerate the time-to-market of enhanced innovations. This optimized product offering to customers in the agriculture sector should contribute to improving their yields and productivity and contribute to greater sustainability in farming.

Risks

On account of the magnitude and importance of the acquisition, material risks related to the transaction are listed below. These risks have not been selected on the basis of the BayRisk process described in Chapter 3.2.1 because Bayer and Monsanto remain separate, independent companies. Instead they have been identified and estimated by the central risk management function based on the information available. The list of risks therefore makes no claim to completeness, nor does the order in which they are listed imply any order of importance.

Requirements for closing

At the present time the possibility cannot be excluded that the planned acquisition will be delayed or not take place at all. The transaction is still subject to the customary requirements for closing, including clearance by the relevant antitrust and other authorities. The necessary approvals may be refused or could be tied to certain divestment actions or other commitments required by regulators of Bayer and / or Monsanto. Such measures could adversely affect our current or future business, financial position, share price or dividend payments. Furthermore, Bayer may not be able to effect commitments in a timely manner, or at all, or on economically viable terms.

The merger agreement also provides for payment by Bayer of a US$2 billion reverse break fee including, in particular, in the event that the necessary antitrust approvals are not granted by June 14, 2018, and Bayer or Monsanto therefore terminates the merger agreement.

Strategic or operational objectives may not be met

Our strategic, synergistic and other operational objectives regarding the acquisition and integration of the Monsanto business are based on assumptions and estimates we have made that may prove inaccurate, including Monsanto's earning potential and cost structure, the synergy and innovation potentials of both companies and future economic developments and market changes. In addition, difficulties may arise in connection with the acquisition and integration of the Monsanto business that adversely impact our current business or may prevent the expected benefits of the acquisition from being fully realized. These include the retention of key employees, important customers, suppliers, partners, licensors or contacts to other stakeholders, unexpected challenges in developing and successfully executing a strategy for the combined business, and risks resulting from management being distracted from the operational business by the agreed transaction. Combining businesses, processes and workforces as intended while retaining multiple corporate locations could be more complex than expected, partly in view of different corporate cultures and divergent internal control and compliance systems. The achievement of expectations in terms of the tax and accounting treatment of the transaction will be subject to a future detailed review. In light of this, unexpectedly high transaction and integration costs along with further risks and / or charges cannot be ruled out. It is also possible that we may be forced to recognize an impairment loss on the intangible assets of Monsanto and the goodwill of Crop Science if unforeseen difficulties were to arise during the integration, if the Monsanto business were to fail to develop as expected or if other business developments affecting Crop Science were to occur that have not been anticipated.

Changes in risk profile

We believe we may face increased or additional risks as a consequence of acquiring and integrating the Monsanto business. However, these risks cannot yet be definitively identified at the present time. Among the possible consequences of taking over the Monsanto business are potential downgrades in sustainability ratings and increased exposure to public criticism.

Risks from the financing of the planned acquisition

We are also exposed to certain risks from the financing of the planned acquisition. These mainly result from the need to refinance the original acquisition financing, the increase in debt and the possible credit rating downgrade by the rating agencies. Risks also arise from the development of the USD / EUR exchange rate and the interest rate level, as well as from potential difficulties in refinancing the transaction with equity capital to the extent planned.

3.2.4 Overall Assessment of Opportunities and Risks by the Board of Management

No risks that could endanger the company's existence

In the opinion of the Board of Management, based on the current evaluations, none of the risks described above endanger the company's continued existence. Nor could we identify any risk interdependencies that could combine to endanger the company's continued existence. We note a tendency for risks to shift toward a higher evaluation level. This is partly due to the increased sales and earnings expectations for our products. Based on our product portfolio, our know-how and our innovation strength, we are convinced that we can take advantage of the opportunities resulting from our entrepreneurial activity and successfully master the challenges resulting from the risks stated above.

4. Corporate Governance Report

The Board of Management and the Supervisory Board have compiled a complete Corporate Governance Report, which is available on the Bayer AG website at www.bayer.com/en/Corporate-Governance.aspx

- Conformance with the recommendations of the German Corporate Governance Code
- Comprehensive compliance system ensures ethical behavior
- New, simplified compensation structure for the Board of Management in effect

See also C Governance Bodies

Corporate governance comprises the entire system of managing and supervising an enterprise. The Board of Management and the Supervisory Board of Bayer AG are committed to a responsible and transparent style of management and supervision aimed at increasing the company's value over the long term. The Corporate Governance Report conforms with the recommendations of the German Corporate Governance Code and includes all the information and explanations required by Section 289, Paragraph 4; Section 289a; and Section 315, Paragraphs 4 and 5, of the German Commercial Code.

4.1 Declaration by Corporate Management pursuant to Section 289a and Section 315, Paragraph 5, of the German Commercial Code

The declaration on corporate governance for Bayer AG and the Bayer Group pursuant to Section 289a of the German Commercial Code forms part of the Combined Management Report. The information provided pursuant to Section 289a and Section 315, Paragraph 5, of the German Commercial Code is unaudited pursuant to Section 317, Paragraph 2, Sentence 3, of the German Commercial Code.

Declaration concerning the German Corporate Governance Code pursuant to Section 161 of the German Stock Corporation Act

The declaration issued in December 2016 concerning the German Corporate Governance Code is published on the Bayer website along with previous declarations: www.bayer.com/corp-gov

In 2016, the Board of Management and the Supervisory Board of Bayer AG again issued a declaration that they fully complied with the recommendations of the German Corporate Governance Code in the past and intend to maintain full compliance in the future.

Information on corporate governance practices

Objectives for the composition of the Supervisory Board

The Supervisory Board should be composed in such a way that its members together possess the necessary expertise, skills and professional experience to properly perform their duties. In view of Bayer AG's global operations, the Supervisory Board has set itself the goal of always having several members with international business experience or an international background. A further objective concerning the composition of the Supervisory Board is that, absent special circumstances, a member should not hold office beyond the end of the next Annual Stockholders' Meeting following his or her 72nd birthday. With a view to avoiding potential conflicts of interest, the Supervisory Board has set itself the goal that more than half of the stockholder representatives be independent. In addition, the Supervisory Board aims for at least three quarters of its total membership (stockholder and employee representatives) to be independent. The Supervisory Board assesses the independence of its members according to the recommendation contained in Section 5.4.2 of the the German Corporate Governance Code. In assessing independence, the Supervisory Board also considers the criteria given in the recommendation of the European Commis-

sion of February 15, 2005.[1] Finally, the Supervisory Board has set a standard limit on the duration of any person's membership of the Supervisory Board in line with the recommendation in Section 5.4.1, Paragraph 2 of the Code. Absent special circumstances, no person should remain a member of the Supervisory Board for more than three full terms of office. For members of the Supervisory Board serving at the time the standard limit was introduced (September 2015) who have already exceeded this limit or will exceed it by the end of their current term of office, the limit will be applied with effect from the conclusion of their current term of office.

The stated objectives refer to the Supervisory Board as a whole unless otherwise determined. However, since the Supervisory Board can only nominate candidates for election as stockholder representatives, it can only take the objectives into account in these nominations. The objective for Supervisory Board elections held after January 1, 2016, is that neither women nor men account for less than 30% of the membership.

Implementation status of the objectives

The Supervisory Board has several members with international business experience or an international background. The objective that a member should step down from the Supervisory Board at the Annual Stockholders' Meeting following his or her 72nd birthday – absent special circumstances – is being met. Two members of the Supervisory Board were previously members of the company's Board of Management: Werner Wenning was Chairman of the Board of Management until 2010, and Prof. Dr. Wolfgang Plischke was a member of the Board of Management until 2014. However, neither Werner Wenning nor Prof. Dr. Wolfgang Plischke has any personal or business relationship with the company or a governance body of the company that in the opinion of the Supervisory Board gives rise to a material conflict of interest of a more than temporary nature.

There are no indications of any possible lack of independence in the case of the other Supervisory Board members. Thus the Supervisory Board considers all of its members to be independent. The proportion of women is currently 25% on the Supervisory Board as a whole and 30% among the stockholder representatives. The election of new employee representatives to the Supervisory Board with effect from the end of the 2017 Annual Stockholders' Meeting and the election of stockholder representatives by the 2017 Annual Stockholders' Meeting will result in an increase in the proportion of women on the Supervisory Board as a whole to at least 30%.

Objectives regarding the proportion of women on the Board of Management and the first two management levels

The Supervisory Board aims to ensure that there is at least one woman serving on the company's Board of Management. This corresponded to a share of 12.5% for the eight-member Board that existed at the beginning of the year, or about 14.3% for the seven-member Board now serving. The Board of Management has set objectives of 20% women on the first management level and 28% women on the second management level. These objectives are to be attained by June 30, 2017.

In the future, there should be at least one woman on the Board of Management.

Securities transactions by members of governance bodies

Members of the Board of Management or Supervisory Board and persons with whom they have close relationships are legally obligated to report own-account transactions in shares or debt securities of Bayer AG, associated derivatives or other associated financial instruments to Bayer AG and the German Federal Financial Supervisory Authority (BaFin) as soon as the total volume of their transactions within a calendar year has reached the €5,000 threshold. The transactions reported to Bayer AG in 2016 were duly published and can be viewed on the company's website.

https://www.bayer.com/en/disclosure-of-securities-transactions.aspx

[1] Annex 2 to the recommendation of the European Commission of February 15, 2005, on the role of nonexecutive or supervisory directors of listed companies and on the committees of the (supervisory) board (2005/162/EC)

The Board of Management and Supervisory Board members' total holdings in Bayer AG shares or associated financial instruments, as reported to the company, on the closing date for the financial statements were equivalent to less than 1% of the issued shares.

Description of the procedures of the Board of Management and Supervisory Board and the composition and procedures of their committees

Online Annex: A 4.1-1

Duties and activities of the Board of Management

The Board of Management runs the Company on its own responsibility with the goal of sustainably increasing the company's enterprise value and achieving defined corporate objectives. The Board of Management performs its tasks according to the law, the Articles of Incorporation and the Board's rules of procedure, and works with the company's other governance bodies in a spirit of trust.

The Board of Management of Bayer AG defines the long-term goals and the strategies for the company and the Group and sets forth the principles and directives for the resulting corporate policies. It coordinates and monitors the most important activities, defines the portfolio, develops and deploys managerial staff, allocates resources and decides on the Group's financial steering and reporting.

The members of the Board of Management bear joint responsibility for running the business as a whole. However, the individual members manage the areas assigned to them on their own responsibility within the framework of the decisions made by the full Board. The allocation of functions among the members of the Board of Management is defined in a written schedule.

The full Board of Management makes decisions on all matters of fundamental importance and in cases where a decision of the full Board is prescribed by law or otherwise mandatory. The rules of procedure of the Board of Management contain a list of topics that must be dealt with and resolved by the full Board.

Meetings of the Board of Management are held regularly. They are convened by the Chairman of the Board of Management. Any member of the Board of Management may also demand that a meeting be convened. The Board of Management makes decisions by a simple majority of the votes cast, except where unanimity is required by law. In the event of a tie, the Chairman has the casting vote.

According to the Board of Management's rules of procedure and the functional responsibilities assigned to its members, the Chairman bears particular responsibility for leading and coordinating the Board's work. He represents the company and the Group in dealings with third parties and the workforce on matters relating to more than one part of the company or the Group. He also bears special responsibility for certain functions.

Effective January 1, 2016, the Board of Management was enlarged by three members as part of the Bayer Group's sole focus on the Life Science business and the associated reorganization. In addition to the function of Board Chairman and the three functions newly created as of January 1, 2016, each of which has special responsibility for one of the operating divisions, there were initially four further functions: Strategy and Portfolio Management; Finance; Human Resources, Technology and Sustainability (the incumbent also serving as Labor Director); and Innovation. With the appointment of the new Chairman of the Board of Management effective May 1, 2016, the Strategy and Portfolio Management function was allocated to the Chairman.

A Deal Committee was established within the Board of Management to make the final decisions on corporate acquisitions, divestments or licensing transactions above a defined medium size. There are no other committees within the Board of Management.

Supervisory Board: oversight and control functions

The role of the 20-member Supervisory Board is to oversee and advise the Board of Management. Under the German Codetermination Act, half the Supervisory Board's members are elected by the stockholders, and half by the company's employees. The Supervisory Board is directly involved in decisions on matters of fundamental importance to the company, regularly conferring with the Board of Management on the company's strategic alignment and the implementation status of the business strategy.

The Chairman of the Supervisory Board coordinates its work and presides over the meetings. Through regular discussions with the Board of Management, the Supervisory Board is kept constantly informed of business policy, corporate planning and strategy. The Supervisory Board approves the annual budget and financial framework. It also approves the financial statements of Bayer AG and the consolidated financial statements of the Bayer Group along with the combined management report, taking into account the reports by the auditor.

Committees of the Supervisory Board

The Supervisory Board has the following committees:

Presidial Committee: This comprises the Chairman and Vice Chairman of the Supervisory Board along with a further stockholder representative and a further employee representative. The Presidial Committee serves primarily as the mediation committee pursuant to the German Codetermination Act. It has the task of submitting proposals to the Supervisory Board on the appointment of members of the Board of Management if the necessary two-thirds majority is not achieved in the first vote at a plenary meeting. Certain decision-making powers in connection with capital measures, including the power to amend the Articles of Incorporation accordingly, have also been delegated to this committee. In addition, the Supervisory Board may assign specific responsibilities to the Presidial Committee on a case-by-case basis. The Presidial Committee may also make preparations for Supervisory Board meetings.

Audit Committee: The Audit Committee comprises three stockholder representatives and three employee representatives. The Chairman of the Audit Committee in 2016, Dr. Klaus Sturany, meets the statutory requirements concerning the expertise in the field of accounting or auditing that a member of the Supervisory Board and the Audit Committee is required to possess. The Audit Committee meets regularly four times a year. Its principal tasks are to oversee the financial reporting process, the effectiveness and ongoing development of the internal control system, the risk management system, the internal audit system, the compliance system and the audit of the financial statements. It prepares the decisions of the Supervisory Board pertaining to the financial statements, the management report, the proposal for the use of the distributable profit, the consolidated financial statements, the Group management report and the agreements with the external auditor, including, in particular, the audit contract, the definition of audit priorities and the fee agreement. The Audit Committee submits a proposal to the Supervisory Board concerning the auditor's appointment and takes appropriate steps to ascertain and oversee the auditor's independence. In particular, it verifies whether the financial statements were prepared in accordance with the statutory requirements and give a true and fair view of the net assets, financial position and results of operations of the company and the Group. At each of its meetings, the Audit Committee discusses new developments in the area of compliance where necessary. The Chairman of the Board of Management and the Chief Financial Officer regularly attended the meetings. Representatives of the auditor also attended all of the meetings, reporting in detail on the audit work and the audit reviews of the quarterly financial reports.

Human Resources Committee: On this committee, too, there is parity of representation between stockholders and employees. It consists of the Chairman of the Supervisory Board and three other Supervisory Board members. The Human Resources Committee prepares the personnel decisions of the full Supervisory Board, which resolves on appointments or revocations of appointments of members of the Board of Management. The Human Resources Committee

resolves on behalf of the Supervisory Board on the service contracts of the members of the Board of Management. However, it is the task of the full Supervisory Board to resolve on the total compensation of the individual members of the Board of Management and the respective compensation components, as well as to regularly review the compensation system on the basis of recommendations submitted by the Human Resources Committee. The Human Resources Committee also discusses the long-term succession planning for the Board of Management.

Nominations Committee: This committee carries out preparatory work when an election of stockholder representatives to the Supervisory Board is to be held. It suggests suitable candidates for the Supervisory Board to propose to the Annual Stockholders' Meeting for election. The Nominations Committee comprises the Chairman of the Supervisory Board and the other stockholder representative on the Presidial Committee.

Innovation Committee: The Innovation Committee is primarily concerned with the innovation strategy and innovation management, the strategy for protection of intellectual property, and Bayer's major research and development projects. Within its area of responsibility, the committee advises and oversees the management and prepares any Supervisory Board decisions. The committee comprises the Chairman of the Supervisory Board and five other members, with parity of representation between stockholder and employee representatives. The Chairman of the Board of Management and the member of the Board of Management responsible for innovation regularly attend the meetings of the Innovation Committee.

The Report of the Supervisory Board in this Annual Report provides details about the work of the Supervisory Board and its committees.

4.2 Compliance

www.bayer.com/compliance

www.covestro.com/en/company/corporate-compliance

Bayer manages its businesses responsibly and in compliance with the statutory and regulatory requirements of the countries in which it operates. We define compliance as legally and ethically impeccable conduct by all employees in their daily work, because the way they carry out their duties affects our company's reputation. We do not tolerate any violation of laws, codes of conduct or internal regulations. Compliance is essential for our long-term economic success. Covestro has established its own compliance organization and an internal audit department with systems and processes similar to those at Bayer. This chapter does not include compliance information for Covestro.

Global Corporate Compliance Policy

The Board of Management is unreservedly committed to compliance, and Bayer will forgo any business transaction that would violate the compliance principles in force throughout the Bayer Group. These principles are enshrined in our Corporate Compliance Policy, which was revised in 2016. The new version is currently being rolled out to Bayer companies in all countries.

Online Annex: A 4.2-1

In our Corporate Compliance Policy we commit ourselves to the following principles:

- Antitrust: fair competition in our markets
- Anticorruption: integrity in our business dealings at all times
- Corporate responsibility: sustainability, safety and product stewardship
- Foreign trade law: observance of relevant trade controls
- Insider trading: safeguarding of equal opportunity in securities trading
- Accurate books and records: complete and detailed recording of our business activities and financial transactions

- Fairness and respect at work: treating one another with fairness and respect
- Intellectual property: safeguarding our own intellectual property and respecting that of others
- Avoiding conflicts of interest: separation of business and personal interests
- Privacy: precautions to protect and secure personal data

Every employee is required to observe these rules and to immediately report any violation of the Corporate Compliance Policy. This general reporting requirement does not apply in France due to peculiarities of national law.

Bayer's senior managers serve as role models and therefore have a vital part to play in implementing the Corporate Compliance Policy. They may lose their entitlement to variable compensation components and be subject to further disciplinary measures if violations of applicable law or internal regulations have occurred in their sphere of responsibility. Compliant and lawful conduct also factors into the performance evaluations of all managerial employees.

Adherence to the Corporate Compliance Policy is among the subjects covered in all audits conducted by Bayer's Internal Audit. The planning of these audits follows a function- and risk-based approach that also takes a corruption perceptions index into account. The largest companies, which together account for about 80% of Group sales, are generally subjected to on-site audits at three-year intervals. A total of 171 compliance audits were completed in 2016, of which 36 were preventive or incident-related audits. The head of Internal Audit and the Group Compliance Officer regularly attend the meetings of the Audit Committee of the Supervisory Board, presenting a summary of conducted audits and their outcomes at least once a year.

Corruption Perceptions Index: see Glossary

Established compliance organization

The Bayer Group's compliance organization is headed by the Group Compliance Officer, who regularly reports directly to the Chairman of the Board of Management and to the Audit Committee of the Supervisory Board. A central compliance department supports the Group Compliance Officer in steering and implementing the Group-wide compliance activities. This department is staffed with specialized compliance business partners whose responsibilities include establishing business- and industry-specific standards in the divisions, Group functions and service companies. In addition, at least one compliance business partner is available at each site to answer questions from all employees regarding lawful and ethical behavior in business-related situations.

The mission and goals of Bayer's compliance organization are set forth in a Compliance Charter. This relies on early prevention and forms the basis for proactive, risk-based collaboration within the company. For compliance to continue developing as a permanent, active part of Bayer's corporate culture, it needs to remain firmly anchored in all units and in all work processes. The Group-wide compliance management system is based on partnerships with the operational business and features dialogue, transparency and continuous improvement. It also includes the systematic punishment of compliance violations.

See also A 3.2.1

Compliance violations can be reported – anonymously if desired – via a compliance hotline that has been set up worldwide and which is also accessible to the general public. In 2016 the compliance organization received a total of 220 reports in this way (including 159 anonymous reports), with 9 reports coming from Germany and 211 from other countries. Alternatively, suspected compliance violations may also be reported to the respective compliance functions in Germany or the country organizations, or to Internal Audit. All cases are recorded according to uniform criteria throughout the Group and dealt with under the rules set forth in Bayer's Policy on the Management of Compliance Incidents.

Online Annex: A 4.2-2

Where an investigation confirms that a compliance violation has occurred, the company has a graduated set of measures at its disposal. These include a verbal warning or written reprimand, transfer to a different unit, cancellation of a planned promotion, a reduction in the short-term incentive payment, downgrading to a lower collectively agreed pay rate or managerial contract level, and ordinary or extraordinary termination. Bayer also reserves the right to assert further claims against the employee for cost reimbursement or damages and/or initiate criminal proceedings. The action taken in a particular case depends on the gravity of the compliance violation and on applicable law.

Comprehensive compliance training and communications

↗ Group target: annual compliance training for close to 100% of Bayer managers; see also A 1.2.1

Group-wide training programs tailored to requirements and target groups, along with extensive communications activities, help to further raise the employees' awareness for compliance issues and the risks involved. At the same time, this training familiarizes them both with the Corporate Compliance Policy and with statutory regulations. We have set a Group target requiring all Bayer's managerial employees worldwide to complete at least one compliance training program each year. In 2016, this was achieved by 33,659 employees or around 97% of Bayer managers.

Online Annex: A 4.2-3

The aim of these targeted training programs is to ensure that employees do not overstep boundaries out of ignorance or uncertainty. Our compliance training programs reflect the main compliance risk areas and are available in various formats to meet the training needs of different employee groups. Some take the form of web-based training (WBT) programs, while others involve face-to-face training sessions or workshops.

See also A 1.4.2.3

In 2016, we implemented a new global web-based training program in 44 countries on the subject of "Fairness and respect at work." This program, currently available in 9 languages, has already been completed by 32,141 employees.

New hires and employees switching to different areas of responsibility within Bayer regularly undergo training according to their functions.

In view of the particularly strict compliance rules in health care, we offer special training programs for the employees working with stakeholders in this field.

In 2016, compliance was again the subject of wide-ranging internal communications activities, one area of focus being the presentation and global distribution of the newly updated Corporate Compliance Policy. Employees were given additional information on various compliance-related topics, with a focus on "fairness and respect in the workplace."

4.3 Compensation Report

The Compensation Report describes the essential features of the compensation packages for the members of the Board of Management and the Supervisory Board of Bayer AG and explains the compensation the individual members were granted or received for the 2016 fiscal year. The report complies with the requirements of the applicable financial reporting standards for publicly traded companies (German Commercial Code [HGB], German Accounting Standards [DRS] and the International Financial Reporting Standard [IFRS]) as well as with the recommendations contained in the current version of the German Corporate Governance Code.

4.3.1 Compensation of the Board of Management

Adjustment of the compensation system effective January 1, 2016

The compensation of the Board of Management is linked to the sustained growth of corporate value.

The compensation system for the Board of Management of Bayer AG is aligned to the corporate strategy and geared toward performance-driven, sustainable corporate governance and an appropriate compensation structure and level. The compensation structure in the Bayer Group is, in principle, the same for the Board of Management as for all other managerial employees. The nature and appropriateness of the compensation system for the members of the Board of Management are determined by the full Supervisory Board on the proposal of the Human Resources Committee of the Supervisory Board, regularly reviewed and adjusted as necessary. All of the assessment criteria recommended in Section 4.2.2 of the German Corporate Governance Code are taken into account. An independent compensation consultant has confirmed that the compensation is appropriate and on a customary level.

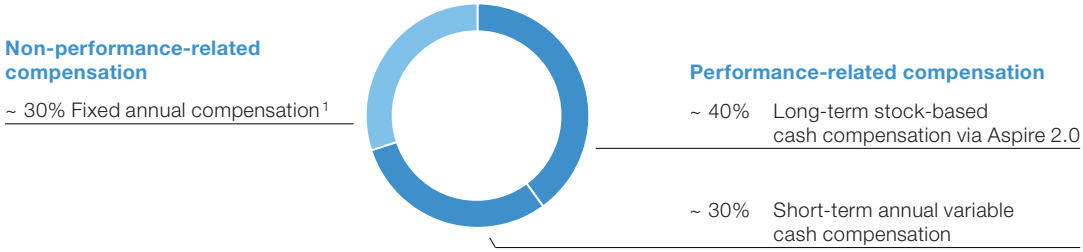
Upon conducting a comprehensive review of the compensation system at the end of 2015, the Supervisory Board identified a need for adjustments, mainly in light of the Group's new divisional structure, which came into effect on January 1, 2016, the enlargement of the Board of Management by three new members with operational responsibilities, and the target positioning in relation to the other DAX companies. The adjusted compensation system for the members of the Board of Management was approved by a large majority at the Annual Stockholders' Meeting on April 29, 2016.

Compensation structure simplified to enhance transparency

Under the new compensation structure for the Board of Management of Bayer AG, the previous ratio of the non-performance-related components (about 30%) to the performance-related variable components (about 70%) is basically unchanged. The compensation components under the new system are as follows, assuming 100% target attainment by a member of the Board of Management:

A 4.3.1/1

Compensation Structure Based on 100% Target Attainment



[1] Excluding fringe benefits and pension entitlements

The structure of the non-performance-related components is the same as before. The adjustments mainly concern the performance-related variable components. These now comprise a vari-

able annual cash payment (STI = short-term incentive) based on target attainment, which is paid out entirely in cash in the following year, and a long-term variable cash payment (LTI = long-term incentive). The system for the new LTI program was also adjusted and is based on stockholder return. The individual performance-related components are capped upon payment. There is also a cap on the total cash compensation. This amounts to 1.8 times the respective target compensation and is determined annually when the fixed compensation is set.

The members of the Board of Management also receive pension entitlements for themselves and their surviving dependents.

Non-performance-related components

Fixed annual compensation

The level of the non-performance-related, fixed annual compensation takes into account the functions and responsibilities assigned to the members of the Board of Management as well as market conditions. The fixed annual compensation is regularly reviewed by the Supervisory Board in light of the consumer price indexes and adjusted if necessary. It is paid out in twelve monthly installments.

Fringe benefits

This component mainly includes perquisites such as a company car with driver or the use of the company carpool, payments toward the cost of security equipment, and the reimbursement of the cost of annual health screening examinations. Fringe benefits are reported at cost or the amount of the pecuniary advantage gained.

Performance-related components

Short-term variable cash compensation

The compensation structure provides for both non-performance-related and performance-related components.

The short-term variable cash compensation (STI) depends on the company's business success in the respective year. The level of the STI is determined by the target attainment for three subcomponents – the Group component, the divisional component and the individual performance component – each of which is given a one-third weighting in the performance evaluation. The performance evaluation takes into account both positive and negative developments. As part of the adjustment of the compensation system starting in 2016, the individual target parameters for the STI were adjusted to the new organizational structure of the Group and the payment of the STI was simplified. The entire amount of the STI is now paid out in cash in the second quarter of the following year. The previous 50:50 split of the STI into a cash payment and a grant of virtual Bayer shares blocked for three years has been abolished. The STI continues to be capped at a total of 200%.

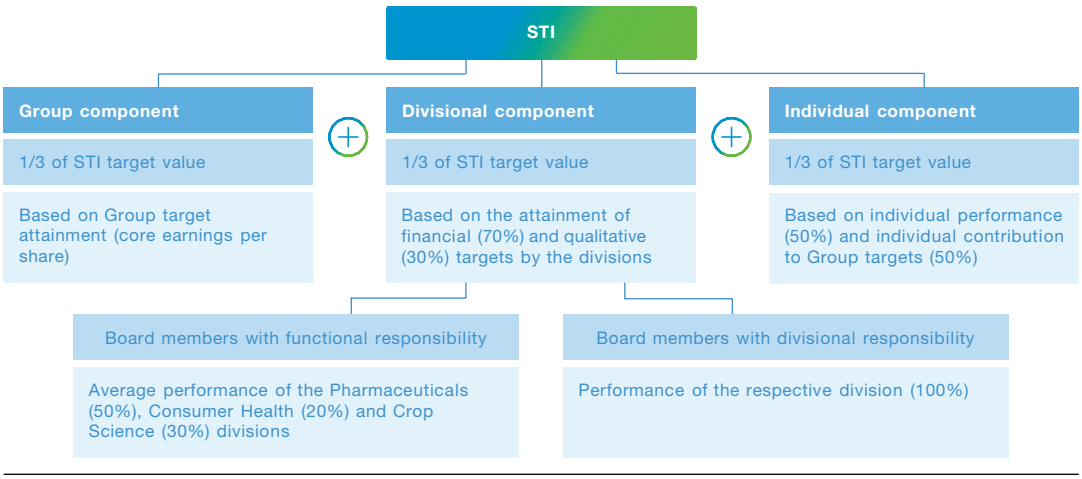
The individual target parameters of the three subcomponents of the STI for 2016 are calculated as follows:

- The Group component continues to be based on the core earnings per share of the Group and remains capped at 200%.
- The divisional component is incentivized based on the average performance of the divisions and remains capped at 300%. For the members of the Board of Management with functional responsibility, this component is based on the average performance of the divisions, weighted as follows: Pharmaceuticals 50%, Consumer Health 20%, Crop Science (including Animal Health) 30%. For the Board members with divisional responsibility, however, this one-third of the STI is incentivized entirely on the basis of the respective division's earnings. Covestro is not included in the divisional component as it has become legally and economically independent. The assessment of divisional performance comprises a 70% component linked to the attainment of financial targets in relation to the EBITDA margin before special items and divisional sales growth, and a 30% component based on the attainment of qualitative goals in areas such as innovative progress, safety, compliance and sustainability.
- The target attainment criteria for the individual performance component have been made more precise. Now, 50% of this component relates to the duties and resulting personal targets of the respective member of the Board of Management and 50% to his or her individual contribution

to the attainment of the Group targets. The individual targets for the members of the Board of Management are determined annually by the Supervisory Board, which also assesses their attainment.

A 4.3.1/2

Short-Term Variable Cash Compensation (STI) Components



Long-term stock-based cash compensation (LTI)

Members of the Board of Management are eligible to participate in the annual tranches of the long-term stock-based compensation program “Aspire” on condition that they purchase a certain number of Bayer shares – determined for each individual according to specific guidelines – as a personal investment and hold them for as long as they continue in the service of the Bayer Group.

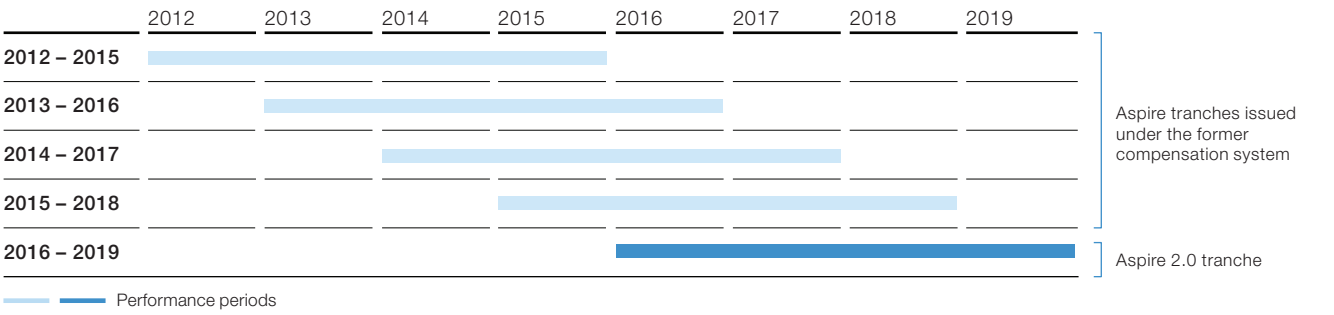
A new version of Bayer’s “Aspire” program (Aspire 2.0) was introduced in fiscal 2016 as part of the adjustment of the compensation system for the Board of Management. The target amounts for the new Aspire 2.0 tranche issued in 2016 are based on a contractually agreed target percentage of the fixed annual compensation. The starting value is also partly determined by the individual STI payment factor for the Board member concerned for the year prior to the issuance of the respective tranche. The cash payment amounts are determined after four years based on the average share price calculated over the last 30 trading days of the fiscal year, the performance of Bayer stock relative to the EUROSTOXX 50 and the dividends paid in the meantime (total stockholder return approach). The cap for Aspire 2.0 is 250%, compared to 300% under the predecessor program. Thus the new compensation system maintains consistency between the Board of Management and other management levels, except that for the Board of Management an additional performance measure has been included in the LTI program in the form of the comparison to the EUROSTOXX 50 mentioned above.

The payments made under the tranches of the Aspire program issued in the years up to 2015 continue to be based until their expiration on the Aspire Target Opportunity, which is a contractually agreed percentage of fixed annual compensation. Depending on the performance of Bayer stock, both in absolute terms and relative to the EURO STOXX 50 benchmark index, participants are granted an award of between 0% and a maximum 300% of their individual Aspire Target Opportunity at the end of the respective performance periods.

The payout / performance matrix according to the absolute and relative development of Bayer’s share price is explained at www.investor.bayer.com/en/stock/stock-programs/aspire/

A 4.3.1/3

Tranches of the Aspire Program



When a member of the Board of Management retires, current Aspire tranches may be shortened, thus reducing their value, depending on the duration of the member's active service on the Board of Management during the first year of the tranche.

Share Ownership Guidelines

As a condition for receiving payments under the LTI program, members of the Board of Management must meet certain requirements regarding their personal investment in Bayer stock. Starting in 2016, they are required to build a position in Bayer shares to the value of 75% of their fixed annual compensation within four years and hold these shares until the end of their service on the Board of Management. The Board of Management members must provide documentary evidence of their compliance with this obligation, first at the end of the four-year position-building period and then yearly thereafter. In the event of significant changes in fixed annual compensation, the value to which shares must be held is adjusted accordingly.

Pension entitlements (retirement and surviving dependents' pensions)

The annual pension entitlement for members of the Board of Management is based on contributions. Each year Bayer provides a hypothetical contribution amounting to 42% (33% up to 2015) of the respective fixed annual compensation. This percentage is comprised of a basic contribution of 6% and a matching contribution of 36% (27% up to 2015), which is four times (three times up to 2015) the member's personal contribution of 9%. The increase in the matching contribution effective from 2016 was made to bring the contribution-based company pension plan into line with market conditions. The total annual contribution is converted into a pension module according to the annuity table for the applicable tariff of the Rheinische Pensionskasse VVaG pension fund. The annual pension entitlement upon retirement is the total amount of the accumulated pension modules including an investment bonus. The investment bonus is determined annually based on the net return on the assets of the Rheinische Pensionskasse VVaG minus the minimum return on the contributions that is guaranteed under the tariff and approved by the German Financial Supervisory Authority (BaFin). Future pension payments are annually reviewed and adjusted to take into account the development of consumer prices.

In addition, special individual arrangements exist for the following members of the Board of Management:

- Werner Baumann – has been granted a vested entitlement to an annual pension of €200 thousand starting on his 60th birthday. This is subject to a prorated reduction in the event that his term of office ends prior to his 60th birthday under certain conditions.
- Dr. Marijn Dekkers – is entitled to receive either a lifelong monthly annuity or a capital sum after leaving the Bayer Group, though not before the age of 60. He has opted for payment of a lifelong monthly annuity.
- Kemal Malik – has been granted a vested entitlement to an annual pension of €80 thousand starting on his 65th birthday. This is subject to a prorated reduction in the event that his term of office ends prior to his 65th birthday under certain conditions.

› Erica Mann – has the option to receive either a lifelong monthly annuity or a capital sum when her pension benefits fall due.

Certain assets are administered by Bayer Pension Trust e.V. under a contractual trust arrangement (CTA) to cover pension entitlements resulting from direct commitments in Germany. This provides substantial additional security – beyond the benefits from the Pension Insurance Association – for the respective pension entitlements of the members of the Board of Management in Germany.

Benefits upon termination of service on the Board of Management

Post-contractual noncompete agreements

Post-contractual noncompete agreements exist with the members of the Board of Management, providing for compensatory payments to be made by the company for the two-year duration of these agreements. The compensatory payment amounts to 100% of the average fixed compensation for the twelve months preceding their departure.

Change of control

Agreements exist with the members of the Board of Management providing for severance indemnity in certain circumstances in the event of a change in control. The amount of any possible severance indemnity in the case of early termination of service on the Board of Management as a result of a change in control is limited to the value of three years' compensation in line with the recommendation in Section 4.2.3 of the German Corporate Governance Code. Such payments do not exceed the compensation payable for the remaining term of the service contract.

Unfitness for work

In the event of temporary unfitness for work, members of the Board of Management continue to receive the contractually agreed compensation. Bayer AG may early terminate the service contract if the Board member has been continuously unfit for work for at least 18 months and is likely to be permanently incapable of fully performing his or her duties (permanent incapacity to work). A disability pension is paid in the event of contract termination before the age of 60 due to permanent incapacity to work. For the members appointed to the Board of Management prior to 2013, the disability pension, like the retirement pension, amounts to at least 15% of the final fixed compensation and can increase with continuing service on the Board of Management up to a maximum of 60%. For members of the Board of Management appointed in 2013 or thereafter, the amount of the disability pension under the service contract corresponds to the entitlement accrued on the date of contract termination, taking into account a fictitious period of service between that date and the member's 55th birthday, where applicable.

Compensation of the Board of Management in 2016

Compensation structure adapted to new organizational structure

The aggregate compensation for the members of the Board of Management in 2016 totaled €28,445 thousand (2015: €17,918 thousand), comprising €7,049 thousand (2015: €4,662 thousand) in non-performance-related components and €21,396 thousand (2015: €13,256 thousand) in performance-related components. The pension service cost amounted to €2,887 thousand (2015: €1,847 thousand).

Changes in the membership of the Board of Management in 2016 were as follows:

› Effective January 1, 2016, Dr. Hartmut Klusik succeeded Michael König as the member of the Board of Management responsible for Human Resources, Technology and Sustainability.
› In addition to the existing functions, three further functions were created effective January 1, 2016, which bear special responsibility for the newly defined operating divisions of the Group. The following new members were appointed to the Board of Management:
  › Dieter Weinand, responsible for the Pharmaceuticals Division
  › Erica Mann, responsible for the Consumer Health Division
  › Liam Condon, responsible for the Crop Science Division
› The Board of Management service contract of Dr. Marijn Dekkers was early terminated by mutual agreement effective April 30, 2016.

> Werner Baumann was appointed Chairman of the Board of Management of Bayer AG in succession to Dr. Dekkers effective May 1, 2016.

As of December 31, 2016, the Board of Management of Bayer AG consisted of seven members.

The following table shows the total compensation of the individual members of the Board of Management who served in 2015 and / or 2016 according to the German Commercial Code:

A 4.3.1/4

Board of Management Compensation (German Commercial Code)

	Fixed annual compensation		Fringe benefits		Short-term variable cash compensation[1]		Long-term variable cash compensation based on virtual Bayer shares (50% STI)[2]			Long-term stock-based cash compensation (Aspire)[3]		Aggregate compensation		Pension service cost[4]	
					€ thousand		No. of shares							€ thousand	
	2015	2016	2015	2016	2015	2016	2015	2015	2016	2015	2016	2015	2016	2015	2016
Serving members of the Board of Management as of December 31, 2016															
Werner Baumann (Chairman)[5]	906	1,285	47	47	1,237	2,329	10,377	1,237	–	262	1,983	3,689	5,644	227	764
Liam Condon	–	800	–	44	–	1,106	–	–	–	–	1,624	–	3,574	–	330
Johannes Dietsch	725	750	44	83	917	978	7,698	917	–	210	1,522	2,813	3,333	220	318
Dr. Hartmut Klusik	–	750	–	140	–	1,053	–	–	–	–	1,522	–	3,465	–	316
Kemal Malik	725	775	40	35	917	1,050	7,698	917	–	210	1,573	2,809	3,433	222	318
Erica Mann	–	750	–	182	–	798	–	–	–	–	1,522	–	3,252	–	219
Dieter Weinand	–	800	–	34	–	1,274	–	–	–	–	1,623	–	3,731	–	240
Former members															
Dr. Marijn Dekkers[6]	1,374	475	40	99	1,995	475	16,739	1,995	–	398	964	5,802	2,013	967	382
Michael König	725	–	36	–	917	–	7,698	917	–	210	–	2,805	–	211	–
Total	**4,455**	**6,385**	**207**	**664**	**5,983**	**9,063**	**50,210**	**5,983**	**–**	**1,290**	**12,333**	**17,918**	**28,445**	**1,847**	**2,887**

[1] In line with the change in the compensation system for the members of the Board of Management, the entire amount of the STI is paid out in cash, starting with the STI for 2016. The 50:50 split of the STI into a cash payment and a grant of virtual Bayer shares blocked for three years was last made for 2015.
[2] The long-term variable cash compensation based on virtual Bayer shares was discontinued as of 2016.
[3] Fair value at grant date; the figure for 2016 includes the new Aspire 2.0 tranche. For Dr. Marijn Dekkers, 4/12 of the grant amount for Aspire 2.0 is shown.
[4] Including company contribution to Bayer-Pensionskasse VVaG, Rheinische Pensionskasse VVaG and to a pension fund outside Germany
[5] The increased variable compensation for Werner Baumann in 2015 resulted mainly from his temporary duties as head of Bayer HealthCare in addition to his primary responsibilities as a member of the Board of Management.
[6] Dr. Marijn Dekkers additionally received a severance payment of €4,341 thousand. This puts him in the same position as if he had held office until December 31, 2016, and had then retired.

Fixed annual compensation

The fixed annual compensation of the members of the Board of Management was adjusted in 2016. The total fixed annual compensation of all the members was €6,385 thousand (2015: €4,455 thousand).

Short-term variable cash compensation

The total short-term variable cash compensation for all the members of the Board of Management in 2016 totaled €9,063 thousand (2015: €5,983 thousand) after deduction of the solidarity contribution. Provisions of €8,588 thousand (2015: €5,983 thousand) were established for payment of this compensation component to the members of the Board of Management serving as of December 31, 2016. The solidarity contribution is made by all employees of the companies covered by the respective agreements with the employee representatives to help safeguard jobs at the German sites. For 2016 it amounted to 0.27% (2015: 0.20%) of each person's STI award.

Long-term variable cash compensation based on virtual Bayer shares

This compensation component was not present in 2016 following the adjustment of the compensation system for the Board of Management effective January 1, 2016.

See also description of the new compensation system

The conversion of 50% of the STI into virtual Bayer shares took place for the last time in 2015 and was based on an average price of €119.17. The aggregate compensation for 2015 according to the German Commercial Code includes long-term variable cash compensation of €5,983 thousand based on virtual Bayer shares. The aggregate compensation for 2016 according to the IFRS also includes a change of minus €1,275 thousand (2015: €556 thousand) in the value of existing entitlements.

Provisions of €7,777 thousand (2015: €18,663 thousand) existed as of December 31, 2016, for the future cash disbursements to currently serving members of the Board of Management based on the virtual Bayer shares granted in previous years. This amount also contains the dividends attributable to the respective prior years.

Long-term stock-based cash compensation (Aspire)

The long-term stock-based cash compensation under the Aspire program is included in the aggregate compensation according to the German Commercial Code at its fair value of €12,333 thousand (2015: €1,290 thousand) at the respective grant date.

The aggregate compensation according to the IFRS includes the fair value of the partial entitlement earned in the respective year. Grants of stock-based compensation with a four-year performance period are therefore expensed at their respective fair values over four years starting with the grant year. The stock-based compensation according to the IFRS also includes the change in the value of existing entitlements under ongoing Aspire tranches granted in prior years.

A 4.3.1/5

Board of Management Compensation – Aspire Program (IFRS)

		Serving members of the Board of Management as of December 31, 2016							Former members		
€ thousand		Werner Baumann (Chairman)	Liam Condon	Johannes Dietsch[3]	Dr. Hartmut Klusik	Kemal Malik[3]	Erica Mann	Dieter Weinand	Dr. Marijn Dekkers	Michael König[3]	Total
Stock-based compensation entitlements earned in the respective year[1]	2016	715	506	413	414	431	848	369	1,521	–	5,217
	2015	597	–	225	–	263	–	–	980	265	2,330
Change in value of existing entitlements[2]	2016	(120)	(83)	(57)	(47)	(98)	(165)	(69)	(284)	–	(923)
	2015	71	–	21	–	48	–	–	108	24	272
Total	**2016**	**595**	**423**	**356**	**367**	**333**	**683**	**300**	**1,237**	**–**	**4,294**
	2015	668	–	246	–	311	–	–	1,088	289	2,602

[1] The newly earned entitlements are derived from the 2013 – 2016 (2015: 2012 – 2015) tranches of the Aspire program because this compensation was or is being earned over a four-year period. They are stated at their prorated fair values in 2015 and 2016, respectively.
[2] This line shows the change in the value of the entitlements already earned in 2013, 2014 and 2015 (2015: 2012, 2013 and 2014).
[3] The Aspire entitlements earned in 2015 and 2016 and the value changes for Liam Condon, Johannes Dietsch, Dr. Hartmut Klusik, Kemal Malik, Erica Mann, Dieter Weinand and Michael König relate in part to Aspire tranches granted to them before they joined the Board of Management but not yet fully earned.

Provisions of €7,288 thousand (2015: €7,110 thousand) were established for the Aspire entitlements of the members of the Board of Management serving as of December 31, 2016. Of this amount, €302 thousand relates to the tranches issued up to 2015 and €2,314 thousand to the 2016 tranche.

Pension entitlements

The pension service cost recognized for the members of the Board of Management in 2016 according to the German Commercial Code was €2,887 thousand (2015: €1,847 thousand), while the current service cost for pension entitlements recognized according to the IFRS was €3,902 thousand (2015: €2,891 thousand). The following table shows the service cost and the settlement or present value of the pension obligations attributable to the individual members of the Board of Management.

A 4.3.1/6

Pension Entitlements (German Commercial Code and IFRS)

	German Commercial Code				IFRS			
	Pension service cost[1]		Settlement value of pension obligation as of December 31[2]		Current service cost for pension entitlements		Present value of defined benefit pension obligation as of December 31	
€ thousand	2015	2016	2015	2016	2015	2016	2015	2016
Serving members of the Board of Management as of December 31, 2016								
Werner Baumann (Chairman)	227	764	7,022	7,452	385	1,054	10,131	12,429
Liam Condon	–	330	–	2,151	–	487	–	3,860
Johannes Dietsch	220	318	2,681	2,854	355	431	3,995	4,882
Dr. Hartmut Klusik	–	316	–	4,533	–	399	–	6,782
Kemal Malik	222	318	516	1,990	372	438	1,700	2,507
Erica Mann	–	219	–	7,199	–	288	–	7,232
Dieter Weinand	–	240	–	468	–	322	–	735
Former members								
Dr. Marijn Dekkers[3]	967	382	11,014	–	1,418	483	14,106	–
Michael König[4]	211	–	2,371	–	361	–	3,559	–
Total	**1,847**	**2,887**	**23,604**	**26,647**	**2,891**	**3,902**	**33,491**	**38,427**

[1] Including company contribution to Bayer-Pensionskasse VVaG, Rheinische Pensionskasse VVaG and a pension fund outside Germany
[2] The pension obligations of foreign subsidiaries and Bayer pension funds are included at present value according to IFRS.
[3] Dr. Marijn Dekkers stepped down from the Board of Management as of midnight on April 30, 2016.
[4] Michael König stepped down from the Board of Management as of midnight on December 31, 2015.

The difference between the pension service cost according to the German Commercial Code and the service cost for pension entitlements according to the IFRS arises from the difference in the valuation principles used in calculating the settlement value according to the German Commercial Code and the present value of the defined benefit pension obligation according to the IFRS.

Benefits upon termination of service on the Board of Management

It was agreed with Dr. Marijn Dekkers that he be granted benefits of €4,341 thousand according to the German Commercial Code and €4,542 thousand according to the IFRS in light of the mutually agreed early termination effective April 30, 2016, of his service contract, which originally ran until December 31, 2016. These comprise the fixed compensation, the short-term variable compensation components, Aspire and the pension service cost, each for the period May 1, 2016, through December 31, 2016. Dr. Dekkers' entitlements under the company pension plan and the Aspire program were set at the levels they would have reached if he had been eligible to participate until December 31, 2016. The fixed compensation and the short-term variable compensation component, together amounting to €1,900 thousand, were paid in May 2016. The payments from the Aspire tranches will be made upon expiration of each tranche based on the respective Aspire program parameters. The post-contractual noncompete agreement with Dr. Marijn Dekkers was rescinded without compensation when his service contract was extended in June 2014 in line with previous practice in a similar case.

It was agreed with Michael König that he be granted benefits of €1,131 thousand in connection with the mutually agreed early termination effective December 31, 2015, of his service contract, which originally ran until March 31, 2016. These benefits comprise fixed compensation, short-term variable compensation components, Aspire and the pension service cost – each for the period January 1 through March 31, 2016 –, along with the fair value of the accelerated vested portions of the existing Aspire tranches. The fixed compensation and the short-term variable compensation component, together amounting to €375 thousand, were paid in the first half of 2016. The payments from the Aspire tranches will be made upon expiration of each tranche based on the respective Aspire program parameters. In addition, a two-year noncompete agreement ending on December 31, 2017, exists with Michael König under his service contract. The resulting compensatory payment of €725 thousand per year is being made to him in monthly installments.

The aggregate Board of Management compensation according to the IFRS is shown in the following table:

A 4.3.1/7

Board of Management Compensation according to IFRS

€ thousand	2015	2016
Fixed annual compensation	4,455	6,385
Fringe benefits	207	664
Total short-term non-performance-related compensation	**4,662**	**7,049**
Short-term performance-related cash compensation	5,983	9,063
Total short-term compensation	**10,645**	**16,112**
Stock-based compensation earned (virtual Bayer shares)	5,983	–
Change in value of existing entitlements to stock-based compensation (virtual Bayer shares)	556	(1,275)
Stock-based compensation (Aspire) earned in the respective year	2,330	5,217
Change in value of existing entitlements to stock-based compensation (Aspire)	272	(923)
Total stock-based compensation (long-term incentive)	**9,141**	**3,019**
Service cost for pension entitlements earned in the respective year	2,891	3,902
Total long-term compensation	**12,032**	**6,921**
Severance indemnity in connection with the termination of a service contract	1,131	4,542
Aggregate compensation (IFRS)	**23,808**	**27,575**

4.3.2 Disclosures Pursuant to the Recommendations of the German Corporate Governance Code

In accordance with the recommendations of the German Corporate Governance Code, the following tables show the compensation – including fringe benefits – granted for 2016, indicating the target values and the maximum and minimum achievable values for the variable compensation components, along with the allocation of compensation.

A 4.3.2/1

Compensation and Benefits Granted for 2016

	Serving members of the Board of Management as of December 31, 2016											
	Werner Baumann (Chairman)				Liam Condon (Crop Science)				Johannes Dietsch (Finance)			
	Joined Jan. 1, 2010				Joined Jan. 1, 2016				Joined Sept. 1, 2014			
€ thousand	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016
Fixed annual compensation	906	1,285	1,285	1,285	–	800	800	800	725	750	750	750
Fringe benefits	47	47	47	47	–	44	44	44	44	83	83	83
Total fixed annual compensation	**953**	**1,332**	**1,332**	**1,332**	**–**	**844**	**844**	**844**	**769**	**833**	**833**	**833**
Short-term variable cash compensation[2]	849	1,475	0	2,950	–	800	0	1,600	679	750	0	1,500
Long-term variable cash compensation (virtual Bayer shares)[2]												
2015 (Jan. 1, 2016 – Dec. 31, 2018)	849	–	–	–	–	–	–	–	679	–	–	–
Long-term stock-based compensation (Aspire)[3]												
2015 (Jan. 1, 2015 – Dec. 31, 2018)	362	–	–	–	–	–	–	–	290	–	–	–
2016 (Jan. 1, 2016 – Dec. 31, 2019)		1,983	0	4,957	–	1,624	0	4,059	–	1,522	0	3,805
Total	**3,013**	**4,790**	**1,332**	**9,239**	**–**	**3,268**	**844**	**6,503**	**2,417**	**3,105**	**833**	**6,138**
Service cost / benefit expense	227	764	764	764	–	330	330	330	220	318	318	318
Total compensation	**3,240**	**5,554**	**2,096**	**10,003**	**–**	**3,598**	**1,174**	**6,833**	**2,637**	**3,423**	**1,151**	**6,456**

A 4.3.2/1 (continued)

Compensation and Benefits Granted for 2016

	Serving members of the Board of Management as of December 31, 2016											
	Dr. Harmut Klusik (Human Resources, Technology & Sustainability)				Kemal Malik (Innovation)				Erica Mann (Consumer Health)			
	Joined Jan. 1, 2016				Joined Feb. 1, 2014				Joined Jan. 1, 2016			
€ thousand	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016
Fixed annual compensation	–	750	750	750	725	775	775	775	–	750	750	750
Fringe benefits	–	140	140	140	40	35	35	35	–	182	182	182
Total fixed annual compensation	**–**	**890**	**890**	**890**	**765**	**810**	**810**	**810**	**–**	**932**	**932**	**932**
Short-term variable cash compensation[2]	–	750	0	1,500	679	775	0	1,550	–	750	0	1,500
Long-term variable cash compensation (virtual Bayer shares)[2]												
2015 (Jan. 1, 2016 – Dec. 31, 2018)	–	–	–	–	679	–	–	–	–	–	–	–
2016 (Jan. 1, 2017 – Dec. 31, 2019)	–	–	–	–		–	–	–	–	–	–	–
Long-term stock-based compensation (Aspire)[3]												
2015 (Jan. 1, 2015 – Dec. 31, 2018)	–	–	–	–	290	–	–	–	–	–	–	–
2016 (Jan. 1, 2016 – Dec. 31, 2019)	–	1,522	0	3,805		1,573	0	3,932	–	1,522	0	3,806
Total	**–**	**3,162**	**890**	**6,195**	**2,413**	**3,158**	**810**	**6,292**	**–**	**3,204**	**932**	**6,238**
Service cost / benefit expense	–	316	316	316	222	318	318	318	–	219	219	219
Total compensation	**–**	**3,478**	**1,206**	**6,511**	**2,635**	**3,476**	**1,128**	**6,610**	**–**	**3,423**	**1,151**	**6,457**

A 4.3.2/1 (continued)

Compensation and Benefits Granted for 2016

	Serving members of the Board of Management as of December 31, 2016				Former members							
	Dieter Weinand (Pharmaceuticals)				Dr. Marijn Dekkers				Michael König			
	Joined Jan. 1, 2016				Stepped down April 30, 2016				Stepped down Dec. 31, 2015			
€ thousand	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016	Target value 2015	Target value 2016	Min. 2016	Max.[1] 2016
Fixed annual compensation	–	800	800	800	1,374	475	475	475	725	–	–	–
Fringe benefits	–	34	34	34	40	99	99	99	36	–	–	–
Total fixed annual compensation	**–**	**834**	**834**	**834**	**1,414**	**574**	**574**	**574**	**761**	**–**	**–**	**–**
Short-term variable cash compensation[2]	–	800	0	1,600	1,477	475	0	950	679	–	–	–
Long-term variable cash compensation (virtual Bayer shares)[2]												
2015 (Jan. 1, 2016 – Dec. 31, 2018)	–	–	–	–	1,477	–	–	–	679	–	–	–
2016 (Jan. 1, 2017 – Dec. 31, 2019)	–	–	–	–		–	–	–		–	–	–
Long-term stock-based compensation (Aspire)[3]												
2015 (Jan. 1, 2015 – Dec. 31, 2018)	–	–	–	–	550	–	–	–	290	–	–	–
2016 (Jan. 1, 2016 – Dec. 31, 2019)	–	1,623	0	4,058		964	0	2,410		–	–	–
Total	**–**	**3,257**	**834**	**6,492**	**4,918**	**2,013**	**574**	**3,934**	**2,409**	–	**–**	–
Service cost/benefit expense	–	240	240	240	967	382	382	382	211	–	–	–
Total compensation	**–**	**3,497**	**1,074**	**6,732**	**5,885**	**2,395**	**956**	**4,316**	**2,620**	–	**–**	–

[1] The maximum achievable variable compensation shown here does not yet take into account the caps applicable. Payments in a single year are limited to 1.8 times the target compensation (see Chapter 4.3.1 "Compensation structure").
[2] Following the change in the compensation system for the Board of Management effective January 1, 2016, the entire amount of the STI for 2016 will be paid out in cash in the second quarter of 2017. The 50:50 split of the STI into a cash payment and a grant of virtual Bayer shares was made for the last time for 2015.
[3] The Aspire tranche for 2016 is subject to the new system for Bayer's Aspire program (see Chapter 4.3.1). The cap for this new long-term compensation program is 250%.

A 4.3.2/2

Allocation of Compensation for 2015 and 2016

	Serving members of the Board of Management as of December 31, 2016							
	Werner Baumann (Chairman)		Liam Condon (Crop Science)		Johannes Dietsch (Finance)		Dr. Hartmut Klusik (Human Resources, Technology & Sustainability)	
	Joined Jan. 1, 2010		Joined Jan. 1, 2016		Joined Sept. 1, 2014		Joined Jan. 1, 2016	
€ thousand	2015	2016	2015	2016	2015	2016	2015	2016
Fixed annual compensation	906	1,285	–	800	725	750	–	750
Fringe benefits	47	47	–	44	44	83	–	140
Total	**953**	**1,332**	**–**	**844**	**769**	**833**	**–**	**890**
Short-term variable cash compensation								
for 2015[1]	1,237	–	–	–	917	–	–	–
for 2016	–	2,329	–	1,106	–	978	–	1,053
Long-term cash compensation (virtual Bayer shares)								
2011 (Jan. 1, 2012 – Dec. 31, 2014)	1,307	–	–	–	–	–	–	–
2012 (Jan. 1, 2012 – Dec. 31, 2015)	–	1,747	–	–	–	–	–	–
Long-term stock-based cash compensation (Aspire)								
2011 (Jan. 1, 2011 – Dec. 31, 2014)[2]	769	–	–	–	297	–	–	–
2012 (Jan. 1, 2012 – Dec. 31, 2015)	–	789	–	–	–	301	–	–
Total	**4,266**	**6,197**	**–**	**1,950**	**1,983**	**2,112**	**–**	**1,943**
Service cost/benefit expense[3]	227	764	–	330	220	318	–	316
Total compensation	**4,493**	**6,961**	**–**	**2,280**	**2,203**	**2,430**	**–**	**2,259**

A 4.3.2/2 (continued)

Allocation of Compensation for 2015 and 2016

	Serving members of the Board of Management as of December 31, 2016						Former members			
	Kemal Malik (Innovation)		Erica Mann (Consumer Health)		Dieter Weinand (Pharmaceuticals)		Dr. Marijn Dekkers		Michael König	
	Joined Feb. 1, 2014		Joined Jan. 1, 2016		Joined Jan. 1, 2016		Stepped down April 30, 2016		Stepped down Dec. 31, 2015	
€ thousand	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**	**2015**	**2016**
Fixed annual compensation	725	775	–	750	–	800	1,374	475	725	–
Fringe benefits	40	35	–	182	–	34	40	99	36	–
Total	**765**	**810**	**–**	**932**	**–**	**834**	**1,414**	**574**	**761**	**–**
Short-term variable cash compensation										
for 2015[1]	917	–	–	–	–	–	1,995	–	–	–
for 2016	–	1,050	–	798	–	1,274	–	475	917	–
Long-term cash compensation (virtual Bayer shares)										
2011 (Jan. 1, 2012 – Dec. 31, 2014)	–	–	–	–	–	–	2,841	–	–	–
2012 (Jan. 1, 2012 – Dec. 31, 2015)	–	–	–	–	–	–	–	3,039	–	–
Long-term stock-based cash compensation (Aspire)										
2011 (Jan. 1, 2011 – Dec. 31, 2014)[2]	384	–	–	–	–	–	1,459	–	191	–
2012 (Jan. 1, 2012 – Dec. 31, 2015)	–	364	–	–	–	–	–	1,495	–	–
Total	**2,066**	**2,224**	**–**	**1,730**	**–**	**2,108**	**7,709**	**5,583**	**1,869**	**–**
Service cost / benefit expense[3]	222	318	–	219	–	240	967	382	211	–
Total compensation	**2,288**	**2,542**	**–**	**1,949**	**–**	**2,348**	**8,676**	**5,965**	**2,080**	**–**

[1] The increased variable compensation for Werner Baumann in 2015 resulted mainly from his temporary duties as head of Bayer HealthCare in addition to his primary responsibilities as a member of the Board of Management.
[2] The payments to Johannes Dietsch, Michael König and Kemal Malik from the 2011 Aspire tranche related to vesting periods that began before they joined the Board of Management. The tranches were not yet fully vested at the dates on which they joined the Board of Management. The same applies to the payments in 2016 from the 2012 Aspire tranche for Johannes Dietsch and Kemal Malik.
[3] The total service cost is the service cost in accordance with HGB plus contributions to pension funds.

4.3.3 Compensation of the Supervisory Board

The Supervisory Board is compensated according to the relevant provisions of the Articles of Incorporation.

The members of the Supervisory Board receive fixed annual compensation of €120,000 plus reimbursement of their expenses.

In accordance with the recommendations of the German Corporate Governance Code, additional compensation is paid to the Chairman and Vice Chairman of the Supervisory Board and for chairing and membership of committees. The Chairman of the Supervisory Board receives fixed annual compensation of €360,000, the Vice Chairman €240,000. These amounts also cover membership and chairmanship of committees. The other members receive additional compensation for committee membership. The chairman of the Audit Committee receives an additional €120,000, the other members of the Audit Committee €60,000 each. The chairmen of the remaining committees receive €60,000 each, the other members of those committees €30,000 each. No additional compensation is paid for membership of the Nominations Committee. A Supervisory Board member who is a member of more than two committees receives compensation only for the two committees with the highest compensation. If changes are made to the Supervisory Board and / or its committees during the year, members receive compensation on a prorated basis. The members of the Supervisory Board also receive an attendance fee of €1,000 each time they personally attend a meeting of the Supervisory Board or a committee. The attendance fee is limited to €1,000 per day.

The members of the Supervisory Board have given a voluntary pledge that they will each purchase Bayer shares for 25% of their pretax fixed compensation, including any additional compensation for committee membership, and hold these shares for as long as they remain members of the Supervisory Board. This does not apply to members who are prevented from purchasing shares due to a service or employment contract with a company or who transfer at least 85% of their fixed compensation to the Hans Böckler Foundation in accordance with the rules of the German Trade Union Confederation or whose service or employment contract with a company requires them to transfer such compensation to that company. If less than 85% of the fixed compensation is transferred, the voluntary pledge applies to the portion not transferred. By voluntarily pledging to invest in and hold Bayer shares, the Supervisory Board members reinforce their interest in the long-term, sustainable success of the company.

The members of the Supervisory Board have pledged to purchase Bayer shares.

Compensation of the Supervisory Board in 2016

The following table shows the components of each Supervisory Board member's compensation for 2016.

A 4.3.3/1

Compensation of the Members of the Supervisory Board of Bayer AG in 2016

	Fixed compensation		Attendance fee		Total	
€ thousand	2015	2016	2015	2016	2015	2016
Members of the Supervisory Board serving as of December 31, 2016						
Dr. Paul Achleitner	180	180	5	5	185	185
Dr. Simone Bagel-Trah	120	120	4	5	124	125
Dr. Clemens Börsig	120	120	4	5	124	125
André van Broich	129	150	6	5	135	155
Thomas Ebeling	120	120	4	4	124	124
Johanna W. (Hanneke) Faber [1]	–	81	–	2	–	83
Dr. Thomas Fischer	180	180	9	9	189	189
Reiner Hoffmann	180	127	5	5	185	132
Yüksel Karaaslan	135	150	6	5	141	155
Petra Kronen	150	150	6	4	156	154
Frank Löllgen	19	173	1	8	20	181
Prof. Dr. Wolfgang Plischke [1]	–	162	–	5	–	167
Sue H. Rataj	120	120	5	5	125	125
Petra Reinbold-Knape	130	180	5	5	135	185
Michael Schmidt-Kiessling	120	120	5	4	125	124
Dr. Klaus Sturany	240	240	9	9	249	249
Werner Wenning (Chairman)	360	360	11	9	371	369
Heinz Georg Webers	60	120	3	5	63	125
Prof. Dr. Otmar D. Wiestler [2]	49	150	3	4	52	154
Oliver Zühlke (Vice Chairman)	195	240	9	9	204	249
Members who left the Supervisory Board in 2015 and 2016						
Dr. Helmut Panke [3]	180	59	8	4	188	63
Prof. Dr. Dr. Ernst-Ludwig Winnacker [3]	137	59	6	2	143	61
Peter Hausmann [4]	125	–	5	–	130	–
Thomas de Win [5]	119	–	4	–	123	–
Total	**3,168**	**3,361**	**123**	**118**	**3,291**	**3,479**

[1] Member of the Supervisory Board since April 30, 2016
[2] Prof. Wiestler has received compensation for his membership of the Supervisory Board since September 1, 2015. Previously, his office as Chairman of the Management Board of the German Cancer Research Center precluded his acceptance of this compensation.
[3] Member of the Supervisory Board until April 29, 2016
[4] Member of the Supervisory Board until June 30, 2015
[5] Vice Chairman and member of the Supervisory Board until June 30, 2015

In addition to their compensation as members of the Supervisory Board, those employee representatives who are employees of Bayer Group companies receive compensation unrelated to their service on the Supervisory Board. The total amount of such compensation in 2016 was €939 thousand (2015: €741 thousand).

No compensation was paid or benefits granted to members of the Supervisory Board for personally performed services such as consultancy or agency services. The company has purchased insurance for the members of the Supervisory Board to cover their personal liability arising from their service on the Supervisory Board.

4.3.4 Further Information

Advances or loans to Members of the Board of Management or Supervisory Board
There were no advances or loans to members of the Board of Management or the Supervisory Board outstanding as of December 31, 2016, nor at any time during 2016 or 2015.

Pension payments to former members of the Board of Management or their surviving dependents
We currently pay retired members of the Board of Management a monthly pension equal to a maximum of 80% of the fixed compensation received immediately prior to retirement. The pensions paid to former members of the Board of Management or their surviving dependents are reassessed annually and adjusted, taking into account the development of consumer prices. The pensions paid to former members of the Board of Management or their surviving dependents in 2016 totaled €12,800 thousand (2015: €13,416 thousand). These benefits are paid in addition to any amounts they receive under previous employee pension arrangements. The present value of the defined benefit pension obligation for former members of the Board of Management and their surviving dependents according to the IFRS amounted to €188,850 thousand (2015: €172,767 thousand), while the settlement value of the pension obligation according to the German Commercial Code amounted to €149,948 thousand (2015: €148,632 thousand).

4.4 Takeover-Relevant Information

Explanatory report pursuant to Sections 289, Paragraph 4 and 315, Paragraph 4 of the German Commercial Code (HGB)

See also
www.bayer.com/
ownership-structure

The capital stock of Bayer AG amounted as of December 31, 2016, to €2,117 million, divided into 826,947,808 no-par registered shares. The capital stock and the number of shares were thus unchanged from the end of the previous year. Each share confers one voting right. A small number of shares may be subject to temporary trading restrictions, such as retention periods, in connection with employee stock participation programs. We received no notifications in 2016 of direct or indirect holdings of shares in Bayer AG that exceed 10% of the capital stock. The company thus is not in possession of any notifications of holdings that exceed 10% of the capital stock.

The appointment and dismissal of members of the Board of Management are subject to the provisions of Sections 84 and 85 of the German Stock Corporation Act, Section 31 of the German Codetermination Act and Section 6 of the company's Articles of Incorporation. Pursuant to Section 84, Paragraph 1 of the German Stock Corporation Act, the members of the Board of Management are appointed and dismissed by the Supervisory Board. Since Bayer AG falls within the scope of the German Codetermination Act, the appointment or dismissal of members of the Board of Management requires a majority of two thirds of the votes of the members of the Supervisory Board on the first ballot pursuant to Section 31, Paragraph 2 of that act. If no such majority is achieved, the appointment is resolved pursuant to Section 31, Paragraph 3 of the Codetermination Act on a second ballot by a simple majority of the votes of the members of the Supervisory Board. If the required majority still is not achieved, a third ballot is held. Here again, a simple ma-

jority of the votes suffices, but in this ballot the Chairman of the Supervisory Board has two votes pursuant to Section 31, Paragraph 4 of the Codetermination Act. Under Section 6, Paragraph 1 of the Articles of Incorporation of Bayer AG, the number of members of the Board of Management is determined by the Supervisory Board but must be at least two. The Supervisory Board may appoint one member of the Board of Management to be the Chairman of the Board of Management pursuant to Section 84, Paragraph 2 of the German Stock Corporation Act and Section 6, Paragraph 1 of the Articles of Incorporation.

Any amendments to the Articles of Incorporation are made pursuant to Section 179 of the German Stock Corporation Act and Sections 10 and 17 of the Articles of Incorporation. Under Section 179, Paragraph 1 of the German Stock Corporation Act, amendments to the Articles of Incorporation require a resolution of the Stockholders' Meeting. Pursuant to Section 179, Paragraph 2 of the German Stock Corporation Act, this resolution must be passed by a majority of three quarters of the voting capital represented at the meeting, unless the Articles of Incorporation provide for a different majority. However, where an amendment relates to a change in the object of the company, the Articles of Incorporation may only specify a larger majority. Section 17, Paragraph 2 of the Articles of Incorporation of Bayer AG utilizes the scope for deviation pursuant to Section 179, Paragraph 2 of the German Stock Corporation Act and provides that resolutions may be passed by a simple majority of the votes cast or, where a capital majority is required, by a simple majority of the capital represented. Pursuant to Section 10, Paragraph 9 of the Articles of Incorporation, the Supervisory Board may resolve on amendments to the Articles of Incorporation that relate solely to their wording.

Provisions of the Articles of Incorporation concerning Authorized Capital I and Authorized Capital II are entered in the commercial register of Bayer AG. With the approval of the Supervisory Board and until April 28, 2019, the Board of Management may use the Authorized Capital I to increase the capital stock by up to a total of €530 million. New shares may be issued against cash contributions and/or contributions in kind, but capital increases against contributions in kind may not exceed a total of €423 million. If the Authorized Capital I is used to issue shares in return for cash contributions, stockholders must normally be granted subscription rights. The Board of Management may only exclude stockholders' subscription rights to a volume of shares issued out of the Authorized Capital I that did not represent more than 20% of the existing capital stock at the time the respective resolution was adopted by the Annual Stockholders' Meeting on April 29, 2014. Absent a further resolution on the exclusion of stockholders' subscription rights, the Board of Management also may only exclude stockholders' subscription rights to a volume of shares issued under other authorizations regarding capital measures (Authorized Capital II, bonds with warrants or convertible notes, purchase and disposal of own shares) that did not represent more than 20% of the existing capital stock at the time the respective resolution was adopted by the Annual Stockholders' Meeting on April 29, 2014.

With the approval of the Supervisory Board and until April 28, 2019, the Board of Management is authorized to increase the capital stock by up to €212 million in one or more installments by issuing shares out of the Authorized Capital II against cash contributions. The stockholders must normally be granted subscription rights. However, the Board of Management is authorized, with the approval of the Supervisory Board, to exclude subscription rights for stockholders provided the volume of shares issued out of the Authorized Capital II against cash contributions does not exceed 10% of the capital stock existing at the time this authorization is registered or at the time the new shares are issued and the issue price of the new shares is not significantly below the market price of the already listed shares.

Conditional capital of €212 million exists in connection with an authorization – valid through April 28, 2019 – to issue bonds with warrants or convertible notes, profit-sharing rights or profit participation bonds (collectively referred to as "bonds") with a total face value of €6 billion, €4 billion of which has already been used for mandatory convertible notes. The Board of Management may, with the consent of the Supervisory Board and under certain conditions, exclude the bond subscription rights that would otherwise be granted to stockholders. One of the conditions is that the

total volume of shares required to service the bonds exceed neither 10% of the capital stock that existed at the time the respective resolution was adopted by the Annual Stockholders' Meeting on April 29, 2014 nor 10% of the capital stock existing at the time this authorization is exercised. Any other shares issued without granting subscription rights to the stockholders in direct or analogous application of Section 186, Paragraph 3, Sentence 4 of the German Stock Corporation Act shall be credited against this 10% limit.

Further, by resolution of the Annual Stockholders' Meeting on April 29, 2014, the Board of Management is authorized to purchase and dispose of own shares representing up to 10% of the capital stock existing at the time the resolution was adopted. The authorization to purchase own shares also includes the purchase of own shares using put or call options (derivatives) up to a volume of 5% of the capital stock existing at the time the resolution was adopted or at the time the authorization is exercised. This authorization also expires on April 28, 2019.

A material agreement that is subject to the condition precedent of a change of control pertains to the undrawn €3.5 billion syndicated credit facility arranged by Bayer AG and its U.S. subsidiary Bayer Corporation. This facility is available until December 2020. The participating banks are entitled to terminate the credit facility in the event of a change of control at Bayer and demand repayment of any loans that may have been granted under this facility up to that time. A similar clause is contained in the agreement on a syndicated credit facility granted to Bayer subsidiary Bayer World Investments B.V., Netherlands, in 2014 and guaranteed by Bayer AG. The facility still amounts to US$900 million (as of December 31, 2016) and matures in May 2018. A similar clause is also contained in the agreement on a syndicated credit facility in the original amount of US$56.9 billion granted to Bayer US Finance II LLC in September 2016, which is also guaranteed by Bayer AG. This as yet undrawn facility serves to finance the planned acquisition of Monsanto. Pursuant to the agreement, this credit facility was reduced in November 2016 by the US$4.2 billion net proceeds from the issuance of mandatory convertible notes, to US$52.7 billion. The mandatory convertible notes were issued by Bayer Capital Corporation B.V., guaranteed by Bayer AG and mature in November 2019. The terms on which holders may convert the notes into shares before the maturity date are more favorable in the event of a change of control than they would be otherwise.

The terms of the nominal €3.4 billion (as of December 31, 2016) in notes issued by Bayer in the years 2006 to 2014 under its existing Debt Issuance Programme also contain a change-of-control clause. Holders of these notes have the right to demand the redemption of their notes by Bayer AG in the event of a change of control if Bayer AG's credit rating is downgraded within 120 days after such change of control becomes effective. The terms of the US$7 billion bond in 144A/Reg S format issued in October 2014 also contain a clause to this effect. The outstanding amount of this bond is US$6.5 billion.

Agreements exist for the members of the Board of Management in compliance with Section 4.2.3 of the German Corporate Governance Code to cover the eventuality of a takeover offer being made for Bayer AG. Under these agreements, payments promised in the event of early termination of the service contract of a Board of Management member due to a change of control are limited to the value of three years' compensation and may not compensate more than the remaining term of the contract.

B Consolidated Financial Statements

Full Consolidated Financial Statements

Bayer Group Consolidated Income Statements

B 1

€ million	Note	2015	2016
Net sales	[7]	**46,085**	**46,769**
Cost of goods sold		(21,040)	(20,295)
Gross profit		**25,045**	**26,474**
Selling expenses	[8]	(12,272)	(12,474)
Research and development expenses	[9]	(4,274)	(4,666)
General administration expenses		(2,092)	(2,256)
Other operating income	[10]	1,109	898
Other operating expenses	[11]	(1,275)	(934)
EBIT[1]		**6,241**	**7,042**
Equity-method loss	[13.1]	(9)	(26)
Financial income		371	151
Financial expenses		(1,367)	(1,280)
Financial result	[13]	**(1,005)**	**(1,155)**
Income before income taxes		**5,236**	**5,887**
Income taxes	[14]	(1,223)	(1,329)
Income from continuing operations after income taxes		**4,013**	**4,558**
Income from discontinued operations after income taxes	[6.3]	**85**	**268**
Income after income taxes		**4,098**	**4,826**
of which attributable to noncontrolling interest	[15]	(12)	295
of which attributable to Bayer AG stockholders (net income)		**4,110**	**4,531**
€			
Earnings per share	[16]		
From continuing operations	[16]		
Basic		4.87	5.12
Diluted		4.87	5.12
From discontinued operations	[16]		
Basic		0.10	0.32
Diluted		0.10	0.32
From continuing and discontinued operations	[16]		
Basic		4.97	5.44
Diluted		4.97	5.44

2015 figures restated

[1] For definition see Combined Management Report, Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”

Bayer Group Consolidated Statements of Comprehensive Income

B 2

€ million	Note	2015	2016
Income after income taxes		**4,098**	**4,826**
of which attributable to noncontrolling interest	[15]	(12)	295
of which attributable to Bayer AG stockholders		4,110	4,531
Remeasurements of the net defined benefit liability for post-employment benefit plans	[25]	1,216	(1,036)
Income taxes	[14]	(430)	228
Other comprehensive income from remeasurements of the net defined benefit liability for post-employment benefit plans		**786**	**(808)**
Other comprehensive income that will not be reclassified subsequently to profit or loss		**786**	**(808)**
Changes in fair values of derivatives designated as cash flow hedges	[30.3]	(266)	58
Reclassified to profit or loss		304	3
Income taxes	[14]	(25)	(16)
Other comprehensive income from cash flow hedges		**13**	**45**
Changes in fair values of available-for-sale financial assets	[20]	(5)	65
Reclassified to profit or loss		1	–
Income taxes	[14]	(2)	(8)
Other comprehensive income from available-for-sale financial assets		**(6)**	**57**
Changes in exchange differences recognized on translation of operations outside the eurozone		748	703
Reclassified to profit or loss		–	(58)
Other comprehensive income from exchange differences		**748**	**645**
Other comprehensive income relating to associates accounted for using the equity method		**(20)**	**(14)**
Other comprehensive income that may be reclassified subsequently to profit or loss		**735**	**733**
Effects of changes in scope of consolidation		**–**	**–**
Total other comprehensive income[1]		**1,521**	**(75)**
of which attributable to noncontrolling interest		33	(10)
of which attributable to Bayer AG stockholders		1,488	(65)
Total comprehensive income		**5,619**	**4,751**
of which attributable to noncontrolling interest		21	285
of which attributable to Bayer AG stockholders		5,598	4,466

2015 figures restated

[1] Total changes recognized outside profit or loss

Bayer Group Consolidated Statements of Financial Position

B 3

€ million	Note	Dec. 31, 2015	Dec. 31, 2016
Noncurrent assets			
Goodwill	[17]	16,096	16,312
Other intangible assets	[17]	15,178	13,567
Property, plant and equipment	[18]	12,375	13,114
Investments accounted for using the equity method	[19]	246	584
Other financial assets	[20]	1,092	1,281
Other receivables	[23]	430	583
Deferred taxes	[14]	4,679	6,350
		50,096	**51,791**
Current assets			
Inventories	[21]	8,550	8,408
Trade accounts receivable	[22]	9,933	10,969
Other financial assets	[20]	756	6,275
Other receivables	[23]	2,017	2,210
Claims for income tax refunds		509	676
Cash and cash equivalents		1,859	1,899
Assets held for sale and discontinued operations	[6.3]	197	10
		23,821	**30,447**
Total assets		**73,917**	**82,238**
Equity	[24]		
Capital stock		2,117	2,117
Capital reserves		6,167	9,658
Other reserves		15,981	18,558
Equity attributable to Bayer AG stockholders		**24,265**	**30,333**
Equity attributable to noncontrolling interest		1,180	1,564
		25,445	**31,897**
Noncurrent liabilities			
Provisions for pensions and other post-employment benefits	[25]	10,873	11,134
Other provisions	[26]	1,740	1,780
Financial liabilities	[27]	16,513	16,180
Income tax liabilities		475	423
Other liabilities	[29]	1,065	957
Deferred taxes	[14]	826	1,330
		31,492	**31,804**
Current liabilities			
Other provisions	[26]	5,045	5,421
Financial liabilities	[27]	3,421	3,401
Trade accounts payable	[28]	5,945	6,410
Income tax liabilities		923	884
Other liabilities	[29]	1,534	2,421
Liabilities directly related to assets held for sale and discontinued operations	[6.3]	112	–
		16,980	**18,537**
Total equity and liabilities		**73,917**	**82,238**

Bayer Group Consolidated Statements of Changes in Equity

B 4

€ million	Capital stock	Capital reserves	Retained earnings incl. net income	Exchange differences	Fair-value measurement of securities
Dec. 31, 2014	**2,117**	**6,167**	**12,974**	**(1,172)**	**30**
Equity transactions with owners					
Capital increase					
Dividend payments			(1,861)		
Other changes			582	(155)	
Other comprehensive income			776	705	(6)
Income after income taxes			4,110		
Dec. 31, 2015	**2,117**	**6,167**	**16,581**	**(622)**	**24**
Equity transactions with owners					
Capital increase [1]		3,491			
Dividend payments			(2,067)		
Other changes			129	53	
Other comprehensive income			(781)	614	57
Income after income taxes			4,531		
Dec. 31, 2016	**2,117**	**9,658**	**18,393**	**45**	**81**

[1] The capital increase resulted from the issuance of mandatory convertible notes in the amount of €4,000 million on November 22, 2016. After deduction of €48 million in transaction costs and recognition of €191 million in deferred taxes, €3,491 million was allocated to capital reserves and €652 million to financial liabilities.

B 4 continued

€ million	Cash flow hedges	Revaluation surplus	Equity attributable to Bayer AG stockholders	Equity attributable to non-controlling interest	Equity
Dec. 31, 2014	**(36)**	**26**	**20,106**	**112**	**20,218**
Equity transactions with owners					
Capital increase					
Dividend payments			(1,861)	(8)	(1,869)
Other changes		(5)	422	1,055	1,477
Other comprehensive income	13		1,488	33	1,521
Income after income taxes			4,110	(12)	4,098
Dec. 31, 2015	**(23)**	**21**	**24,265**	**1,180**	**25,445**
Equity transactions with owners					
Capital increase			3,491		3,491
Dividend payments			(2,067)	(58)	(2,125)
Other changes		(4)	178	157	335
Other comprehensive income	45		(65)	(10)	(75)
Income after income taxes			4,531	295	4,826
Dec. 31, 2016	**22**	**17**	**30,333**	**1,564**	**31,897**

Bayer Group Consolidated Statements of Cash Flows

B 5

€ million	Note	2015	2016
Income after income taxes		4,013	4,558
Income taxes		1,223	1,329
Financial result		1,005	1,155
Income taxes paid		(1,699)	(2,092)
Depreciation, amortization and impairments		3,332	3,743
Change in pension provisions		(221)	(285)
(Gains) losses on retirements of noncurrent assets		(105)	(44)
Decrease (increase) in inventories		(191)	(3)
Decrease (increase) in trade accounts receivable		(1,059)	(552)
(Decrease) increase in trade accounts payable		400	452
Changes in other working capital, other noncash items		138	(2)
Net cash provided by (used in) operating activities from continuing operations		**6,836**	**8,259**
Net cash provided by (used in) operating activities from discontinued operations		54	830
Net cash provided by (used in) operating activities	[33]	**6,890**	**9,089**
Cash outflows for additions to property, plant, equipment and intangible assets		(2,517)	(2,578)
Cash inflows from sales of property, plant, equipment and other assets		193	111
Cash inflows from divestments		2	(18)
Cash inflows from (outflows for) noncurrent financial assets		(26)	(690)
Cash outflows for acquisitions less acquired cash		(176)	2
Interest and dividends received		106	89
Cash inflows from (outflows for) current financial assets		(344)	(5,645)
Net cash provided by (used in) investing activities	[34]	**(2,762)**	**(8,729)**
Capital contributions		–	3,300
Proceeds from shares of Covestro AG		1,490	–
Dividend payments		(1,869)	(2,126)
Issuances of debt		16,620	15,190
Retirements of debt		(19,549)	(15,920)
Interest paid including interest-rate swaps		(812)	(853)
Interest received from interest-rate swaps		160	59
Cash outflows for the purchase of additional interests in subsidiaries		(14)	–
Net cash provided by (used in) financing activities	[35]	**(3,974)**	**(350)**
Change in cash and cash equivalents due to business activities		**154**	**10**
Cash and cash equivalents at beginning of year		**1,853**	**1,859**
Change in cash and cash equivalents due to changes in scope of consolidation		5	3
Change in cash and cash equivalents due to exchange rate movements		(153)	27
Cash and cash equivalents at end of year		**1,859**	**1,899**

2015 figures restated

Notes to the Consolidated Financial Statements of the Bayer Group

1. Key data by segment and region

B 1/1

Key Data by Segment

	Pharmaceuticals		Consumer Health		Crop Science		Animal Health	
€ million	2015	2016	2015	2016	2015	2016	2015	2016
Net sales (external)	15,308	16,420	6,076	6,037	10,128	9,915	1,490	1,523
Change [1]	+13.3%	+7.3%	+43.1%	– 0.6%	+9.2%	–2.1%	+13.1%	+2.2%
Currency-adjusted change [1]	+8.7%	+8.7%	+40.4%	+3.5%	+2.4%	+0.2%	+4.5%	+4.8%
Intersegment sales	38	29	2	5	34	36	20	10
Net sales (total)	15,346	16,449	6,078	6,042	10,162	9,951	1,510	1,533
Other operating income	154	207	108	101	643	301	4	10
EBIT [1]	3,028	3,389	768	695	2,094	1,755	254	313
EBIT before special items [1]	3,327	3,947	1,005	987	1,872	1,898	318	320
EBITDA before special items [1]	4,616	5,251	1,456	1,411	2,406	2,421	347	349
ROCE [1]	14.4%	16.2%	4.0%	3.5%	16.3%	12.9%	47.8%	63.5%
Net cash provided by operating activities	3,157	3,368	816	874	749	2,071	348	193
Equity-method income (loss)	1	–	–	2	(1)	(1)	–	–
Equity-method investments	3	3	11	11	4	15	–	–
Assets	22,389	22,173	16,560	16,558	14,230	14,868	791	838
Capital expenditures	764	851	182	220	735	773	43	39
Additions to noncurrent assets from acquisitions	(145)	(3)	149	(1)	98	(10)	–	–
Depreciation, amortization and impairments	1,347	1,695	454	601	534	525	63	30
of which impairment losses	62	464	25	175	35	52	34	1
of which impairment loss reversals	(1)	–	–	–	–	–	–	(1)
Liabilities	8,385	8,941	1,596	1,614	5,344	5,897	678	699
Research and development expenses	2,450	2,787	250	259	1,082	1,164	134	140
Number of employees (as of Dec. 31) [2]	40,504	40,093	13,513	12,821	23,268	22,399	3,804	3,957

2015 figures restated

[1] For definition see Combined Management Report, Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”

[2] Full-time equivalents

B 1/1 continued

Key Data by Segment

	All Other Segments		Reconciliation: Corporate Functions and Consolidation		Life Sciences		Covestro		Group	
€ million	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Net sales (external)	1,097	1,042	4	6	34,103	34,943	11,982	11,826	46,085	46,769
Change [1]	–1.3%	–5.0%	–42.9%	+50.0%	+15.7%	+2.5%	+2.8%	–1.3%	+12.1%	+1.5%
Currency-adjusted change [1]	–0.8%	–4.2%	–42.9%	–	+10.7%	+4.7%	–5.1%	0.0%	+6.2%	+3.5%
Intersegment sales	2,249	2,124	(2,407)	(2,279)	–	–	64	75	–	–
Net sales (total)	3,346	3,166	(2,403)	(2,273)	–	–	12,046	11,901	46,085	46,769
Other operating income	69	91	64	77	1,042	787	67	111	1,109	898
EBIT [1]	(39)	(50)	(499)	(364)	5,606	5,738	635	1,304	6,241	7,042
EBIT before special items [1]	43	18	(472)	(344)	6,093	6,826	967	1,304	7,060	8,130
EBITDA before special items [1]	238	224	(466)	(338)	8,597	9,318	1,659	1,984	10,256	11,302
ROCE [1]	–	–	–	–	10.4%	10.3%	7.1%	15.3%	9.9%	11.0%
Net cash provided by operating activities	27	503	287	(574)	5,384	6,435	1,452	1,824	6,836	8,259
Equity-method income (loss)	–	–	–	(7)	–	(6)	(9)	(20)	(9)	(26)
Equity-method investments	–	–	1	325	19	354	227	230	246	584
Assets	2,324	2,632	8,263	15,986	64,557	73,055	9,360	9,183	73,917	82,238
Capital expenditures	311	307	5	18	2,040	2,208	514	419	2,554	2,627
Additions to noncurrent assets from acquisitions	–	–	–	–	102	(14)	27	–	129	(14)
Depreciation, amortization and impairments	195	206	6	6	2,599	3,063	733	680	3,332	3,743
of which impairment losses	4	7	–	–	160	699	69	13	229	712
of which impairment loss reversals	–	–	–	–	(1)	(1)	–	–	(1)	(1)
Liabilities	4,814	5,616	23,915	23,724	44,732	46,491	3,740	3,850	48,472	50,341
Research and development expenses	32	39	64	16	4,012	4,405	262	261	4,274	4,666
Number of employees (as of Dec. 31) [2]	19,015	19,494	709	828	100,813	99,592	15,770	15,578	116,583	115,170

2015 figures restated

[1] For definition see Combined Management Report, Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”

[2] Full-time equivalents

B 1/2

Key Data by Region

	Europe/ Middle East/Africa		North America		Asia/Pacific	
€ million	2015	2016	2015	2016	2015	2016
Net sales (external) – by market	17,707	17,823	12,621	12,806	10,263	11,032
Change[1]	+5.0%	+0.7%	+28.0%	+1.5%	+13.2%	+7.5%
Currency-adjusted change[1]	+5.6%	+2.8%	+10.8%	+2.0%	+1.4%	+7.9%
Net sales (external) – by point of origin	18,528	18,808	12,332	12,375	10,022	10,786
Change[1]	+5.4%	+1.5%	+27.3%	+0.3%	+13.6%	+7.6%
Currency-adjusted change[1]	+6.1%	+3.5%	+9.5%	+0.8%	+1.5%	+8.1%
Interregional sales	10,340	10,745	3,994	4,280	828	912
Other operating income	580	331	109	223	107	126
EBIT[1]	4,119	4,673	1,483	1,128	547	1,165
Assets	34,145	39,146	20,522	21,088	9,492	9,831
Capital expenditures	1,442	1,549	587	628	402	299
Depreciation, amortization and impairments	1,874	1,997	834	1,181	496	479
Liabilities	29,116	30,506	13,461	13,478	3,583	3,428
Research and development expenses	2,944	3,285	1,051	1,081	214	229
Number of employees (as of Dec. 31)[2]	58,839	59,483	15,961	15,788	28,818	27,407

2015 figures restated
[1] For definition see Combined Management Report, Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”
[2] Full-time equivalents

B 1/2 (continued)

Key Data by Region

	Latin America		Reconciliation		Total	
€ million	2015	2016	2015	2016	2015	2016
Net sales (external) – by market	5,494	5,108	–	–	46,085	46,769
Change[1]	+3.2%	–7.0%	–	–	+12.1%	+1.5%
Currency-adjusted change[1]	+7.7%	+0.8%	–	–	+6.2%	+3.5%
Net sales (external) – by point of origin	5,203	4,800	–	–	46,085	46,769
Change[1]	+3.4%	–7.7%	–	–	12.1%	1.5%
Currency-adjusted change[1]	+8.7%	+0.6%	–	–	6.2%	3.5%
Interregional sales	582	530	(15,744)	(16,467)	–	–
Other operating income	313	218	–	–	1,109	898
EBIT[1]	591	440	(499)	(364)	6,241	7,042
Assets	5,079	5,823	4,679	6,350	73,917	82,238
Capital expenditures	123	151	–	–	2,554	2,627
Depreciation, amortization and impairments	122	80	6	6	3,332	3,743
Liabilities	1,486	1,599	826	1,330	48,472	50,341
Research and development expenses	65	71	–	–	4,274	4,666
Number of employees (as of Dec. 31)[2]	12,965	12,492	–	–	116,583	115,170

2015 figures restated
[1] For definition see Combined Management Report, Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”
[2] Full-time equivalents

2. General information

The consolidated financial statements of the Bayer Group as of December 31, 2016, were prepared by Bayer Aktiengesellschaft (Bayer AG) according to the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB), London, United Kingdom, and the interpretations of the IFRS Interpretations Committee (IFRS IC), both as endorsed by the European Union and in effect at the end of the reporting period. The applicable further requirements of Section 315a of the German Commercial Code were also taken into account.

Bayer AG is a global enterprise based in Germany. Its registered office is at Kaiser-Wilhelm-Allee 1, 51368 Leverkusen. Its material business activities in the fields of health care, agriculture and high-tech polymer materials took place in the reporting period in the Pharmaceuticals, Consumer Health, Crop Science, Animal Health and Covestro segments. The activities of each segment are outlined in Note [5].

The declarations required under Section 161 of the German Stock Corporation Act concerning the German Corporate Governance Code have been issued and made available to stockholders.

The Board of Management of Bayer AG prepared the consolidated financial statements of the Bayer Group on February 14, 2017. They were discussed by the Audit Committee of the Supervisory Board of Bayer AG at its meeting on February 20, 2017, and approved by the Supervisory Board at its plenary meeting on February 21, 2017.

In the income statement and statement of comprehensive income, statement of financial position, statement of cash flows and statement of changes in equity, certain items are combined for the sake of clarity. These are explained in the Notes. The income statement is prepared using the cost-of-sales method. Assets and liabilities are classified by maturity. They are regarded as current if they mature within one year or within the normal business cycle of the company or the Group, or are held for sale. The normal business cycle is defined for this purpose as beginning with the procurement of the resources necessary for the production process and ending with the receipt of cash or cash equivalents as consideration for the sale of the goods or services produced in that process. Inventories and trade accounts receivable and payable are always presented as current items. Deferred tax assets and liabilities and pension provisions are always presented as noncurrent items.

The consolidated financial statements of the Bayer Group are drawn up in euros. Amounts are stated in millions of euros (€ million) except where otherwise indicated.

The financial statements of the individual consolidated companies are prepared as of the closing date of the Group financial statements.

3. Effects of new financial reporting standards

Financial reporting standards applied for the first time in 2016

The first-time application of the following amended financial reporting standards had no impact, or no material impact, on the presentation of Bayer's financial position or results of operations, or on earnings per share.

In May 2014, the IASB published amendments to IAS 16 (Property, Plant and Equipment) and IAS 38 (Intangible Assets) entitled "Clarification of Acceptable Methods of Depreciation and Amortisation." These amendments clarify that revenue-based depreciation of property, plant and equipment or amortization of intangible assets is inappropriate.

In May 2014, the IASB published amendments to IFRS 11 (Joint Arrangements) entitled "Accounting for Acquisitions of Interests in Joint Operations." The amendments clarify the accounting for the acquisition of an interest in a joint operation in which the activity constitutes a business.

In December 2014, the IASB published its Disclosure Initiative containing amendments to IAS 1 (Presentation of Financial Statements), which are intended to clarify the disclosure requirements. They relate to materiality, line-item aggregation, subtotals, the structure of the Notes to the financial statements, the identification of significant accounting policies and the separate disclosure of the other comprehensive income of associates and joint ventures.

In December 2014, the IASB published amendments to IFRS 10 (Consolidated Financial Statements), IFRS 12 (Disclosure of Interests in Other Entities) and IAS 28 (Investments in Associates and Joint Ventures) entitled "Investment Entities: Applying the Consolidation Exception." The amendments largely clarify which subsidiaries an investment entity must consolidate and which must be recognized at fair value through profit or loss.

Changes in accounting methods

The legal and economic independence of Covestro results in changes to the global annual impairment tests for Covestro. In the future, from the perspective of the Bayer Group, the strategic business entities of Covestro will be subjected to impairment testing as a group of cash-generating units because the goodwill of Covestro will be monitored by Bayer Group management at this aggregated level from now on.

Published financial reporting standards that have not yet been applied

The IASB and the IFRS Interpretations Committee have issued the following standards, amendments to standards, and interpretations whose application was not yet mandatory for the 2016 fiscal year and is conditional upon their endorsement by the European Union.

In July 2014, the IASB published the most recent version of IFRS 9 (Financial Instruments). The new standard contains revised rules for the classification and measurement of financial assets and liabilities, impairments of financial assets, and hedge accounting. IFRS 9 defines three instead of four measurement categories for capitalized financial instruments, with classification to be based partly on the company's business model and partly on the characteristics of the contractual cash flows from the respective financial asset. In the case of equity instruments that are not held for trading, an entity may irrevocably opt at initial recognition either to account for such instruments at fair value through profit or loss or to recognize future changes in their fair value outside profit or loss in the statement of comprehensive income and not subsequently reclassify these changes in fair value, even upon their derecognition.

The new impairment model is based on the principle of accounting for an expected loss from the date of first-time recognition of a financial asset, before a loss event occurs. The aim of the revisions regarding hedge accounting is to achieve a more objective presentation of risk management in the financial statements. This also involved the revision of IFRS 7, leading to a requirement for additional disclosures in the Notes. IFRS 9 is to be applied for annual periods beginning on or after January 1, 2018. It was endorsed by the European Union in November 2016. The evaluation of this standard's impact on the presentation of Bayer's financial position and results of operations has not yet been completed. No decision has yet been made on whether to exercise the options the standard provides for facilitating the transition and for accounting for financial instruments recognized from January 1, 2018, onward. Based on current knowledge, the effects of applying the final version of IFRS 9 on the allocation of financial instruments to measurement categories and thus on the results of operations are estimated to be immaterial.

In May 2014, the IASB issued IFRS 15 (Revenue from Contracts with Customers). IFRS 15 is the new standard for revenue recognition. It clarifies that the expected consideration for goods or services must be recognized as revenue when the goods or intangible assets are transferred or the services are rendered to the customer. This principle is applied in five steps. In step 1, the contract with the customer is identified. In step 2, the distinct performance obligations in the contract are identified. In step 3, the transaction price is determined. In step 4, this transaction price is allocated to the distinct performance obligations. Finally, in step 5, revenue is recognized when the identified distinct performance obligations are satisfied, either over time or at a point in time. IFRS 15 replaces IAS 11 (Construction Contracts), IAS 18 (Revenue), IFRIC 13 (Customer Loyalty Programmes), IFRIC 15 (Agreements for the Construction of Real Estate), IFRIC 18 (Transfers of Assets from Customers) and SIC-31 (Revenue-Barter Transactions Involving Advertising Services). The new standard is to be applied for annual periods beginning on or after January 1, 2018.

Bayer currently plans to implement IFRS 15 on the basis of the modified retrospective method, accounting for the aggregate amount of any transition effects by way of an adjustment to retained earnings as of January 1, 2018, and presenting the comparative period in line with previous rules. All of the established business models for the Bayer Group's Life Science divisions were examined in the course of the implementation project. The analysis did not yet cover all material consolidated companies. Based on current knowledge, Bayer does not expect the new standard to materially affect the timing of revenue recognition for the transactions concerned or their components. The evaluation of certain individual licensing agreements has not yet been completed.

IFRS 15 clarifies the allocation of individual topics to (new) line items in the statement of financial position and to functional cost items in the income statement, and whether gross or net amounts are to be presented. Determination of the effects on the level of sales or selling expenses has not yet been completed. Based on current knowledge, however, we do not anticipate any material effects on these items. Overall, we do not currently expect any material effects on the presentation of Bayer's financial position or results of operations as a whole, or on earnings per share.

In September 2014, the IASB published amendments to IFRS 10 (Consolidated Financial Statements) and IAS 28 (Investments in Associates and Joint Ventures) entitled "Sale or Contribution of Assets between an Investor and its Associate or Joint Venture." The amendments clarify that in a transaction involving an associate or joint venture the extent of gain or loss recognition depends on whether the assets sold or contributed constitute a business. An amendment issued in December 2015 indefinitely defers the effective date of the September 2014 amendments, which were originally intended to be applied for annual periods beginning on or after January 1, 2016. The IASB is to set a new effective date.

In January 2016, the IASB issued IFRS 16 (Leases), the new standard for lease accounting. IFRS 16 introduces a uniform lease accounting model for lessees, requiring recognition of assets and liabilities for all leases with a term of more than 12 months unless such leases are immaterial. It will eliminate the current requirement for lessees to classify lease contracts as either operating leases – without recognizing the respective assets or liabilities – or as finance leases. The new standard is to be applied for annual periods beginning on or after January 1, 2019. It has not yet been endorsed by the European Union. Bayer is currently evaluating the impact the standard will have on the presentation of its financial position and results of operations.

In January 2016, the IASB published amendments to IAS 12 (Income Taxes) under the title "Recognition of Deferred Tax Assets for Unrealised Losses." These amendments clarify the accounting for deferred tax assets related to debt instruments measured at fair value. The amendments are to be applied for annual periods beginning on or after January 1, 2017. They have not yet been endorsed by the European Union. Bayer is currently evaluating the impact the amendments will have on the presentation of its financial position and results of operations.

In January 2016, the IASB published amendments to IAS 7 (Statement of Cash Flows) under its Disclosure Initiative. The following changes in liabilities arising from financing activities must be disclosed in the future: a) changes from financing cash flows; b) changes arising from obtaining or losing control of subsidiaries or other businesses; c) the effect of changes in foreign exchange rates; d) changes in fair values; e) other changes. The amendments are to be applied for annual periods beginning on or after January 1, 2017. They have not yet been endorsed by the European Union.

In April 2016, the IASB issued Clarifications to IFRS 15 (Revenue from Contracts with Customers). These amendments address three topics: identifying performance obligations, principal versus agent considerations, and licensing. They also provide some transition relief for modified contracts and completed contracts. The amendments are to be applied for annual periods beginning on or after January 1, 2018. They have not yet been endorsed by the European Union. Bayer is currently evaluating the impact the amendments will have on the presentation of its financial position and results of operations.

In June 2016, the IASB published an amendment to IFRS 2 (Share-based Payment) under the title “Classification and Measurement of Share-based Payment Transactions.” This amendment provides guidance on certain accounting issues relating to cash-settled share-based payments. For example, the fair value of the equity instruments is not to be adjusted for service conditions or non-market-based performance conditions. Instead, these are to be taken into account by adjusting the number of equity instruments expected to vest. The amendment is to be applied for annual periods beginning on or after January 1, 2018. It has not yet been endorsed by the European Union. Bayer is currently evaluating the impact the amendment will have on the presentation of its financial position and results of operations.

In December 2016, the IASB published an amendment to IAS 40 (Investment Property) under the title “Transfers of Investment Property.” This specifies that a property may only be transferred to or from the investment property classification when there has been an actual change in use and not when there is a mere change of intent concerning the property. The amendment is to be applied for annual periods beginning on or after January 1, 2018. It has not yet been endorsed by the European Union. Bayer is currently evaluating the impact the amendment will have on the presentation of its financial position and results of operations.

In December 2016, the IASB published “Annual Improvements to IFRS Standards 2014-2016 Cycle” as part of its annual improvements project. The amendments relate to IFRS 1 (First Time Adoption of IFRS), IFRS 12 (Disclosure of Interest in Other Entities) and IAS 28 (Investments in Associates and Joint Ventures). They mainly contain clarifications on the scope of application and other matters. The amendments to IFRS 1 and IAS 28 are to be applied for annual periods beginning on or after January 1, 2018, those to IFRS 12 for annual periods beginning on or after January 1, 2017. They have not yet been endorsed by the European Union. Bayer is currently evaluating the impact the amendments will have on the presentation of its financial position and results of operations.

In December 2016, the IASB published the IFRIC Interpretation 22 (Foreign Currency Transactions and Advance Consideration) relating to IAS 21 (The Effects of Changes in Foreign Exchange Rates). The Interpretation clarifies that the assets, income and expenses accounted for following a foreign currency transaction are to be translated at the same exchange rate as any related receipts or payments of advance consideration. IFRIC 22 is to be applied for annual periods beginning on or after January 1, 2018. It has not yet been endorsed by the European Union. Bayer is currently evaluating the impact the Interpretation will have on the presentation of its financial position and results of operations.

4. Basic principles, methods and critical accounting estimates

The financial statements of the consolidated companies are prepared according to uniform accounting policies and measurement principles.

The consolidated financial statements of the Group are based on the principle of the historical cost of acquisition, construction or production, with the exception of the items reflected at fair value, such as financial assets held for trading or available for sale, and derivatives.

In preparing the consolidated financial statements, the management has to make certain assumptions and estimates that may substantially impact the presentation of the Group's financial position and / or results of operations.

Such estimates, assumptions or the exercise of discretion mainly relate to the useful life of noncurrent assets, the discounted cash flows used for impairment testing and purchase price allocations, and the recognition of provisions, including those for litigation-related expenses, pensions and other benefits, taxes, environmental compliance and remediation costs, sales allowances, product liability and guarantees. Essential estimates and assumptions that may affect reporting in the various item categories of the financial statements are described in the following sections of this Note. Estimates are based on historical experience and other assumptions that are considered reasonable under given circumstances. They are continually reviewed but may vary from the actual values.

Changes in accounting policies or measurement principles in light of new or revised standards are applied retrospectively, except as otherwise provided in the respective standard. The income statement for the previous year and the opening statement of financial position for that year are adjusted as if the new accounting policies and / or measurement principles had always been applied.

Consolidation

The consolidated financial statements include subsidiaries, joint arrangements and associates.

Subsidiaries are companies over which Bayer AG is currently able to exercise power by virtue of existing rights. Power means the ability to direct the activities that significantly influence a company's profitability. Control is therefore only deemed to exist if Bayer AG is exposed, or has rights, to variable returns from its involvement with a company and has the ability to use its power over that company to affect the amount of that company's returns. The ability to control another company generally derives from Bayer AG's direct or indirect ownership of a majority of the voting rights. In the case of structured entities, however, control is based on contractual agreements. Inclusion of an entity's accounts in the consolidated financial statements begins when the Bayer Group is able to exercise control over the entity and ceases when it is no longer able to do so.

Joint operations and **joint ventures** are based on joint arrangements. A joint arrangement is deemed to exist if the Bayer Group through a contractual agreement jointly controls activities managed with a third party. Joint control is only deemed to exist if decisions regarding the relevant activities require the unanimous consent of the parties sharing control.

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement. The Bayer Group recognizes the share of assets, liabilities, revenues and expenses relating to its interest in a joint operation in accordance with its rights and obligations.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement. Joint ventures are accounted for using the equity method.

Associates over which Bayer AG exerts significant influence, generally through an ownership interest between 20% and 50%, are also accounted for using the equity method.

The carrying amount of a company accounted for using the equity method is adjusted annually by any change in its equity corresponding to Bayer's percentage interest in the company. Differences arising upon first-time inclusion using the equity method are accounted for according to full-consolidation principles. Bayer's share of changes in these companies' equities recognized in profit or loss – including impairment losses recognized on goodwill – are reflected in equity-method income / loss.

Companies that do not have a material impact on the Group's financial position or results of operations, either individually or in aggregate, are accounted for at cost of acquisition less any impairment losses.

Foreign currency translation

The financial statements of the individual companies for inclusion in the consolidated financial statements are prepared in their respective functional currencies. A company's functional currency is that of the economic environment in which it primarily generates and expends cash. The majority of consolidated companies carry out their activities autonomously from a financial, economic and organizational point of view, and their functional currencies are therefore the respective local currencies.

In the consolidated financial statements, the assets and liabilities of companies outside the eurozone at the start and end of the year are translated into euros at closing rates. All changes occurring during the year and all income and expense items and cash flows are translated into euros at average monthly rates. Equity components are translated at the historical exchange rates prevailing at the respective dates of their first-time recognition in Group equity.

The exchange differences arising between the resulting amounts and those obtained by translating at closing rates are recognized outside profit or loss as "Exchange differences on translation of operations outside the eurozone" (in other comprehensive income) or "Exchange differences" (in the tables in the Notes). When a company is deconsolidated or the net investment in a foreign operation is reduced, such exchange differences are reclassified from equity to profit or loss.

The exchange rates for major currencies against the euro varied as follows:

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Exchange Rates for Major Currencies

		Closing rate		Average rate	
€1/		2015	2016	2015	2016
BRL	Brazil	4.31	3.43	3.64	3.84
CAD	Canada	1.51	1.42	1.42	1.47
CHF	Switzerland	1.08	1.07	1.07	1.09
CNY	China	7.06	7.35	6.97	7.36
GBP	United Kingdom	0.73	0.86	0.73	0.82
JPY	Japan	131.07	123.36	134.28	120.06
MXN	Mexico	18.91	21.78	17.56	20.62
RUB	Russia	80.67	64.30	67.23	73.79
USD	United States	1.09	1.05	1.11	1.11

In 2016, as in prior years, the rules of IAS 29 (Financial Reporting in Hyperinflationary Economies) were relevant for Bayer S.A., Venezuela. Gains and losses incurred upon adjusting the carrying amounts of nonmonetary assets and liabilities and of items in the income statement for inflation are recognized in other operating income and expenses.

Starting in January 2016, foreign currency translation and valuation were switched to the “hyperinflation-adjusted” SIMADI exchange rate. This is determined internally because reliable exchange rates are not available externally. It was initially based on the official SIMADI rate and has subsequently been adjusted in line with published inflation rates. The exchange rate thus calculated was VEF 2,737 to the U.S. dollar at the end of December 2016. The resulting U.S. dollar amounts were then translated at the dollar / euro closing-date rate.

Foreign currency measurement

In the separate financial statements of the individual consolidated companies, monetary items, such as receivables and liabilities, that are denominated in currencies other than the respective functional currency are measured at closing rates. Related exchange differences are recognized in profit or loss as exchange gains or losses under other financial income or expenses.

Net sales and other operating income

All revenues derived from the selling of products or rendering of services or from licensing agreements are recognized as sales. Other operational revenues are recognized as other operating income. Sales are recognized in profit or loss when the significant risks and rewards of ownership of the goods have been transferred to the customer, the company retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold, the amount of revenue and costs incurred or to be incurred can be measured reliably, and it is sufficiently probable that the economic benefits associated with the transaction will flow to the company.

Sales are stated net of sales taxes, other taxes and sales deductions at the fair value of the consideration received or to be received. Sales deductions are estimated amounts for rebates, cash discounts and product returns. They are deducted at the time the sales are recognized, and appropriate provisions are recorded. Sales deductions are estimated primarily on the basis of historical experience, specific contractual terms and future expectations of sales development. It is unlikely that factors other than these could materially affect sales deductions in the Bayer Group. Adjustments to provisions made in prior periods for rebates, cash discounts or product returns were of secondary importance for income before income taxes in the years under report.

Provisions for rebates in 2016 amounted to 4.2% of total net sales (2015: 3.8%). In addition to rebates, Group companies offer cash discounts for prompt payment in some countries. Provisions for cash discounts as of December 31, 2016 and December 31, 2015 were less than 0.1% of total net sales for the respective year.

Sales are reduced by the amount of the provisions for expected returns of defective goods or of saleable products that may be returned under contractual arrangements. The net sales are reduced on the date of sale or on the date when the amount of future returns can be reasonably estimated. Provisions for product returns in 2016 amounted to 0.4% of total net sales (2015: 0.4%). If future product returns cannot be reasonably estimated and are significant to a sales transaction, the revenues and the related cost of sales are deferred until a reasonable estimate can be made or the right to return the goods has expired.

Some of the Bayer Group's revenues are generated on the basis of licensing agreements under which third parties have been granted rights to products and technologies. Payments received, or expected to be received, that relate to the sale or out-licensing of technologies or technological expertise are recognized in profit or loss as of the effective date of the respective agreement if all rights relating to the technologies and all obligations resulting from them have been relinquished under the contract terms. However, if rights to the technologies continue to exist or obligations resulting from them have yet to be fulfilled, the payments received are deferred accordingly. Upfront payments and similar nonrefundable payments received under these agreements are recorded as other liabilities and recognized in profit or loss according to the degree of performance over the estimated performance period stipulated in the agreement.

License agreements and research and development collaboration agreements may be multiple-deliverable arrangements with varying consideration terms, such as upfront payments and milestone or similar payments. Such agreements therefore have to be assessed to determine whether the revenues allocated to individual deliverables must be recognized at different points in time and therefore form separate units of account.

To qualify as a separate unit of account for revenue recognition purposes, a deliverable must have value to the licensee on a standalone basis. If this is not the case, the agreement as a whole or a combination of individual deliverables that has value on a standalone basis forms a unit of account.

If necessary goods have yet to be delivered or necessary services provided for a unit of account and such delivery or provision is probable, nonrefundable (royalty) payments already received are recognized through profit or loss over the periods in which these goods are delivered or these services are provided.

Income may also arise from the exchange of intangible assets. The amount recognized is generally based on the fair value of the assets given up, calculated using the discounted cash flow method. If the assets given up are internally generated, the gain from the exchange generally equals their fair value.

Research and development expenses

For accounting purposes, research expenses are defined as costs incurred for current or planned investigations undertaken with the prospect of gaining new scientific or technical knowledge and understanding. Development expenses are defined as costs incurred for the application of research findings or specialist knowledge to plans or designs for the production, provision or development of new or substantially improved products, services or processes, respectively, prior to the commencement of commercial production or use.

Research and development expenses are incurred in the Bayer Group for in-house research and development activities as well as numerous research and development collaborations and alliances with third parties.

Research and development expenses mainly comprise the costs for active ingredient discovery, clinical studies, research and development activities in the areas of application technology and engineering, field trials, regulatory approvals and approval extensions.

Research costs cannot be capitalized. The conditions for capitalization of development costs are closely defined: an intangible asset must be recognized if, and only if, there is reasonable certainty of receiving future cash flows that will cover an asset's carrying amount. Since our own development projects are often subject to regulatory approval procedures and other uncertainties, the conditions for the capitalization of costs incurred before receipt of approvals are not normally satisfied.

In the case of research and development collaborations, a distinction is generally made between payments on contract signature, upfront payments, milestone payments and cost reimbursements for work performed. If an intangible asset (such as the right to the use of an active ingredient) is acquired in connection with any of these payment obligations, the respective payment is capitalized even if it is uncertain whether further development work will ultimately lead to the production of a saleable product. Reimbursements of the cost of research or development work are recognized in profit or loss, except where they are required to be capitalized.

Income taxes

Income taxes comprise the taxes levied on taxable income in the individual countries along with changes in deferred tax assets and liabilities that are recognized in profit or loss. The income taxes recognized are reflected at the amounts likely to be payable under the statutory regulations in force, or already enacted in relation to future periods, at the end of the reporting period.

Complex tax regulations may give rise to uncertainties with respect to their interpretation and the amounts and timing of future taxable income. Given the wide range of international business relationships and the long-term nature and complexity of existing contractual agreements, differences arising between the actual results and the assumptions made, or future changes to such assumptions, could necessitate adjustments to tax income and expense in future periods. The Group establishes provisions for taxes, based on reasonable estimates, for liabilities to the tax authorities of the respective countries that are uncertain as to their amount and the probability of their occurrence. The amount of such provisions is based on various factors, such as experience with previous tax audits and differing legal interpretations by the taxable entity and the responsible tax authority.

In compliance with IAS 12 (Income Taxes), deferred taxes are recognized for temporary differences between the carrying amounts of assets and liabilities in the statement of financial position prepared according to IFRS and their tax bases. Deferred taxes are also recognized for consolidation measures and for loss carryforwards, interest carryforwards and tax credits that are likely to be usable.

Deferred tax assets relating to deductible temporary differences, tax credits, loss carryforwards and interest carryforwards are recognized where it is sufficiently probable that taxable income will be available in the future to enable them to be used. Deferred tax liabilities are recognized on temporary differences taxable in the future. Deferred taxes are calculated at the rates which – on the basis of the statutory regulations in force, or already enacted in relation to future periods, as of the closing date – are expected to apply in the individual countries at the time of realization. Deferred tax assets and deferred tax liabilities are offset if they relate to income taxes levied by the same taxation authority and Bayer has a legal right to settle on a net basis. Material effects of changes in tax rates or tax law on deferred tax assets and liabilities are generally accounted for in the period in which the changes are enacted. Such effects are recognized in profit or loss except where they relate to deferred taxes that were recognized outside profit or loss, in which case they are recognized in other comprehensive income.

Deferred and current taxes are recognized in profit or loss unless they relate to items recognized outside profit or loss in other comprehensive income, in which case they, too, are recognized in other comprehensive income.

The probability that deferred tax assets resulting from temporary differences, loss carryforwards or interest carryforwards can be used in the future is the subject of forecasts by the individual consolidated companies regarding their future earnings situation and other parameters.

Deferred tax liabilities are recognized on planned dividend payments by subsidiaries. Where no dividend payment is planned for the foreseeable future, no deferred tax liability is recognized on the difference between the proportionate net assets according to IFRS and the tax base of the investment in the subsidiary.

Goodwill

In a business combination, goodwill is capitalized at the acquisition date. It is measured at its cost of acquisition, which is the excess of the acquisition price for shares in a company over the acquired net assets. The net assets are the balance of the fair values of the acquired identifiable assets and the assumed liabilities and contingent liabilities.

Goodwill is not amortized, but tested annually for impairment. Details of the annual impairment tests are given under “Procedure used in global impairment testing and its impact.” Once an impairment loss has been recognized on goodwill, it is not reversed in subsequent periods.

Other intangible assets

An “other intangible asset” is an identifiable nonmonetary asset without physical substance, other than goodwill (such as a patent, a trademark or a marketing right). It is capitalized if the future economic benefits attributable to the asset will probably flow to the company and the cost of acquisition or generation of the asset can be reliably measured.

Other intangible assets are recognized at the cost of acquisition or generation. Those with a determinable useful life are amortized accordingly on a straight-line basis over a period of up to 30 years, except where their actual depletion demands a different amortization pattern. Determination of the expected useful lives of such assets and the amortization patterns is based on estimates of the period for which they will generate cash flows. An impairment test is performed if there is an indication of possible impairment.

Other intangible assets with an indefinite life (such as the Bayer Cross trademark) and intangible assets not yet available for use (such as research and development projects) are not amortized, but tested annually for impairment.

Property, plant and equipment

Property, plant and equipment is depreciated by the straight-line method over an asset’s useful life, except where depreciation based on actual depletion is more appropriate.

The following depreciation periods are applied throughout the Group:

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Useful Life of Property, Plant and Equipment	
Buildings	20 to 50 years
Outdoor infrastructure	10 to 20 years
Storage tanks and pipelines	10 to 20 years
Plant installations	6 to 20 years
Machinery and equipment	6 to 12 years
Furniture and fixtures	4 to 10 years
Vehicles	5 to 8 years
Computer equipment	3 to 5 years
Laboratory and research facilities	3 to 5 years

When assets are sold, closed down or scrapped, the difference between the net proceeds and the net carrying amount of the assets is recognized as a gain or loss in other operating income or expenses, respectively.

Investment property comprises land and buildings not being used for operational or administrative purposes. It is measured using the cost model. The fair value of the investment property reported in the Notes is determined using the discounted cash flow method, comparisons with the current market values of similar properties, or reports from external experts.

Financial assets

Financial assets comprise loans and receivables, acquired equity and debt instruments, cash and cash equivalents, and derivatives with positive fair values.

Regular-way purchases and sales of financial assets are generally posted on the settlement date. Financial assets are initially recognized at fair value plus transaction costs. The transaction costs incurred for the purchase of financial assets held at fair value through profit or loss are expensed immediately.

If there are substantial and objective indications of a decline in the value of loans and receivables, held-to-maturity financial assets or available-for-sale financial assets, an impairment test is performed. Indications of possible impairment include a high probability of insolvency, a significant deterioration in credit standing, a material breach of contract, operating losses reported by a company over several years, a reduction in market value, the financial restructuring of the debtor, or the disappearance of an active market for the asset.

Financial assets are derecognized when contractual rights to receive cash flows from the financial assets expire or the financial assets are transferred together with all material risks and benefits.

Inventories

In accordance with IAS 2 (Inventories), inventories encompass assets consumed in production or in the rendering of services (raw materials and supplies), assets in the production process for sale (work in process), goods held for sale in the ordinary course of business (finished goods and goods purchased for resale), and advance payments on inventories. Inventories are recognized at their cost of acquisition or production – calculated by the weighted-average method – or at their net realizable value, whichever is lower. The net realizable value is the estimated selling price in the ordinary course of business less estimated cost to complete and selling expenses.

Cash and cash equivalents

Cash and cash equivalents comprise cash, checks received and balances with banks and companies. Cash equivalents are highly liquid short-term financial investments that are subject to an insignificant risk of changes in value, are easily convertible into a known amount of cash and have a maturity of three months or less from the date of acquisition or investment.

Provisions for pensions and other post-employment benefits

Within the Bayer Group, post-employment benefits are provided under defined contribution and / or defined benefit plans. In the case of defined contribution plans, the company pays contributions to publicly or privately administered pension plans on a mandatory, contractual or voluntary basis. Once the contributions have been paid, the company has no further payment obligations. The regular contributions constitute expenses for the year in which they are due and as such are included in the functional cost items, and thus in EBIT. All other post-employment benefit systems are defined benefit plans, which may be either unfunded, i.e. financed by provisions, or funded, i.e. financed through pension funds.

The present value of provisions for defined benefit plans and the resulting expense are calculated in accordance with IAS 19 (Employee Benefits) by the projected unit credit method. The future benefit obligations are valued by actuarial methods and spread over the entire employment period on the basis of specific assumptions regarding beneficiary structure and the economic environment. These relate mainly to the discount rate, future salary and pension increases, variations in health care costs, and mortality rates.

The discount rates used are calculated from the yields of high-quality corporate bond portfolios in specific currencies with cash flows approximately equivalent to the expected disbursements from the pension plans. The uniform discount rate derived from this interest-rate structure is thus based on the yields, at the closing date, of a portfolio of AA-rated corporate bonds whose weighted residual maturities approximately correspond to the duration necessary to cover the entire benefit obligation.

The fair value of plan assets is deducted from the present value of the defined benefit obligation for pensions and other post-employment benefits to determine the net defined benefit liability. The obligations and plan assets are valued at regular intervals of not more than three years. Comprehensive actuarial valuations for all major plans are performed annually as of December 31. Plan assets in excess of the benefit obligation are reflected in other receivables, subject to the asset ceiling specified in IAS 19 (Employee Benefits).

The balance of all income and expenses relating to defined benefit plans, except the net interest on the net liability, is recognized in EBIT. The net interest is reflected in the financial result under other financial income and expenses.

The effects of remeasurements of the net defined benefit liability are reflected in the statement of comprehensive income as other comprehensive income. They consist of actuarial gains and losses, the return on plan assets and changes in the effects of the asset ceiling, less the respective amounts included in net interest. Deferred taxes relating to the effects of remeasurements are also recognized in other comprehensive income.

Other provisions

Other provisions are recognized for present legal and constructive obligations arising from past events that will probably give rise to a future outflow of resources, provided that a reliable estimate can be made of the amount of the obligations.

If the projected obligation declines as a result of a change in the estimate, the provision is reversed by the corresponding amount and the resulting income recognized in the operating expense item(s) in which the original charge was recognized.

To enhance the information content of the estimates, certain provisions that could have a material effect on the financial position or results of operations of the Group are tested for their sensitivity to changes in the underlying parameters. To reflect uncertainty about the likelihood of the assumed events actually occurring, the impact of a five-percentage-point change in the probability of occurrence is examined in each case. This analysis has not shown other provisions to be materially sensitive.

Provisions for environmental protection are recorded if future cash outflows are likely to be necessary to ensure compliance with environmental regulations or to carry out remediation work, such costs can be reliably estimated and no future benefits are expected from such measures. Provisions for environmental protection mainly relate to the rehabilitation of contaminated land, recultivation of landfills, and redevelopment and water protection measures.

Estimating the future costs of environmental protection and remediation involves many uncertainties, particularly with regard to the status of laws, regulations and the information available about conditions in the various countries and at the individual sites. Significant factors in estimating the costs include previous experiences in similar cases, the conclusions in expert opinions obtained regarding the Group's environmental programs, current costs and new developments affecting costs, management's interpretation of current environmental laws and regulations, the number and financial position of third parties that may become obligated to participate in any remediation costs on the basis of joint liability, and the remediation methods likely to be deployed. Changes in these assumptions could impact future reported results of the Group.

Taking into consideration experience gained to date regarding environmental matters of a similar nature, provisions are believed to be adequate based upon currently available information. Given the difficulties inherent in estimating liabilities in the businesses in which the Group operates, especially those for which the risk of environmental damage is greater in relative terms (Crop Science and Covestro), it remains possible that material additional costs will be incurred beyond the amounts accrued. It may transpire during remediation work that additional expenditures are necessary over an extended period and that these exceed existing provisions and cannot be reasonably estimated.

Provisions for restructuring only cover expenses that arise directly from restructuring measures, are necessary for restructuring and are not related to future business operations. Such expenses include severance payments to employees and compensation payments in respect of rented property that can no longer be used.

Restructuring measures may include the sale or termination of business units, site closures, relocations of business activities or fundamental reorganizations of business units.

Trade-related provisions are recorded mainly for the granting of rebates or discounts, product returns, obligations in respect of services already received but not yet invoiced, and impending losses or onerous contracts.

As a global enterprise with a diverse business portfolio, the Bayer Group is exposed to numerous legal risks for which **provisions for litigations** must be established under certain conditions – particularly in the areas of product liability, competition and antitrust law, patent disputes, tax law and environmental protection.

Litigations and other judicial proceedings often raise complex issues and are subject to many uncertainties and complexities including, but not limited to, the facts and circumstances of each particular case, the jurisdiction in which each suit is brought and differences in applicable law. The outcomes of currently pending and future proceedings generally cannot be predicted. It is particularly difficult to assess the likely outcomes of class actions for damages or mass compensation claims in the United States, which may give rise to significant financial risks for the Bayer Group. As a result of a judgment in court proceedings, regulatory decisions or the conclusion of a settlement, the Bayer Group may incur charges for which no accounting measures have yet been taken for lack of reasonable estimability or which exceed presently established provisions and the insurance coverage.

The Bayer Group considers the need for accounting measures in respect of pending or future litigations, and the extent of any such measures, on the basis of the information available to its legal department and in close consultation with legal counsel acting for the Bayer Group.

Where it is more likely than not that such a litigation will result in an outflow of resources that is already reasonably estimable, a provision for litigation is recorded in the amount of the present value of the expected cash outflows. Such provisions cover the estimated payments to the plaintiffs, court and procedural costs, attorney costs and the cost of potential settlements.

It is frequently impossible to reliably determine the existence of a present obligation or reasonably estimate the probability that a potential outflow of resources will result from a pending or future litigation. The status of the material “legal risks” is described in Note [32]. Due to the special nature of these litigations, provisions generally are not established until initial settlements allow an estimate of potential amounts or judgments have been issued. Provisions for legal defense costs are established if it is probable that material costs will have to be incurred for external legal counsel to defend the company’s legal position.

Internal and external legal counsel evaluates the current status of the Bayer Group’s material legal risks at the end of each reporting period. The need to establish or adjust a provision and the amount of the provision or adjustment are determined on this basis. Adjusting events are reflected up to the date of preparation of the consolidated financial statements. The measurement of provisions in the case of class actions or mass compensation claims is mainly based on any settlements reached during the past year and on pending or anticipated future claims.

Provisions for personnel commitments mainly include those for variable one-time payments under short-term incentive programs and for stock-based compensation. Also reflected here are commitments for service awards, early retirements and pre-retirement part-time working arrangements. Provisions for severance payments resulting from restructuring are reflected in provisions for restructuring.

Miscellaneous provisions include those for other liabilities, contingent liabilities from business combinations, and asset retirement obligations (other than those included in provisions for environmental protection).

Financial liabilities

Financial liabilities comprise primary financial liabilities and negative fair values of derivatives.

Liabilities for contingent consideration arising from business combinations are measured at fair value. Changes in fair value are recognized through profit or loss as of the respective closing date.

Financial liabilities are derecognized when the contractual obligation is discharged or canceled, or has expired.

An assessment of the mandatory convertible notes issued in 2016 was performed to determine whether these should be accounted for entirely as debt or split into an equity component and a debt component. The assessment identified Bayer's right to early conversion of the notes as an important criterion in this regard, and the economic substance of this right was examined. The early conversion right has economic substance with respect to maintaining the current credit rating if early conversion can prevent a rating downgrade. In this event, future savings of credit interest would more than offset the cost of early conversion by Bayer.

On the basis of this assessment, the mandatory convertible notes are accounted for as a hybrid financial instrument. The directly attributable costs along with the debt component, which corresponds to the present value of the future interest payments, are deducted from the proceeds of the issue. The debt component is included in financial liabilities. The remaining amount is the equity component, which is reflected in capital reserves.

Other receivables and liabilities

Accrued items and other nonfinancial assets and liabilities are carried at amortized cost. They are amortized to income by the straight-line method or according to performance of the underlying transaction.

Grants and subsidies from third parties that serve to promote investment are reflected in the statement of financial position under other liabilities and amortized to income over the useful lives of the respective investments or in line with the terms of the grant or subsidy.

Derivatives

The Bayer Group uses derivatives to mitigate the risk of changes in exchange rates, interest rates or prices and to hedge stock-based compensation programs. The instruments used include forward exchange contracts, interest-rate swaps and stock options. Derivatives are recognized at the trade date.

Contracts concluded in order to receive or deliver nonfinancial items for the company's own purposes are not accounted for as derivatives but treated as pending transactions. Where embedded derivatives are identified that are required to be separated from the pending transactions, they are accounted for separately. To take advantage of market opportunities or cover possible peak demand, a nonmaterial volume of transactions may be entered into for which the possibility of immediate resale cannot be excluded. Such transactions are allocated to separate portfolios upon acquisition and accounted for as derivatives according to IAS 39.

Derivatives are carried at fair value. Positive fair values at the end of the reporting period are reflected in financial assets, negative fair values in financial liabilities. Changes in the fair values of these derivatives are recognized directly in profit or loss except where hedge accounting is used.

Changes in the fair values of the effective portion of derivatives designated as cash flow hedges are initially recognized outside profit or loss in accumulated other comprehensive income. They are reclassified to profit or loss when the underlying transaction is realized. If such a derivative is sold or ceases to qualify for hedge accounting, the change in its value continues to be recognized in accumulated other comprehensive income until the forecasted transaction is realized. If the forecasted transaction is no longer expected to occur, the amount previously recognized in accumulated other comprehensive income has to be reclassified to profit or loss. The ineffective portion of gains or losses on derivatives designated as cash flow hedges is recognized either in other operating income or expenses or in the financial result, depending on the type of underlying transaction.

Changes in the fair values of derivatives designated as fair-value hedges and the adjustments in the carrying amounts of the underlying transactions are recognized in profit or loss.

Changes in the fair values of forward exchange contracts and currency options serving as hedges of items in the statement of financial position are reflected in other financial income and expenses as exchange gains or losses, while changes in the values of interest-rate swaps and interest-rate options are recognized in interest income or expense. Changes in the fair values of commodity futures and options, and of forward exchange contracts used to hedge forecasted sales transactions in foreign currencies, are recognized in other operating income or expenses. Changes in the fair values of stock options or forward stock transactions used to hedge stock-based employee compensation are initially recognized outside profit or loss and subsequently reclassified to profit or loss in the functional costs over the periods of the Aspire programs.

The income and expense reflected in the financial result pertaining to the derivatives and the underlying transactions are shown separately. Income and expense are not offset.

Acquisition accounting

Acquired businesses are accounted for using the acquisition method, which requires that the assets acquired and liabilities assumed be recorded at their respective fair values on the date Bayer obtains control. Ancillary acquisition costs are recognized as expenses in the periods in which they occur.

The application of the acquisition method requires certain estimates and assumptions to be made, especially concerning the fair values of the acquired intangible assets, property, plant and equipment and the liabilities assumed at the acquisition date, and the useful lives of the acquired intangible assets, property, plant and equipment.

Measurement is based to a large extent on anticipated cash flows. If actual cash flows vary from those used in calculating fair values, this may materially affect the Group's future results of operations. In particular, the estimation of discounted cash flows from intangible assets under development, patented and non-patented technologies and brands is based on assumptions concerning, for example:

- The outcomes of research and development activities regarding the efficacy of a crop protection or seed product, compound, results of clinical trials, etc.
- The probability of obtaining regulatory approvals in individual countries
- Long-term sales projections
- Possible selling price erosion due to offerings of unpatented products following patent expirations
- The behavior of competitors (launch of competing products, marketing initiatives, etc.)

For significant acquisitions, the purchase price allocation is carried out with assistance from independent third-party valuation specialists. The valuations are based on the information available at the acquisition date.

In step acquisitions, the fair values of the acquired entity's assets and liabilities are measured in accordance with IFRS 3 (Business Combinations) at the date on which control is obtained. Any resulting adjustments to the fair value of the existing interest are recognized in profit or loss. The carrying amount of the assets and liabilities already recognized in the statement of financial position is then adjusted accordingly.

Divestment accounting

Divestments of shares in subsidiaries that result in a loss of control are generally accounted for in profit or loss.

When shares in a subsidiary are gradually divested in several tranches, a reduction in the majority shareholding without the loss of control is reflected outside profit or loss and results in an increase in the equity attributable to noncontrolling stockholders. If Bayer AG loses control of an entity but retains significant influence, the entity is accounted for as an associate using the equity method. If Bayer can no longer exert significant influence following a loss of control, the remaining interest is immediately classified as an available-for-sale financial asset and recognized at fair value outside profit or loss.

Procedure used in global impairment testing and its impact

Impairment tests are performed not only on individual items of intangible assets, property, plant and equipment, but also at the level of cash-generating units or groups of cash-generating units. A cash-generating unit is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The Bayer Group regards its strategic business entities or groups of strategic business entities, as well as certain product families, as cash-generating units and subjects them to global impairment testing. The strategic business entities constitute the second financial reporting level below the segments.

Cash-generating units and unit groups are globally tested if there is an indication of possible impairment. Those to which goodwill is allocated are tested at least annually.

Impairment testing involves comparing the carrying amount of each cash-generating unit, unit group or item of intangible assets, property, plant or equipment to the recoverable amount, which is the higher of its fair value less costs of disposal or value in use. If the carrying amount exceeds the recoverable amount, an impairment loss must be recognized for the difference. In this case an impairment loss is first recognized on any goodwill allocated to the cash-generating unit or unit group. Any remaining part of the impairment loss is then allocated among the other noncurrent nonfinancial assets of the cash-generating unit or unit group in proportion to their carrying amounts. The resulting expense is reflected in the functional item of the income statement in which the depreciation or amortization of the respective assets is recognized. The same applies to income from impairment loss reversals.

The recoverable amount is generally determined on the basis of the fair value less costs of disposal, taking into account the present value of the future net cash flows as market prices for the individual units are not normally available. These are forecasted on the basis of the Bayer Group's current planning, the planning horizon normally being three to five years. Forecasting involves making assumptions, especially regarding future selling prices, sales volumes, costs, market growth rates, economic cycles and exchange rates. These assumptions are based on internal estimates along with external market studies. Where the recoverable amount is the fair value less costs of disposal, the cash-generating unit or unit group is measured from the viewpoint of an independent market participant. Where the recoverable amount is the value in use, the cash-generating unit, unit group or individual asset is measured as currently used. In either case, net cash flows beyond the planning period are determined on the basis of long-term business expectations using the respective individual growth rates derived from market information. The fair value less costs of disposal is determined on the basis of unobservable inputs (Level 3).

The net cash inflows are discounted at a rate equivalent to the weighted average cost of equity and debt capital. To allow for the different risk and return profiles of the Bayer Group's principal businesses, the after-tax cost of capital is calculated separately for each reporting segment, and a segment-specific capital structure is defined by benchmarking against comparable companies in the same industry sector. The cost of equity corresponds to the return expected by stockholders, while the cost of debt is based on the conditions on which comparable companies can obtain long-term financing. Both components are derived from capital market information.

The growth rates applied for impairment testing in 2016 and 2015 and the capital cost factors used to discount the expected cash flows are shown in the following table:

B 4/3

Impairment Testing Parameters

	Growth rate		After-tax cost of capital	
%	2015	2016	2015	2016
Pharmaceuticals	0.0	0.0	6.2	5.5
Radiology	0.0	0.0	6.2	5.5
Consumer Health	0.0	0.0	6.2	5.2
Crop Protection	2.3	2.1	6.3	5.3
Seeds	1.9	1.7	6.3	5.3
Environmental Science	1.8	2.4	6.3	5.3
Animal Health	0.0	0.0	6.2	5.3
Covestro	1.8	1.8	6.1	5.4

In light of the legal and economic independence of Covestro, its strategic business entities were impairment-tested as a group of cash-generating units from the point of view of the Bayer Group.

No impairment losses were recognized on goodwill on the basis of the global annual impairment testing of the cash-generating units and unit groups in 2016 or 2015. Impairment losses on intangible assets, property, plant and equipment – net of €1 million (2015: €1 million) in impairment loss reversals – totaled €711 million (2015: €229 million). Details are provided in Notes [17] and [18].

Although the estimates of the useful lives of certain assets, assumptions concerning the macroeconomic environment and developments in the industries in which the Bayer Group operates, and estimates of the discounted future cash flows are believed to be appropriate, changes in assumptions or circumstances could require changes in the analysis. This could lead to the recognition of additional impairment losses in the future or – except in the case of goodwill – to reversals of previously recognized impairment losses if developments are contrary to expectations.

The sensitivity analysis for cash-generating units and unit groups to which goodwill is allocated was based on a 10% reduction in future cash flows, a 10% increase in the weighted average cost of capital or a one-percentage-point reduction in the long-term growth rate. Bayer concluded that no impairment loss would need to be recognized on goodwill in any cash-generating unit or unit group under these conditions.

5. Segment reporting

At Bayer, the Board of Management – as the chief operating decision-maker – allocates resources to the operating segments and assesses their performance. The reportable segments and regions are identified, and the disclosures selected, in line with the internal financial reporting system (management approach) and based on the Group accounting policies outlined in Note [4].

In 2015, the Bayer Group comprised three subgroups, with operations subdivided into strategic business entities known as divisions (HealthCare), business groups (CropScience) and business units (Covestro; formerly MaterialScience). On December 31, 2015, there were four reportable segments. In September 2015, it was decided to introduce a new organizational structure effective January 1, 2016, in line with Bayer's focus on the Life Science businesses. The former Bayer HealthCare subgroup was dissolved, and the Radiology business is now assigned to the Pharmaceuticals segment. The Consumer Health segment consists entirely of the consumer care business. Animal Health is a reportable segment. The Bayer CropScience subgroup became the Crop Science segment. Covestro remains a reportable segment.

In the Crop Science segment, the Crop Protection / Seeds and Environmental Science operating segments were combined, mainly in light of the comparable nature of their products for the agricultural industry, such as in the area of crop protection and the related comparable production processes and comparable distribution methods, including via wholesalers in particular.

The segments' activities are as follows:

B 5/1

Activities of the Segments

Segment	Activities
Pharmaceuticals	Development, production and marketing of prescription products, especially for cardiology and women's health care; specialty therapeutics in the areas of oncology, hematology and ophthalmology; diagnostic imaging equipment and the necessary contrast agents
Consumer Health	Development, production and marketing of mainly nonprescription (OTC = over-the-counter) products in the dermatology, dietary supplement, analgesic, gastrointestinal, cold, allergy, sinus and flu, foot care and sun protection categories
Crop Science[1]	Development, production and marketing of a broad portfolio of products in seeds and plant traits, crop protection and nonagricultural pest control
Animal Health	Development, production and marketing of prescription and nonprescription veterinary products
Covestro	Development, production and marketing of raw materials for polyurethanes; polycarbonate granules and sheets; raw materials for coatings, adhesives and sealants; and by-products of polyether production and of chlorine production and use

[1] Following the signing of a sales agreement with SBM Développement SAS, Lyon, France, the Consumer business of the Environmental Science unit was no longer reported under continuing operations in 2016.

Business activities that cannot be allocated to any other segment are reported under "All other segments." These primarily include the services provided by the service areas: Business Services, Technology Services and Currenta.

The items in "Corporate Functions and Consolidation" mainly comprise the Bayer holding companies and the Bayer Lifescience Center, which focuses on the development of crucial, cross-species innovations. They also include the increase or decrease in expenses for Group-wide long-term stock-based compensation arising from fluctuations in the performance of Bayer stock, and the consolidation of intersegment sales (2016: €2.3 billion; 2015: €2.4 billion).

In Table B 1/2 “Key Data by Region” as of December 31, 2016, the Europe region is combined with the Middle East and Africa. Latin America is a separate region. The regional breakdown is in line with the internal regional responsibilities of the individual members of the Bayer AG Board of Management. The prior-year figures are restated accordingly. The reconciliation in the table “Key Data by Region” eliminates interregional items and transactions and reflects income, expenses, assets and liabilities not allocable to geographical areas.

The segment data are calculated as follows:

- Tables B 1/1 “Key Data by Segment” and B 1/2 “Key Data by Region” and the present chapter contain supplementary performance indicators that are not subject to requirements of the financial reporting standards governing the preparation of the Combined Management Report and the consolidated financial statements. The most important of these indicators are EBIT, EBITDA, EBIT before special items, EBITDA before special items, and the return on capital employed. These supplementary indicators are defined, and their calculation explained, in Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group” of the Combined Management Report in the Bayer Annual Report 2016.
- The intersegment sales reflect intra-Group transactions effected at transfer prices fixed on an arm’s-length basis.
- The net cash provided by operating activities is the cash flow from operating activities as defined in IAS 7 (Statement of Cash Flows).
- The segment assets comprise all assets serving the respective segment, stated as of December 31, including material participating interests of direct relevance to business operations.
- Starting in 2016, the cash flow return on investment (CFROI) was replaced by the return on capital employed (ROCE) as a value-based indicator. Both CFROI and ROCE constitute alternative performance measures.
- The equity items reflect the earnings and carrying amounts of investments accounted for using the equity method.
- Since the financial management of Group companies is carried out centrally by Bayer AG, financial liabilities are not directly allocated among the segments. Consequently, the liabilities shown for the individual segments do not include financial liabilities. These are included in the reconciliation.
- The number of employees on either permanent or temporary contracts is stated in full-time equivalents (FTE), with part-time employees included on a pro-rated basis in line with their contractual working hours. The figures do not include apprentices.

Reconciliations

The reconciliations of EBITDA before special items, EBIT before special items and EBIT to Group income before income taxes and of the assets and liabilities of the segments to the assets and liabilities, respectively, of the Group are given in the following tables.

B 5/2

Reconciliation of Segments' EBITDA Before Special Items to Group Income Before Income Taxes

€ million	2015	2016
EBITDA before special items of segments	10,722	11,640
EBITDA before special items of Corporate Functions and Consolidation	(466)	(338)
EBITDA before special items[1]	**10,256**	**11,302**
Depreciation, amortization and impairment losses / loss reversals before special items of segments	(3,190)	(3,166)
Depreciation, amortization and impairment losses / loss reversals before special items of Corporate Functions and Consolidation	(6)	(6)
Depreciation, amortization and impairment losses / loss reversals before special items	**(3,196)**	**(3,172)**
EBIT before special items of segments	7,532	8,474
EBIT before special items of Corporate Functions and Consolidation	(472)	(344)
EBIT before special items[1]	**7,060**	**8,130**
Special items of segments	(792)	(1,068)
Special items of Corporate Functions and Consolidation	(27)	(20)
Special items[1]	**(819)**	**(1,088)**
EBIT of segments	6,740	7,406
EBIT of Corporate Functions and Consolidation	(499)	(364)
EBIT[1]	**6,241**	**7,042**
Financial result	(1,005)	(1,155)
Income before income taxes	**5,236**	**5,887**

2015 figures restated

[1] For definition see Combined Management Report, Chapter 2.4 "Alternative Performance Measures Used by the Bayer Group."

B 5/3

Reconciliation of Segments' Assets to Group Assets

€ million	2015	2016
Assets of the operating segments	**65,654**	**66,252**
Corporate Functions and Consolidation assets	181	507
Nonallocated assets	7,899	15,479
Assets of discontinued operations	183	–
Group assets	**73,917**	**82,238**

B 5/4

Reconciliation of Segments' Liabilities to Group Liabilities

€ million	2015	2016
Liabilities of the operating segments	**24,557**	**26,617**
Corporate Functions and Consolidation liabilities	2,645	1,996
Nonallocated liabilities	21,158	21,728
Liabilities directly related to discontinued operations	112	–
Group liabilities	**48,472**	**50,341**

The reconciliation of segment sales to Group sales is apparent from the table of key data by segment in Note [1].

Information on geographical areas

The following table provides a regional breakdown of external sales by market and of intangible assets, property, plant and equipment:

B 5/5

Information on Geographical Areas

	Net sales (external) – by market		Intangible assets and property, plant and equipment	
€ million	**2015**	**2016**	**2015**	**2016**
Germany	4,925	4,809	12,385	12,468
United States	11,168	11,310	14,420	14,297
China	4,212	4,603	3,260	2,938
Switzerland	691	662	5,298	5,047
Other	25,089	25,385	8,286	8,243
Total	**46,085**	**46,769**	**43,649**	**42,993**

2015 figures restated

Information on major customers

Revenues from transactions with a single customer in no case exceeded 10% of Bayer Group sales in 2016 or 2015.

GRI G4-17

6. Scope of consolidation; subsidiaries and affiliates

6.1 Changes in the scope of consolidation

Changes in the scope of consolidation in 2016 were as follows:

B 6.1/1

Change in Number of Consolidated Companies

Bayer AG and consolidated companies	Germany	Other countries	Total
December 31, 2015	68	239	307
Changes in scope of consolidation	–	1	1
Additions	–	2	2
Retirements	(4)	(5)	(9)
December 31, 2016	64	237	301

The decrease in the total number of consolidated companies in 2016 was primarily due to mergers among Group companies.

Bayer Pearl Polyurethane Systems LLC, United Arab Emirates, is fully consolidated because the Bayer Group holds a majority of the voting rights.

Pure Salt Baytown LLC, United States, is fully consolidated as a structured entity. The Bayer Group guarantees the liabilities of Pure Salt Baytown LLC to banks. These liabilities, which are reflected in full in the consolidated statement of financial position, amounted to €12 million as of December 31, 2016 (2015: €17 million).

The above table includes one joint operation, LyondellBasell Covestro Manufacturing Maasvlakte V.O.F., Netherlands, as of December 31, 2016 (2015: one). Pursuant to IFRS 11, Bayer's share of this company's assets, liabilities, revenues and expenses are included in the consolidated financial statements in accordance with Bayer's rights and obligations. The main purpose of LyondellBasell Covestro Manufacturing Maasvlakte V.O.F., Netherlands, is the joint production of propylene oxide (PO) for Covestro and its partner Lyondell.

GRI G4-17

In conjunction with the acquisition of the consumer care business of Merck & Co., Inc., United States, Bayer entered into a strategic collaboration with that company. This collaboration is included in the consolidated financial statements as a joint operation. Bayer and Merck & Co., Inc., have mutually agreed to collaborate on the development, production, life-cycle management and marketing of active ingredients and products in the field of soluble guanylate cyclase (sGC) modulation.

Five (2015: four) associates and six (2015: three) joint ventures were accounted for in the consolidated financial statements using the equity method. Details of these companies are given in Note [19].

Flagship Ventures V Agricultural Fund, L.P., United States, was included in the consolidated financial statements for the first time in 2015 and classified as an associate. Bayer has no control over this associate despite owning 99.9% of the capital, but is able to significantly influence its financial and operating policy decisions.

Bayer Trendlines AG Innovation Fund, Limited Partnership, Israel, was included in the consolidated financial statements for the first time in 2016 and classified as an associate. Bayer is a limited partner and has no control over this entity due to contractual restrictions, despite owning 100% of the capital.

Nanjing Baijingyu Pharmaceutical Co., Ltd., China, was classified as an associate in view of Bayer's representation on its executive committee and supervisory board. This enables Bayer to significantly influence its financial and operating policy decisions despite owning only 15% of its voting rights and capital.

A total of 72 (2015: 71) subsidiaries, including one (2015: one) structured entity and 12 (2015: 12) associates or joint ventures that in aggregate are immaterial to the Bayer Group's financial position and results of operations are neither consolidated nor accounted for using the equity method, but are recognized at cost. The immaterial subsidiaries accounted for less than 0.2% of Group sales, less than 0.2% of equity and less than 0.2% of total assets.

Details of subsidiary and affiliated companies pursuant to Section 313 of the German Commercial Code can be accessed at **www.bayer.com/owner16**.

The following domestic subsidiaries availed themselves in 2016 of certain exemptions granted under Section 264, Paragraph 3, and Section 264b of the German Commercial Code regarding the publication of legal-entity financial statements:

B 6.1/2

German Exempt Subsidiaries

Company name	Place of business	Bayer's interest (%)
Adverio Pharma GmbH	Schönefeld	100.0
AgrEvo Verwaltungsgesellschaft mbH	Frankfurt am Main	100.0
Alcafleu Management GmbH & Co. KG	Schönefeld	99.9
Bayer 04 Immobilien GmbH	Leverkusen	100.0
Bayer 04 Leverkusen Fußball GmbH	Leverkusen	100.0
Bayer Altersversorgung GmbH	Leverkusen	100.0
Bayer Animal Health GmbH	Leverkusen	100.0
Bayer Beteiligungsverwaltung Goslar GmbH	Leverkusen	100.0
Bayer Business Services GmbH	Leverkusen	100.0
Bayer Chemicals Aktiengesellschaft	Leverkusen	100.0
Bayer Consumer Care Deutschland GmbH	Berlin	100.0
Bayer CropScience Aktiengesellschaft	Monheim am Rhein	100.0
Bayer CropScience Biologics GmbH	Wismar	100.0

B 6.1/2 (continued)

German Exempt Subsidiaries

Company name	Place of business	Bayer's interest (%)
Bayer CropScience Deutschland GmbH	Langenfeld	100.0
Bayer Direct Services GmbH	Leverkusen	100.0
Bayer Gastronomie GmbH	Leverkusen	100.0
Bayer Gesellschaft für Beteiligungen mbH	Leverkusen	100.0
Bayer Innovation GmbH	Leverkusen	100.0
Bayer Intellectual Property GmbH	Monheim am Rhein	100.0
Bayer Real Estate GmbH	Leverkusen	100.0
Bayer Schering Pharma AG	Berlin	100.0
Bayer Vital GmbH	Leverkusen	100.0
Bayer Weimar GmbH und Co. KG	Weimar	100.0
Bayer-Handelsgesellschaft mit beschränkter Haftung	Leverkusen	100.0
BGI Deutschland GmbH	Leverkusen	100.0
Chemion Logistik GmbH	Leverkusen	100.0
Dritte Bayer Real Estate VV GmbH & Co. KG	Schönefeld	100.0
Erste Bayer Real Estate VV GmbH & Co. KG	Schönefeld	100.0
Erste K-W-A Beteiligungsgesellschaft mbH	Leverkusen	100.0
Fünfte Bayer Real Estate VV GmbH & Co. KG	Schönefeld	100.0
GP Grenzach Produktions GmbH	Grenzach-Wyhlen	100.0
Hild Samen GmbH	Marbach am Neckar	100.0
Intendis GmbH	Berlin	100.0
Intraserv GmbH & Co. KG	Schönefeld	100.0
Jenapharm GmbH & Co. KG	Jena	100.0
KOSINUS Grundstücks-Verwaltungsgesellschaft mbH & Co. Gamma OHG	Schönefeld	100.0
KVP Pharma+Veterinär Produkte GmbH	Kiel	100.0
MENADIER Heilmittel GmbH	Berlin	100.0
Schering-Kahlbaum Gesellschaft mit beschränkter Haftung	Berlin	100.0
Sechste Bayer Real Estate VV GmbH & Co. KG	Schönefeld	100.0
Siebte Bayer VV GmbH	Leverkusen	100.0
Steigerwald Arzneimittelwerk GmbH	Darmstadt	100.0
TECTRION GmbH	Leverkusen	100.0
TravelBoard GmbH	Leverkusen	100.0
Vierte Bayer Real Estate VV GmbH & Co. KG	Schönefeld	100.0
Zweite Bayer Real Estate VV GmbH & Co. KG	Schönefeld	100.0
Zweite K-W-A Beteiligungsgesellschaft mbH	Leverkusen	100.0

6.2 Business combinations and other acquisitions

Business combinations and other acquisitions in 2016

Adjustments to purchase prices and purchase price allocations effected in 2016 relating to previous years' transactions totaled minus €5 million. Adjustments to purchase price allocations and other adjustments increased the total carrying amount of goodwill by €9 million.

The changes in goodwill mainly resulted from the following purchase price allocation adjustment: On July 1, 2015, Crop Science completed the acquisition of all the shares of SeedWorks India Pvt. Ltd., based in Hyderabad, India. The company is specialized in the breeding, production and marketing of hybrid seeds of tomato, hot pepper, okra and gourds. It has research and seed processing locations in Bangalore and Hyderabad, respectively. The purchase of SeedWorks India is intended to further strengthen Crop Science's vegetable seed business in India. A purchase price of €80 million was agreed, pertaining mainly to patents, research and development projects and goodwill.

Improved information obtained about the acquired assets in the first quarter of 2016 in the course of the global purchase price allocation led to decreases of €23 million in intangible assets and €8 million in deferred tax liabilities and a corresponding increase of €13 million in goodwill in the opening statement of financial position. In addition, the purchase price declined by €2 million to €78 million following completion of the final purchase price negotiations.

On February 12, 2016, Bayer and CRISPR Therapeutics AG, Basel, Switzerland, established the joint venture Casebia Therapeutics LLP, Ascot, United Kingdom. Its purpose is the development and commercialization of new methods to treat blood disorders, blindness and heart diseases. Capital contribution liabilities of US$255 million to Casebia Therapeutics LLP were recognized in the statement of financial position as of December 31, 2016. These liabilities mature on December 31, 2020, at the latest. US$45 million was already paid in 2016, and a further US$60 million was paid on January 3, 2017.

On December 9, 2016, Bayer and Versant Ventures, San Francisco, United States, established the joint venture BlueRock Therapeutics LP, San Francisco, United States. The company will be active in the field of next-generation regenerative medicine. Its goal is to develop induced pluripotent stem cell (iPSC) therapies to cure a range of diseases. As of December 31, 2016, Bayer had capital contribution obligations of US$150 million pertaining to the establishment of the joint venture. This amount should be paid by December 31, 2020, at the latest.

Acquisitions after the end of the reporting period

On January 3, 2017, Bayer acquired the Cydectin™ portfolio in the United States from Boehringer Ingelheim Vetmedica Inc., St. Joseph, United States. The acquisition comprises the CYDECTIN Pour-On, CYDECTIN Injectable and CYDECTIN Oral Drench endectocides for cattle and sheep. The acquisition is intended to strengthen the antiparasitics portfolio in the United States through the addition of endectocides. An initial purchase price of approximately €150 million was agreed, which is subject to the usual price adjustment mechanisms. The purchase price was provisionally allocated mainly to trademarks and goodwill. The purchase price allocation currently remains incomplete pending compilation and review of the relevant financial information.

Planned acquisitions

On September 14, 2016, Bayer signed a definitive merger agreement with Monsanto Company, St. Louis, Missouri, United States, which provides for Bayer's acquisition of all outstanding shares in Monsanto Company against a cash payment of US$128 per share. At the time this corresponded to an expected transaction volume of approximately US$66 billion, comprising an equity value (purchase price) of approximately US$56 billion and net debt to be assumed in an amount of US$10 billion, which includes pension obligations as of May 31, 2016, as well as liabilities for payments under stock-based compensation programs. Bayer thus has a contingent financial commitment in the amount of approximately US$56 billion to acquire Monsanto's entire outstanding capital stock. The agreed transaction has been partially hedged against the euro / U.S. dollar currency risk using derivatives contracts.

The transaction brings together two different, but highly complementary businesses. Monsanto is a leading global provider of agricultural products, including seeds and seed technologies, herbicides, and digital platforms to give farmers agronomic recommendations. The combined business will offer a comprehensive set of solutions to meet growers' current and future needs, including enhanced solutions in high-quality seeds and traits, digital farming, and crop protection. The combination also brings together both companies' leading innovation capabilities and R&D technology platforms.

Syndicated bank financing of US$56.9 billion was committed by Bank of America Merrill Lynch, Credit Suisse, Goldman Sachs, HSBC and JP Morgan upon the signing of the merger agreement. The bank financing was subsequently syndicated to more than 20 other partner banks of Bayer.

Bayer intends to finance the transaction with a combination of debt and equity. The planned equity component amounts to approximately US$19 billion in total. As the first part of the equity component, Bayer placed €4 billion in mandatory convertible notes on November 22, 2016, excluding subscription rights for existing stockholders of the company. The remainder of the equity component is expected to be raised by way of a rights issue. The net proceeds from the issuance of the mandatory convertible notes were used for the early replacement of a portion of the undrawn syndicated bank credit facility. Details of the mandatory convertible notes issue are provided in Note [24].

The stockholders of Monsanto Company approved the merger with the requisite majority on December 13, 2016. The transaction remains subject to customary closing conditions, including relevant antitrust and other regulatory approvals. Closing of the transaction is currently expected by the end of 2017.

The merger agreement provides for payment by Bayer of a US$2 billion reverse break fee including, in particular, in the event that the necessary antitrust approvals are not granted by June 14, 2018, and Bayer or Monsanto therefore terminates the merger agreement.

Acquisitions in 2015

In 2015, the following acquisitions were accounted for in accordance with IFRS 3:

On March 2, 2015, Covestro successfully completed the acquisition of all the shares of Thermoplast Composite GmbH, Germany, a technology leader specializing in the production of thermoplastic fiber composites. The aim of the acquisition is to expand the range of polycarbonate materials for major industries to include composites made from continuous fiber-reinforced thermoplastics. A purchase price of €18 million was agreed, including a variable component of €4 million. The purchase price mainly pertained to patents and goodwill.

In connection with the acquisition of the consumer care business of Merck & Co., Inc., Whitehouse Station, New Jersey, United States, in 2014, the production facilities at the Pointe-Claire site in Canada were acquired on July 1, 2015. Of the agreed €67 million purchase price, €61 million pertains to property, plant and equipment.

The global purchase price allocation for the consumer care business acquired from Merck & Co., Inc. in 2014 was completed in September 2015. This resulted in an €821 million increase in deferred tax assets due to temporary differences between the carrying amounts of intangible assets in the IFRS financial statements and those reported for tax purposes, along with a corresponding decline in goodwill in the statement of financial position. These adjustments were effected retroactively as of the date of acquisition pursuant to IFRS 3.45 ff. In addition, the purchase price was reduced by €8 million in 2015 on the basis of agreed purchase price adjustment mechanisms.

Settlements were reached in August 2015 in the court proceedings initiated by former minority stockholders of Bayer Pharma AG (formerly Bayer Schering Pharma AG). The additional payment made as a result represents a subsequent purchase price adjustment according to the March 31, 2004, version of IFRS 3 in effect at the acquisition date. The goodwill was increased by €261 million in 2013 based on the status of the proceedings at that time. Following the settlements in August 2015, it was possible to finally determine the goodwill arising from the acquisition. It was therefore necessary to reduce the goodwill amount by €115 million in 2015 as a result of the proceedings. Both the increase and the reduction were recognized outside profit or loss against the liability resulting from the minority stockholders' compensation claim.

The global purchase price allocation for Dihon Pharmaceutical Group Co. Ltd., Kunming, Yunnan, China, acquired in 2014, was completed in October 2015. The main outcomes were increases in the amounts recognized for trademarks (€18 million), other provisions (€19 million) and other liabilities (€27 million). The purchase price was reduced by €43 million in 2015 due to adjustment mechanisms.

6.3 Divestments, material sale transactions and discontinued operations

Divestments and discontinued operations in 2016

The effects of divestments and discontinued operations in 2016 and those from previous years on the consolidated financial statements were as follows:

The sale of the Diabetes Care business to Panasonic Healthcare Holdings Co., Ltd., Tokyo, Japan, for around €1 billion was completed on January 4, 2016. The sale includes the leading Contour™ portfolio of blood glucose monitoring meters and strips, as well as other products such as Breeze™2, Elite™ and Microlet™ lancing devices.

The sale of the Diabetes Care business also comprises further significant obligations by Bayer that will be fulfilled over a period of up to two years subsequent to the date of divestment. The sale proceeds will be recognized accordingly over this period and reported as income from discontinued operations. Deferred income has been recognized in the statement of financial position and will be dissolved as the obligations are fulfilled. Of this, an amount of €497 million was recognized in sales in 2016. The €71 million outflow of net assets is reflected accordingly in the cost of goods sold.

The obligations to be fulfilled over a period of up to two years after the divestment of the Diabetes Care business are also reported as discontinued operations in the income statement and the statement of cash flows. These resulted in sales of €76 million in 2016. This information is provided from the standpoint of the Bayer Group and does not present these activities as a separate entity. It is therefore not possible to compare these sales against the proceeds from operational product sales achieved in 2015.

The items in the statement of financial position pertaining to the Diabetes Care business are shown in the segment reporting under “All Other Segments.” In addition to the aforementioned deferred income (€469 million), the statement of financial position includes other receivables (net: €66 million), deferred tax assets (net: €73 million), income tax liabilities (€65 million) and miscellaneous provisions (€9 million).

The sale of the Consumer business (CS Consumer) of Bayer’s Environmental Science unit to SBM Développement SAS, Lyon, France, was completed on October 4, 2016. The Consumer business encompasses the Bayer Garden and Bayer Advanced businesses in Europe and North America. These activities are reported as discontinued operations in the income statement and the statement of cash flows.

The effects of these and other, smaller divestments made in 2016 were as follows:

B 6.3/1

Divested Assets and Liabilities

€ million	2015	2016
Goodwill	–	36
Patents and technologies	–	4
Other intangible assets	–	16
Inventories	–	184
Provisions for pensions and other post-employment benefits	–	(28)
Other provisions	–	(97)
Divested net assets	**–**	**115**

The income statements for the discontinued operations are given below:

B 6.3/2

Income Statements for Discontinued Operations

	Diabetes Care		CS Consumer		Total	
€ million	2015	2016	2015	2016	2015	2016
Net sales	**947**	**573**	**239**	**195**	**1,186**	**768**
Cost of goods sold	(380)	(146)	(118)	(121)	(498)	(267)
Gross profit	**567**	**427**	**121**	**74**	**688**	**501**
Selling expenses	(386)	(9)	(95)	(83)	(481)	(92)
Research and development expenses	(48)	(1)	(7)	(11)	(55)	(12)
General administration expenses	(36)	(12)	(6)	(9)	(42)	(21)
Other operating income / expenses	(20)	(4)	(4)	(55)	(24)	(59)
EBIT[1]	**77**	**401**	**9**	**(84)**	**86**	**317**
Financial result	**–**	**–**	**–**	**–**	**–**	**–**
Income before income taxes	**77**	**401**	**9**	**(84)**	**86**	**317**
Income taxes	3	(76)	(4)	27	(1)	(49)
Income after income taxes	**80**	**325**	**5**	**(57)**	**85**	**268**

[1] For definition see Combined Management Report, Chapter 2.4 “Alternative Performance Measures Used by the Bayer Group.”

The discontinued operations affected the Bayer Group statements of cash flows as follows:

B 6.3/3

Statements of Cash Flows for Discontinued Operations

	Diabetes Care		CS Consumer		Total	
€ million	2015	2016	2015	2016	2015	2016
Net cash provided by (used in) operating activities	43	788	11	42	54	830
Net cash provided by (used in) investing activities	(4)	–	(2)	–	(6)	–
Net cash provided by (used in) financing activities	(39)	(788)	(9)	(42)	(48)	(830)
Change in cash and cash equivalents	**–**	**–**	**–**	**–**	**–**	**–**

As no cash is assigned to discontinued operations, the balance of the cash provided is deducted again in financing activities.

Divestments and material sale transactions in 2015

On March 2, 2015, Animal Health completed the sale of two equine products, Legend / Hyonate and Marquis, to Merial, Inc., Duluth, Georgia, United States. A purchase price of €120 million was agreed. The one-time payment was accounted for as deferred income. The purchase prices for Legend / Hyonate and Marquis are being reflected in sales and earnings over a four-year and a three-year period, respectively, as Bayer has entered into further significant obligations.

Notes to the Income Statements

7. Net sales

Net sales are derived primarily from product deliveries. Total reported net sales for 2016 amounted to €46,769 million, rising by €684 million, or 1.5%, compared to 2015. The increase resulted from the following factors:

B 7/1

Factors in Sales Development

	2016	
	€ million	%
Volume	1,936	+ 4.2
Price	(348)	– 0.7
Currency	(913)	– 2.0
Portfolio	9	–
Total	**684**	**+ 1.5**

Breakdowns of net sales by segment and region are given in the table in Note [1].

8. Selling expenses

Selling expenses comprise all expenses incurred in the reporting period for the sale, storage and transportation of saleable products, advertising, the provision of advice to customers, and market research. Selling expenses were comprised as follows:

B 8/1

Selling Expenses

€ million	2015	2016
Internal and external sales force	4,761	4,828
Advertising and customer advice	2,986	2,970
Physical distribution and warehousing of finished products	1,255	1,421
Commission and licensing expenses	1,396	1,514
Other selling expenses	1,874	1,741
Total	**12,272**	**12,474**

2015 figures restated

9. Research and development expenses

Research and development expenses and their accounting treatment are defined in Note [4]. Breakdowns of research and development expenses by segment and region are given in Note [1].

10. Other operating income

Other operating income was comprised as follows:

B 10/1

Other Operating Income

€ million	2015	2016
Gains on retirements of noncurrent assets	137	66
Reversals of impairment losses on receivables	32	20
Reversals of unutilized provisions	25	131
Gains from derivatives	272	259
Miscellaneous operating income	643	422
Total	**1,109**	**898**
of which special items	336	115

2015 figures restated

Income from reversals of unutilized provisions include an amount of €104 million from the reversal of provisions for the Yasmin™/YAZ™ litigation.

Miscellaneous operating income included a €32 million gain incurred by Bayer 04 Leverkusen Fußball GmbH from the sale of transfer rights and a payment of €32 million received from insurers (Covestro segment). A reimbursement payment relating to the termination of a contract accounted for income of €27 million (Covestro segment). In the Crop Science segment, milestone payments led to income of €21 million. In the Pharmaceuticals segment, a €14 million compensation payment was received in connection with the closure of the production site in Putuo, China. Income of €19 million resulted from the reimbursement of indirect taxes paid in previous years (Covestro segment). A €10 million gain was incurred on the sale of the BAYQUIK™ technology to Chemetics, Inc., Canada (Other segments).

In 2015, gains from retirements of noncurrent assets included an amount of €53 million from the sale of trademark rights for the Biovital™, Benerva™, Bactine™ and ProPlus™ brands (Consumer Health segment).

Miscellaneous operating income in 2015 included €314 million in claims against Dow AgroSciences LLC, United States, for damages and royalty payments resulting from the infringement of Bayer's rights to the Liberty Link™ weed control system (Crop Science segment).

11. Other operating expenses

Other operating expenses were comprised as follows:

B 11/1

Other Operating Expenses

€ million	2015	2016
Losses on retirements of noncurrent assets	(32)	(22)
Impairment losses on receivables	(183)	(171)
Expenses related to significant legal risks	(151)	(262)
Losses from derivatives	(626)	(181)
Miscellaneous operating expenses	(283)	(298)
Total	**(1,275)**	**(934)**
of which special items	(247)	(205)

2015 figures restated

Of the impairment losses on receivables, €115 million pertained to past-due receivables in Brazil. In 2015, impairment losses of €91 million were recognized on receivables from the Venezuelan exchange control

authority because the authority did not allocate U.S. dollars at the subsidized exchange rate with respect to the full amounts of older receivables.

The €262 million in expenses for significant legal risks mainly included accounting measures taken in connection with legal proceedings relating to the products Xarelto™, Essure™ and Cipro™/Avelox™. In 2015, the €151 million in expenses for significant legal risks mainly included accounting measures taken in connection with legal proceedings relating to the products Luna™, LL Rice™ and Xarelto™.

Miscellaneous operating expenses included €48 million (2015: €51 million) in donations to charitable causes (all segments). Expenses of €34 million pertained to provisions established for environmental protection measures in the United States (Crop Science segment).

As in the previous year, the remaining amount of miscellaneous operating expenses comprised a large number of individually immaterial items at the subsidiaries.

12. Personnel expenses and employee numbers

Personnel expenses for continuing operations rose in 2016 by €181 million to €11,357 million (2015: €11,176 million). The change was mainly due to compensation adjustments and increases in employee bonuses, which together offset opposing currency effects.

B 12/1

Personnel Expenses

€ million	2015	2016
Salaries	8,991	9,171
Social expenses and expenses for pensions and other benefits	2,185	2,186
of which for defined contribution pension plans	557	581
of which for defined benefit and other pension plans	503	483
Total	**11,176**	**11,357**

2015 figures restated

The personnel expenses shown here do not contain the interest portion of the allocation to personnel-related provisions – mainly for pensions and other post-employment benefits – which is included in the financial result under other financial expenses (Note [13.3]).

The average numbers of employees, classified by corporate function, were as shown in the table below:

B 12/2

Employees	2015	2016
Production	51,280	50,326
Marketing and distribution	42,212	40,756
Research and development	14,462	15,016
General administration	9,376	9,590
Total	**117,330**	**115,688**
Apprentices	2,332	2,393

2015 figures restated

The number of employees on either permanent or temporary contracts is stated in full-time equivalents (FTE), with part-time employees included on a pro-rated basis in line with their contractual working hours. The figures do not include apprentices.

13. Financial result

The financial result for 2016 was minus €1,155 million (2015: minus €1,005 million), comprising an equity-method loss of €26 million (2015: €9 million), financial expenses of €1,280 million (2015: €1,367 million) and financial income of €151 million (2015: €371 million). Details of the components of the financial result are provided below.

13.1 Income (loss) from investments in affiliated companies

The net income (loss) from investments in affiliated companies was comprised as follows:

B 13.1/1

Income (Loss) from Investments in Affiliated Companies € million	2015	2016
Net loss from investments accounted for using the equity method (equity-method loss)	(9)	(26)
Expenses		
Impairment losses on investments in affiliated companies	(1)	(2)
Income		
Impairment loss reversals on investments in affiliated companies	–	–
Income / losses from investments in affiliated companies and from profit and loss transfer agreements (net)	3	–
Gains from the sale of investments in affiliated companies	31	6
Total	**24**	**(22)**

The main components of the loss (2015: income) from investments in affiliated companies were the €24 million (2015: €23 million) equity-method loss from the associate PO JV, LP, United States, and the minus €2 million (2015: €14 million) aggregate of the equity-method income and losses of the remaining joint ventures and associates accounted for using the equity method.

Further details of the companies accounted for using the equity method are given in Note [19].

13.2 Net interest expense

The net interest expense was comprised as follows:

B 13.2/1

Net Interest Expense

€ million	2015	2016
Expenses		
Interest and similar expenses	(752)	(684)
Interest expenses for derivatives (held for trading)	(25)	(3)
Income		
Interest and similar income	297	137
Interest income from derivatives (held for trading)	25	2
Total	**(455)**	**(548)**

Interest and similar expenses included interest expense of €42 million (2015: €49 million) relating to nonfinancial liabilities. Interest and similar income included interest income of €10 million (2015: €133 million) from nonfinancial assets.

13.3 Other financial income and expenses

Other financial income and expenses were comprised as follows:

B 13.3/1

Other Financial Income and Expenses

€ million	2015	2016
Expenses		
Interest portion of interest-bearing provisions	(287)	(294)
Exchange loss	(254)	(193)
Miscellaneous financial expenses	(48)	(104)
Income		
Miscellaneous financial income	15	6
Total	**(574)**	**(585)**

The interest portion of noncurrent provisions comprised €276 million (2015: €276 million) in interest expense for pension and other post-employment benefit provisions plus €18 million (2015: €11 million) in effects of interest expense and interest-rate fluctuations for other provisions and corresponding overfunding. The interest expense for pension and other post-employment benefit provisions included €736 million (2015: €712 million) for the unwinding of discount on the present value of the defined benefit obligation and €460 million (2015: €436 million) in interest income from plan assets.

The miscellaneous financial expenses included €51 million in commitment fees and other fees related to the syndicated bank financing for the planned acquisition of Monsanto.

14. Taxes

The breakdown of tax expense by origin was as follows:

B 14/1

Tax Expense by Origin

€ million	2015	Of which income taxes	2016	Of which income taxes
Taxes paid or accrued				
Current income taxes				
Germany	(1,140)		(934)	
Other countries	(1,114)		(991)	
Other taxes				
Germany	(44)		(86)	
Other countries	(221)		(204)	
	(2,519)	**(2,254)**	**(2,215)**	**(1,925)**
Deferred taxes				
from temporary differences	1,056		577	
from tax loss carryforwards and tax credits	(25)		19	
	1,031	**1,031**	**596**	**596**
Total	**(1,488)**	**(1,223)**	**(1,619)**	**(1,329)**

2015 figures restated

The other taxes mainly include land, vehicle and other indirect taxes. They are reflected in the respective functional cost items.

The deferred tax assets and liabilities were allocable to the following items in the statements of financial position:

B 14/2

Deferred Tax Assets and Liabilities

€ million	Dec. 31, 2015 Deferred tax assets	Dec. 31, 2015 Deferred tax liabilities	Dec. 31, 2016 Deferred tax assets	Dec. 31, 2016 Deferred tax liabilities
Intangible assets	1,411	1,910	1,478	1,766
Property, plant and equipment	253	678	264	692
Financial assets	18	183	240	224
Inventories	943	63	1,267	32
Receivables	98	580	71	547
Other assets	28	14	39	13
Provisions for pensions and other post-employment benefits	3,601	1,213	3,637	983
Other provisions	1,025	90	1,083	112
Liabilities	714	91	793	133
Tax loss and interest carryforwards	393	–	473	–
Tax credits	191	–	177	–
	8,675	**4,822**	**9,522**	**4,502**
of which noncurrent	7,398	4,750	7,868	3,662
Set-off	(3,996)	(3,996)	(3,172)	(3,172)
Total	**4,679**	**826**	**6,350**	**1,330**

Deferred taxes on remeasurements, recognized outside profit or loss, of the net liability for defined benefit pension and other post-employment benefits increased equity by €228 million (2015: diminished equity by €430 million). Deferred taxes on changes, recognized outside profit or loss, in fair values of available-for-sale financial assets and derivatives designated as cash flow hedges diminished equity by €24 million (2015: diminished equity by €27 million). These effects on equity are reported in the statement of comprehensive income.

The use of tax loss carryforwards reduced current income taxes in 2016 by €152 million (2015: €136 million). The use of tax credits reduced current income taxes by €18 million (2015: €21 million).

Of the total tax loss and interest carryforwards of €5,447 million, including interest carryforwards of €118 million (2015: €5,497 million, including interest carryforwards of €72 million), an amount of €2,269 million, including interest carryforwards of €0 million (2015: €1,812 million, including interest carryforwards of €0 million) is expected to be usable within a reasonable period. The decrease in tax loss and interest carryforwards was mainly due to the favorable overall business development. Deferred tax assets of €473 million (2015: €393 million) were recognized for the amount of tax loss and interest carryforwards expected to be usable.

The use of €3,178 million of tax loss and interest carryforwards, including interest carryforwards of €118 million (2015: €3,685 million, including interest carryforwards of €72 million) was subject to legal or economic restrictions. Consequently, no deferred tax assets were recognized for this amount. If these tax loss and interest carryforwards had been fully usable, deferred tax assets of €294 million (2015: €322 million) would have been recognized.

Tax credits of €177 million were recognized in 2016 (2015: €191 million) as deferred tax assets. The use of €38 million (2015: €41 million) of tax credits was subject to legal or economic restrictions. Consequently, no deferred tax assets were recognized for this amount.

Unusable tax credits, tax loss carryforwards and interest carryforwards will expire as follows:

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Expiration of Unusable Tax Credits, Tax Loss Carryforwards and Interest Carryforwards

	Tax credits		Tax loss and interest carryforwards	
€ million	**Dec. 31, 2015**	**Dec. 31, 2016**	**Dec. 31, 2015**	**Dec. 31, 2016**
Within one year	4	4	17	4
Within two years	–	–	70	1
Within three years	4	4	25	31
Within four years	–	–	32	132
Within five years	26	29	234	31
Thereafter	6	–	3,307	2,979
Total	**40**	**37**	**3,685**	**3,178**

In 2016, subsidiaries that reported losses for 2016 or 2015 recognized net deferred tax assets totaling €2,575 million (2015: €2,455 million) from temporary differences and tax loss carryforwards. These assets were considered to be unimpaired because the companies concerned were expected to generate taxable income in the future.

Deferred tax liabilities of €41 million were recognized in 2016 (2015: €35 million) for planned dividend payments by subsidiaries. Deferred tax liabilities were not recognized for temporary differences on €20,069 million (2015: €12,087 million) of retained earnings of subsidiaries because these earnings are to be reinvested for an indefinite period.

The reported tax expense of €1,329 million for 2016 (2015: €1,223 million) differed by €128 million (2015: €119 million) from the expected tax expense of €1,457 million (2015: €1,342 million) that would have resulted from applying an expected weighted average tax rate to the pre-tax income of the Group. This average rate, derived from the expected tax rates of the individual Group companies, was 24.7% in 2016 (2015: 25.6%). The effective tax rate was 22.6% (2015: 23.4%).

The reconciliation of expected to reported income tax expense and of the expected to the effective tax rate for the Group was as follows:

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Reconciliation of Expected to Actual Income Tax Expense

	2015		2016	
	€ million	%	€ million	%
Expected income tax expense and expected tax rate	**1,342**	**25.6**	**1,457**	**24.7**
Reduction in taxes due to tax-free income				
Income related to the operating business	(155)	(3.0)	(161)	(2.7)
Income from affiliated companies and divestment proceeds	(10)	(0.2)	(2)	–
First-time recognition of previously unrecognized deferred tax assets on tax loss and interest carryforwards	(30)	(0.6)	(27)	(0.5)
Use of tax loss and interest carryforwards on which deferred tax assets were not previously recognized	(6)	(0.1)	(19)	(0.3)
Increase in taxes due to non-tax-deductible expenses				
Expenses related to the operating business	148	2.8	153	2.6
Impairment losses on investments in affiliated companies	7	0.1	2	–
New tax loss and interest carryforwards unlikely to be usable	81	1.5	45	0.8
Existing tax loss and interest carryforwards on which deferred tax assets were previously recognized but which are unlikely to be usable	16	0.3	6	0.1
Tax income (-) and expenses (+) relating to other periods	(95)	(1.8)	(80)	(1.4)
Tax effects of changes in tax rates	(25)	(0.5)	(4)	(0.1)
Other tax effects	(50)	(0.7)	(41)	(0.6)
Actual income tax expense and effective tax rate	**1,223**	**23.4**	**1,329**	**22.6**

2015 figures restated

15. Income/losses attributable to noncontrolling interest

Income attributable to noncontrolling interest amounted to €468 million (2015: €115 million). Losses attributable to noncontrolling interest amounted to €173 million (2015: €127 million).

16. Earnings per share

Earnings per share from continuing operations are determined according to IAS 33 (Earnings per Share) by dividing net income (income after income taxes attributable to Bayer AG stockholders) minus income from discontinued operations after income taxes (attributable to Bayer AG stockholders) by the weighted average number of shares. Earnings per share for continuing and discontinued operations are calculated by dividing net income by the weighted average number of shares.

In November 2016, Bayer placed €4.0 billion in mandatory convertible notes without granting subscription rights to existing stockholders of the company. According to IAS 33.23, the weighted average number of shares increases as soon as the notes contract is signed, and this increase must be taken into account in calculating undiluted and diluted earnings per share. The new weighted average number of shares is based on the minimum conversion price of €90, which determines the maximum conversion ratio. Undiluted and diluted earnings per share are not adjusted for financing expenses incurred in connection with the mandatory convertible notes because the interest component was recognized outside profit or loss when the notes were placed. Further details of the mandatory convertible notes are provided in Note [24].

Because the undiluted and diluted earnings per share were determined for each interim reporting period, earnings per share for the full year or year to date may differ from the sum of the earnings per share for the respective interim reporting periods.

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Earnings per Share

€ million	2015	2016
Income from continuing operations after income taxes	4,013	4,558
Income from discontinued operations after income taxes	85	268
Income after income taxes	4,098	4,826
of which attributable to noncontrolling interest	(12)	295
of which attributable to Bayer AG stockholders (net income)	4,110	4,531
	Shares	Shares
Weighted average number of shares	**826,947,808**	**832,502,808**
Earnings per share (€)		
From continuing operations		
Basic	4.87	5.12
Diluted	4.87	5.12
From discontinued operations		
Basic	0.10	0.32
Diluted	0.10	0.32
From continuing and discontinued operations		
Basic	4.97	5.44
Diluted	4.97	5.44

2015 figures restated

Notes to the Statements of Financial Position

17. Goodwill and other intangible assets

Changes in intangible assets in 2016 were as follows:

B 17/1

Changes in Intangible Assets

€ million	Acquired goodwill	Patents and technol-ogies	Trade-marks	Marketing and distribution rights	Production rights	R&D projects	Other rights and advance payments	Total
Cost of acquisition or generation, December 31, 2015	**16,096**	**13,069**	**10,952**	**1,944**	**2,172**	**946**	**2,600**	**47,779**
Changes in scope of consolidation	–	–	–	–	–	–	–	–
Acquisitions	9	1	–	–	–	(23)	–	(13)
Capital expenditures	–	55	3	47	5	96	157	363
Retirements	–	(6)	(47)	(14)	(25)	(108)	(80)	(280)
Transfers	–	5	–	50	3	(43)	(15)	–
Transfers (IFRS 5)	–	(5)	(8)	(15)	(16)	–	(11)	(55)
Inflation adjustment (IAS 29)	3	–	–	–	–	–	–	3
Exchange differences	204	43	145	32	(1)	19	15	457
December 31, 2016	**16,312**	**13,162**	**11,045**	**2,044**	**2,138**	**887**	**2,666**	**48,254**
Accumulated amortization and impairment losses, December 31, 2015	**–**	**8,277**	**3,083**	**1,134**	**2,021**	**225**	**1,765**	**16,505**
Changes in scope of consolidation	–	–	–	–	–	–	(1)	(1)
Retirements	–	(2)	(38)	(14)	(25)	(106)	(66)	(251)
Amortization and impairment losses in 2016	–	1,007	604	144	48	109	160	2,072
Amortization	–	708	393	137	28	–	129	1,395
Impairment losses	–	299	211	7	20	109	31	677
Impairment loss reversals	–	–	(1)	–	–	–	–	(1)
Transfers	–	–	–	–	–	–	–	–
Transfers (IFRS 5)	–	(5)	(8)	(15)	(16)	–	(11)	(55)
Exchange differences	–	35	33	19	(1)	7	13	106
December 31, 2016	**–**	**9,312**	**3,673**	**1,268**	**2,027**	**235**	**1,860**	**18,375**
Carrying amounts, December 31, 2016	**16,312**	**3,850**	**7,372**	**776**	**111**	**652**	**806**	**29,879**
Carrying amounts, December 31, 2015	**16,096**	**4,792**	**7,869**	**810**	**151**	**721**	**835**	**31,274**

The capitalized patents and technologies include an amount pertaining to the active ingredient alemtuzumab (product name: Lemtrada™) for the treatment of multiple sclerosis. Bayer gave back the worldwide distribution rights for alemtuzumab to Genzyme Corp., United States, in 2009 and in return received global co-promotion rights and an entitlement to royalties and revenue-based milestone payments. Genzyme Corp. received marketing approval for alemtuzumab in Europe in 2013 and in the United States in 2014. Bayer has decided not to exercise its co-promotion rights.

Impairment losses of €676 million were recognized on intangible assets, net of €1 million in impairment loss reversals. In the Pharmaceuticals reporting segment, the current assessment of the market environment and lower revenue expectations led to impairment losses of €391 million on intangible assets in con-

nection with the product Essure™. In addition, impairment losses of €56 million were recognized on research and development projects, mainly in the oncology area. In the Consumer Health reporting segment, impairment losses of €132 million on a dermatology product trademark in Russia and €28 million on a nutritional supplement trademark in the United States were recognized due to a weaker market environment. In the Crop Science reporting segment, recent research findings necessitated impairment losses of €20 million on production rights in the Environmental Science unit, and a €20 million impairment loss was also recognized on a research and development project in Crop Protection due to a delayed market introduction.

The remaining impairment losses pertained to intangible assets in the Crop Science (€11 million), Pharmaceuticals (€9 million), Covestro (€9 million) and Consumer Health (€1 million) segments. A €1 million impairment loss in the Animal Health segment was reversed.

Details of acquisitions and divestments are provided in Notes [6.2] and [6.3]. The impairment testing procedure for goodwill and other intangible assets is explained in Note [4].

Changes in intangible assets in 2015 were as follows:

B 17/2

Changes in Intangible Assets (Previous Year)

€ million	Acquired goodwill	Patents and technologies	Trademarks	Marketing and distribution rights	Production rights	R&D projects	Other rights and advance payments	Total
Cost of acquisition or generation, December 31, 2014	**15,347**	**12,827**	**10,242**	**1,808**	**2,168**	**882**	**3,189**	**46,463**
Changes in scope of consolidation	–	4	–	–	–	–	1	5
Acquisitions	(5)	39	53	–	–	26	(20)	93
Capital expenditures	–	77	–	52	–	107	152	388
Retirements	–	(33)	(35)	(55)	–	(7)	(966)	(1,096)
Transfers	–	40	–	75	(2)	(113)	–	–
Transfers (IFRS 5)	(34)	(2)	(14)	(33)	–	–	(20)	(103)
Inflation adjustment (IAS 29)	7	–	–	–	–	–	–	7
Exchange differences	781	117	706	97	6	51	264	2,022
December 31, 2015	**16,096**	**13,069**	**10,952**	**1,944**	**2,172**	**946**	**2,600**	**47,779**

B 17/2 (continued)

Changes in Intangible Assets (Previous Year)

€ million	Acquired goodwill	Patents and technologies	Trademarks	Marketing and distribution rights	Production rights	R&D projects	Other rights and advance payments	Total
Accumulated amortization and impairment losses, December 31, 2014	**–**	**7,428**	**2,588**	**1,039**	**1,911**	**153**	**2,344**	**15,463**
Changes in scope of consolidation	–	4	–	–	–	–	–	4
Retirements	–	(17)	(31)	(55)	–	(7)	(949)	(1,059)
Amortization and impairment losses in 2015	–	801	447	148	106	66	183	1,751
Amortization	–	801	422	147	106	–	161	1,637
Impairment losses	–	–	25	1	–	66	22	114
Impairment loss reversals	–	–	–	–	–	–	–	–
Transfers	–	–	1	1	(2)	–	–	–
Transfers (IFRS 5)	–	(1)	–	(25)	–	–	(19)	(45)
Exchange differences	–	62	78	26	6	13	206	391
December 31, 2015	**–**	**8,277**	**3,083**	**1,134**	**2,021**	**225**	**1,765**	**16,505**
Carrying amounts, December 31, 2015	**16,096**	**4,792**	**7,869**	**810**	**151**	**721**	**835**	**31,274**
Carrying amounts, December 31, 2014	**15,347**	**5,399**	**7,654**	**769**	**257**	**729**	**845**	**31,000**

Changes in the carrying amounts of goodwill for the reporting segments in 2016 and 2015 were as follows:

B 17/3

Goodwill by Reporting Segment

€ million	Pharmaceuticals	Consumer Health	Crop Science	Animal Health	Covestro	Bayer Group
Carrying amounts, January 1, 2015	**7,215**	**5,698**	**2,137**	**54**	**243**	**15,347**
Change in scope of consolidation	–	–	–	–	–	–
Acquisitions	(133)	71	50	–	7	(5)
Retirements	–	–	–	–	–	–
Impairment losses in 2015	–	–	–	–	–	–
Transfers	–	–	–	–	–	–
Transfers (IFRS 5)	–	(34)	–	–	–	(34)
Inflation adjustment (IAS 29)	1	6	–	–	–	7
Exchange differences	234	446	90	–	11	781

B 17/3 (continued)

Goodwill by Reporting Segment

€ million	Pharma-ceuticals	Consumer Health	Crop Science	Animal Health	Covestro	Bayer Group
Carrying amounts, December 31, 2015	**7,317**	**6,187**	**2,277**	**54**	**261**	**16,096**
Change in scope of consolidation	–	–	–	–	–	–
Acquisitions	(3)	(1)	13	–	–	9
Retirements	–	–	–	–	–	–
Impairment losses in 2016	–	–	–	–	–	–
Transfers	–	–	–	–	–	–
Transfers (IFRS 5)	–	–	–	–	–	–
Inflation adjustment (IAS 29)	–	3	–	–	–	3
Exchange differences	84	84	31	2	3	204
Carrying amounts, December 31, 2016	**7,398**	**6,273**	**2,321**	**56**	**264**	**16,312**

2015 figures restated

Goodwill and other intangible assets with an indefinite useful life that are of material significance for the Bayer Group are allocated to the following cash-generating units or unit groups as of the end of the reporting period:

B 17/4

Intangible Assets with an Indefinite Useful Life

Reporting segment	Cash-generating unit / unit group	Goodwill (€ million)	Material intangible assets with indefinite useful life (€ million)
Pharmaceuticals	Pharmaceuticals	6,114	454
Consumer Health	Consumer Care	6,273	22
Crop Science	Crop Protection	1,291	63
Crop Science	Seeds	540	129

In the case of research and development projects, the point in time from which a capitalized asset can be expected to generate an economic benefit for the company cannot be determined. Such assets are therefore classified as having an indefinite useful life. Development projects were capitalized at a total amount of €652 million as of the end of 2016 (2015: €721 million).

Another intangible asset classified as having an indefinite useful life is the Bayer Cross, which was reacquired for the North America region in 1994, having been awarded to the United States and Canada under the reparations agreements at the end of the First World War. The period for which the Bayer Group will derive an economic benefit from this name cannot be determined as Bayer intends to make continuous use of it. The Bayer Cross is capitalized at €108 million.

18. Property, plant and equipment

Changes in property, plant and equipment in 2016 were as follows:

B 18/1

Changes in Property, Plant and Equipment

€ million	Land and buildings	Plant installations and machinery	Furniture, fixtures and other equipment	Construction in progress and advance payments	Total
Cost of acquisition or construction, December 31, 2015	**9,685**	**19,418**	**2,142**	**2,295**	**33,540**
Changes in scope of consolidation	–	–	–	–	–
Acquisitions	–	–	–	–	–
Capital expenditures	248	369	206	1,441	2,264
Retirements	(69)	(262)	(158)	(9)	(498)
Transfers	407	698	82	(1,187)	–
Transfers (IFRS 5)	(14)	(4)	(1)	(1)	(20)
Inflation adjustment (IAS 29)	3	1	–	–	4
Exchange differences	86	115	26	12	239
December 31, 2016	**10,346**	**20,335**	**2,297**	**2,551**	**35,529**
Accumulated depreciation and impairment losses, December 31, 2015	**5,255**	**14,303**	**1,578**	**29**	**21,165**
Changes in scope of consolidation	–	–	–	–	–
Retirements	(49)	(245)	(139)	(6)	(439)
Depreciation and impairment losses in 2016	334	936	235	5	1,510
Depreciation	314	927	234	–	1,475
Impairment losses	20	9	1	5	35
Impairment loss reversals	–	–	–	–	–
Transfers	5	(4)	–	(1)	–
Transfers (IFRS 5)	(2)	(1)	(1)	–	(4)
Exchange differences	49	122	12	–	183
December 31, 2016	**5,592**	**15,111**	**1,685**	**27**	**22,415**
Carrying amounts, December 31, 2016	**4,754**	**5,224**	**612**	**2,524**	**13,114**
Carrying amounts, December 31, 2015	**4,430**	**5,115**	**564**	**2,266**	**12,375**

Impairment losses totaling €35 million were recognized on property, plant and equipment in the reporting segments Consumer Health (€14 million), Pharmaceuticals (€8 million), Covestro (€4 million), Crop Science (€1 million), Animal Health (€1 million) and All Other Segments (€7 million).

In 2016, borrowing costs of €31 million (2015: €33 million) were capitalized as components of the cost of acquisition or construction of qualifying assets, applying an average interest rate of 2.5% (2015: 2.5%).

Capitalized property, plant and equipment included assets with a total net value of €471 million (2015: €533 million) held under finance leases. The cost of acquisition or construction of these assets as of the closing date totaled €867 million (2015: €915 million). They comprised plant installations and machinery with a carrying amount of €191 million (2015: €220 million), buildings with a carrying amount of €146 million (2015: €168 million) and other property, plant and equipment with a carrying amount of €134 million (2015: €145 million). For information on the liabilities arising from finance leases, see Note [27].

In 2016, rental payments of €429 million (2015: €263 million) were made for assets leased under operating leases as defined in IAS 17 (Leases).

Lease payments of €3 million are expected to be received in 2017 from operating leases – as defined in IAS 17 (Leases) – pertaining to property, plant and equipment, excluding the investment property stated below. Lease payments totaling €4 million are expected to be received between 2018 and 2021 and lease payments totaling €0 million after 2021.

Investment property

The fair values of investment property are mainly determined using the income approach based on internal valuations for buildings and developed sites, and using the market comparison approach for undeveloped sites.

The total carrying amount of investment property as of December 31, 2016, was €136 million (December 31, 2015: €164 million). The fair value of this property was €507 million (2015: €484 million). The rental income from investment property was €18 million (2015: €13 million), and the operating expenses directly allocable to this property amounted to €11 million (2015: €8 million). A further amount of €3 million (2015: €1 million) in operating expenses was directly allocable to investment property from which no rental income was derived.

Changes in property, plant and equipment in 2015 were as follows:

B 18/2

Changes in Property, Plant and Equipment (Previous Year)

€ million	Land and buildings	Plant installations and machinery	Furniture, fixtures and other equipment	Construction in progress and advance payments	Total
Cost of acquisition or construction, December 31, 2014	**9,088**	**18,144**	**2,009**	**2,078**	**31,319**
Changes in scope of consolidation	–	3	1	–	4
Acquisitions	33	2	1	–	36
Capital expenditures	230	390	239	1,309	2,168
Retirements	(167)	(429)	(185)	(58)	(839)
Transfers	273	797	56	(1,126)	–
Transfers (IFRS 5)	1	(64)	(4)	–	(67)
Inflation adjustment (IAS 29)	7	2	1	–	10
Exchange differences	220	573	24	92	909
December 31, 2015	**9,685**	**19,418**	**2,142**	**2,295**	**33,540**
Accumulated depreciation and impairment losses, December 31, 2014	**4,940**	**13,426**	**1,482**	**43**	**19,891**
Changes in scope of consolidation	–	1	1	–	2
Retirements	(101)	(397)	(156)	(72)	(726)
Depreciation and impairment losses in 2015	317	945	232	38	1,532
Depreciation	294	892	230	–	1,416
Impairment losses	23	53	2	38	116
Impairment loss reversals	–	(1)	–	–	(1)
Transfers	–	(1)	1	–	–
Transfers (IFRS 5)	1	(57)	(3)	–	(59)
Exchange differences	98	387	21	20	526
December 31, 2015	**5,255**	**14,303**	**1,578**	**29**	**21,165**
Carrying amounts, December 31, 2015	**4,430**	**5,115**	**564**	**2,266**	**12,375**
Carrying amounts, December 31, 2014	**4,148**	**4,718**	**527**	**2,035**	**11,428**

19. Investments accounted for using the equity method

Five (2015: four) associates and six (2015: three) joint ventures were accounted for in the consolidated financial statements using the equity method.

B 19/1

Associates and Joint Ventures Accounted for Using the Equity Method

Company name	Place of business	Bayer's interest (%)
Associates		
Bayer Trendlines AG Innovation Fund, L.P.[1]	Misgav, Israel	100
Flagship Ventures V Agricultural Fund, L.P.[1]	Cambridge, U.S.A.	99.9
Nanjing Baijingyu Pharmaceutical Co., Ltd.	Nanjing, China	15
Paltough Industries (1998) Ltd.	Kibbutz Ramat Yochanan, Israel	25
PO JV, LP	Wilmington, U.S.A.	39.4
Joint ventures		
Bayer Zydus Pharma Private Limited	Mumbai, India	50
BlueRock Therapeutics GP LLC	San Francisco, U.S.A.	50
BlueRock Therapeutics LP	San Francisco, U.S.A.	50
Casebia Therapeutics LLC	Cambridge, U.S.A.	50
DCSO Deutsche Cyber-Sicherheitsorganisation GmbH	Berlin, Germany	25
DIC Covestro Polymer Ltd.	Tokyo, Japan	50

[1] For information concerning the interest in this company see Note [6.1]

In 2000, Bayer acquired the polyols business and parts of the propylene oxide (PO) production operations of Lyondell Chemicals with the objective of ensuring access to patented technologies and safeguarding the long-term supply of PO, a starting product for polyurethane. As part of this strategy, a company was established to produce PO (PO JV, LP, United States, in which Covestro holds a 39.4% interest). Covestro benefits from fixed long-term supply quotas / volumes of PO from this company's production. The two following tables contain summarized data from the income statements and statements of financial position of the associated company PO JV, LP, United States, which is accounted for using the equity method, and show the respective amounts recognized in the consolidated financial statements of the Bayer Group.

B 19/2

Income Statement Data PO JV, LP, Wilmington, U.S.A.

€ million	2015	2016
Net sales	1,695	1,659
Net loss after taxes	(56)	(53)
Share of net loss after taxes	(23)	(24)
Share of total comprehensive income after taxes	**(23)**	**(24)**

B 19/3

Data from the Statements of Financial Position of PO JV, LP, Wilmington, U.S.A.

€ million	Dec. 31, 2015	Dec. 31, 2016
Noncurrent assets	475	469
Equity	475	469
Share of equity	**201**	**202**
Other	(3)	(4)
Carrying amount	**198**	**198**

The item “Other” mainly comprises differences arising from adjustments of data to Bayer’s uniform accounting policies, along with purchase price allocations and their amortization in profit or loss.

In December 2015, Bayer and CRISPR Therapeutics AG, Switzerland, agreed to establish a company to develop and commercialize new, breakthrough therapeutics for blood disorders, blindness and congenital heart diseases. The joint venture Casebia Therapeutics, established at the beginning of 2016, has access to gene-editing technology from CRISPR Therapeutics in specific disease areas, as well as access to protein engineering expertise and relevant disease know-how through Bayer. The two following tables contain summarized data from the income statements and statements of financial position of the joint venture Casebia Therapeutics LLC, United States, which is accounted for using the equity method, and show the respective amounts recognized in the consolidated financial statements of the Bayer Group.

B 19/4

Income Statement Data of Casebia Therapeutics LLC, Cambridge, U.S.A.

€ million	2015	2016
Net sales	–	–
Net loss after taxes	–	(8)
Share of net loss after taxes	–	(4)
Share of total comprehensive income after taxes	–	**(4)**

B 19/5

Data from the Statements of Financial Position of Casebia Therapeutics LLC, Cambridge, U.S.A.

€ million	Dec. 31, 2015	Dec. 31, 2016
Noncurrent assets	-	68
Current assets	-	4
Noncurrent liabilities	-	-
Current liabilities	-	3
Equity	-	69
Share of equity	**-**	**38**
Other	-	242
Carrying amount	**-**	**280**

The item “Other” comprises Bayer’s outstanding capital contribution obligation.

The following table contains a summary of the aggregated income statement data and aggregated carrying amounts of the individually nonmaterial associates accounted for using the equity method.

B 19/6

Income Statement Data and Carrying Amount of Associates Accounted for Using the Equity Method

€ million	2015	2016
Income after taxes	12	11
Share of income after taxes	1	3
Share of total comprehensive income after taxes	**1**	**3**
Carrying amount	**37**	**49**

The following table contains a summary of the aggregated income statement data and aggregated carrying amounts of the individually nonmaterial joint ventures that are accounted for using the equity method.

B 19/7

Income Statement Data and Carrying Amount of Joint Ventures Accounted for Using the Equity Method

€ million	2015	2016
Income after taxes	6	–
Share of income after taxes	3	(1)
Share of total comprehensive income after taxes	**3**	**(1)**
Carrying amount	**11**	**57**

20. Other financial assets

The other financial assets were comprised as follows:

B 20/1

Other Financial Assets

	Dec. 31, 2015		Dec. 31, 2016	
€ million	**Total**	**Of which current**	**Total**	**Of which current**
Loans and receivables	65	21	2,140	2,087
Available-for-sale financial assets	1,177	266	4,629	3,517
of which debt instruments	1,092	262	4,371	3,514
of which equity instruments	85	4	258	3
Held-to-maturity financial investments	73	6	65	8
Receivables from derivatives	526	463	714	663
Receivables under lease agreements	7	–	8	–
Total	**1,848**	**756**	**7,556**	**6,275**

Loans and receivables included €1,770 million in bank deposits and €305 million in commercial paper.

The debt instruments categorized as available-for-sale financial assets included capital of €612 million (2015: €610 million) provided to Bayer-Pensionskasse VVaG (Bayer-Pensionskasse) for its effective initial fund, and jouissance right capital (Genussrechtskapital) of €154 million (2015: €153 million), also provided to Bayer-Pensionskasse. Also reported in this category were investments of €3,513 million (2015: €119 million) in money market funds.

The equity instruments categorized as available-for-sale financial assets included the €98 million interest held in CRISPR Therapeutics AG, Switzerland, along with €32 million (2015: €40 million) in instruments whose fair value could not be determined from a stock exchange or other market price or by discounting reliably determinable future cash flows. These equity instruments were recognized at cost.

Further information on the accounting for receivables from derivatives is given in Note [30].

Receivables under lease agreements relate to finance leases where Bayer is the lessor and the economic owner of the leased assets is the lessee. These receivables comprised expected lease payments of €39 million (2015: €38 million), including €31 million (2015: €31 million) in interest. Of the expected lease payments, €1 million (2015: €1 million) is due within one year, €2 million (2015: €2 million) within the following four years and €36 million (2015: €35 million) in subsequent years.

21. Inventories

Inventories were comprised as follows:

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Inventories

€ million	Dec. 31, 2015	Dec. 31, 2016
Raw materials and supplies	2,296	2,396
Work in process, finished goods and goods purchased for resale	6,241	5,991
Advance payments	13	21
Total	**8,550**	**8,408**

Impairment losses recognized on inventories were reflected in the cost of goods sold. They were comprised as follows:

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Impairments of Inventories

€ million	2015	2016
Accumulated impairment losses, January 1	**(477)**	**(427)**
Changes in scope of consolidation	(5)	–
Impairment losses in the reporting period	(216)	(321)
Impairment loss reversals or utilization	246	346
Exchange differences	21	(18)
Transfers (IFRS 5)	4	4
Accumulated impairment losses, December 31	**(427)**	**(416)**

22. Trade accounts receivable

Trade accounts receivable less impairment losses amounted to €10,969 million (2015: €9,933 million) on the closing date and were comprised as follows:

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Trade Accounts Receivable

€ million	2015	2016
Trade accounts receivable (before impairments)	10,181	11,377
Accumulated impairment losses	(248)	(408)
Carrying amount, December 31	**9,933**	**10,969**
of which noncurrent	46	144

Changes in impairment losses on trade accounts receivable were as follows:

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Impairments of Trade Accounts Receivable

€ million	2015	2016
Accumulated impairment losses, January 1	**(233)**	**(248)**
Impairment losses in the reporting period	(84)	(165)
Impairment loss reversals or utilization	46	35
Exchange differences	23	(30)
Accumulated impairment losses, December 31	**(248)**	**(408)**

Trade accounts receivable amounting to €10,954 million (2015: €9,858 million) were not individually impaired. Of this amount, €1,161 million (2015: €1,251 million) was past due or due immediately on the closing date.

The amounts of impaired and past-due trade accounts receivable are summarized in the following table:

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Impaired and Past-Due Trade Accounts Receivable

		Of which neither impaired nor past due at the closing date	Of which unimpaired but past due at the closing date				Of which impaired at the closing date
Carrying amount € million			**up to 3 months**	**3 – 6 months**	**6 – 12 months**	**more than 12 months**	
December 31, 2016	10,969	9,793	780	162	125	94	15
December 31, 2015	9,933	8,607	823	202	109	117	75

The gross carrying amount of individually impaired trade accounts receivable was €192 million (2015: €245 million). The impairment losses recognized on these assets totaled €177 million (2015: €170 million), resulting in a net carrying amount of €15 million (2015: €75 million).

The unimpaired receivables were deemed to be collectible on the basis of established credit management processes and individual assessments of customer risks. Recognized impairment losses included an appropriate allowance for the default risk as of the end of the reporting period.

Receivables from government health service institutions, especially in Greece, Italy, Portugal and Spain, are under special observation in view of the government debt crisis. Although there were no material defaults on such receivables in 2016 or 2015, it is possible that future developments in these countries could result in payment delays and / or defaults. This could necessitate the recognition of impairment losses due to new occurrences. Trade accounts receivable from government health service institutions in the above countries at the end of 2016 totaled €134 million (2015: €168 million).

An excess-of-loss policy exists for the Pharmaceuticals, Consumer Health and Animal Health segments as part of a global credit insurance program. More than 80% of the receivables of these segments are insured up to a maximum total annual compensation payment of €150 million (2015: €100 million). A global excess-of-loss policy has also existed for the Crop Science segment since January 2016. In this global credit insurance program, more than 80% of this segment's receivables are insured up to a maximum total annual compensation payment of €300 million.

A further €743 million (2015: €559 million) of receivables was secured by advance payments, letters of credit or guarantees or by liens on land, buildings or harvest yields.

23. Other receivables

Other receivables were comprised as follows:

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Other Receivables

	Dec. 31, 2015		Dec. 31, 2016	
€ million	Total	Of which current	Total	Of which current
Other tax receivables	746	658	764	746
Deferred charges	384	348	549	358
Reimbursement claims	97	81	120	104
Net defined benefit asset	30	–	26	–
Receivables from employees	39	36	50	49
Miscellaneous receivables	1,151	894	1,284	953
Total	**2,447**	**2,017**	**2,793**	**2,210**

The reimbursement claims of €120 million (2015: €97 million) mainly consisted of receivables from insurance companies in connection with product liability claims.

Miscellaneous receivables included a €441 million (2015: €423 million) receivable from Dow AgroSciences LLC, United States, for damages and royalty payments resulting from the infringement of Bayer's rights to the Liberty Link™ weed control system.

Of the €690 million (2015: €565 million) in financial receivables included in other receivables, €612 million (2015: €460 million) was neither impaired nor past due. Receivables of €50 million (2015: €65 million) were due immediately or up to three months past due. Receivables of €27 million (2015: €39 million) were more than three months past due.

Other receivables are stated net of impairment losses totaling €56 million (2015: €55 million), of which €52 million (2015: €52 million) related to a receivable from the Venezuelan exchange control authority reflecting the right to receive U.S. dollars at a preferential rate.

24. Equity

The foremost objectives of our financial management are to help bring about a sustained increase in Bayer's value for the benefit of all stakeholders, and to ensure the Group's creditworthiness and liquidity. The pursuit of these goals means reducing our cost of capital, optimizing our capital structure, improving our financing cash flow and effectively managing risk.

The rating agencies commissioned by Bayer assess Bayer's creditworthiness as follows:

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Rating

	Long-term rating	Short-term rating
S & P Global Ratings	A–	A–2
Moody's	A3	P–2

These ratings reflect the company's good creditworthiness and ensure access to a broad investor base for financing. Both S & P Global Ratings and Moody's are currently considering a rating downgrade in view of the agreed acquisition of Monsanto Company. Bayer will continue to target an investment-grade rating after the successful closing of the Monsanto acquisition. We remain committed to the single "A" credit rating category over the long term.

Apart from utilizing cash inflows from our operating business to reduce net financial debt, we are implementing our financial strategy by way of vehicles such as the subordinated hybrid bonds issued in July 2014 and April 2015, the mandatory convertible notes issued in November 2016, the authorized and conditional capital created by resolutions of the Annual Stockholders' Meeting, and a potential share buyback program. Bayer's Articles of Incorporation do not stipulate capital ratios.

The changes in the various components of equity during 2015 and 2016 are shown in the consolidated statements of changes in equity.

Capital stock

The capital stock of Bayer AG on December 31, 2016 amounted to €2,117 million (2015: €2,117 million), divided into 826,947,808 (2015: 826,947,808) registered no-par shares, and was fully paid in. Each no-par share confers one voting right.

Authorized and conditional capital

The authorized and conditional capital was comprised as follows:

B 24/2

Authorized and Conditional Capital

Capital	Resolution	Amount / shares	Expires	Purpose
Authorized capital I	April 29, 2014	€530 million	April 28, 2019	Increase the capital stock by issuing new no-par shares against cash contributions and / or contributions in kind, the latter not to exceed €423 million
Authorized capital II	April 29, 2014	€212 million	April 28, 2019	Increase the capital stock by issuing new no-par shares against cash contributions
Conditional capital	April 29, 2014	€212 million / up to 82,694,750 shares	April 28, 2019	Increase the capital stock by granting no-par shares to the holders of bonds with warrants or convertible notes, profit participation certificates or income bonds; the authorizations to issue such instruments are limited to a total nominal amount of €6 billion.

Capital increases are effected by issuing new registered no-par shares. Stockholders must normally be granted subscription rights. However, subscription rights may be excluded under certain conditions stated in the authorization resolutions. Absent a further resolution of the Annual Stockholders' Meeting on the exclusion of stockholders' subscription rights, the Board of Management will only use the existing authorizations to increase the capital stock out of the authorized or conditional capital – while excluding stockholders' subscription rights – up to a total amount of 20% of the capital stock that existed when the respective resolutions were adopted by the Annual Stockholders' Meeting on April 29, 2014. All issuances or sales of no-par shares or of bonds with warrants or conversion rights or obligations that are effected while excluding stockholders' subscription rights also count toward this 20% limit. Details of the authorized and conditional capital are provided in the Notice of the Annual Stockholders' Meeting of April 29, 2014, and on the Bayer website.

On November 22, 2016, Bayer placed mandatory convertible notes in the amount of €4,000 million without granting subscription rights to existing stockholders of the company. The notes, denominated in units of €100,000, were issued by Bayer Capital Corporation B.V. under the subordinated guarantee of Bayer AG. At maturity, the outstanding amount of the notes will be mandatorily converted into registered no-par shares of Bayer AG. After deduction of €48 million in transaction costs and recognition of €191 million in deferred taxes, €3,491 million were allocated to capital reserves and €652 million to financial liabilities. The deferred taxes result from temporary differences in accounting for the liability component and were recognized outside profit or loss in equity. The issuance of the mandatory convertible notes constitutes a utilization of conditional capital.

The authorized capital has not been utilized so far.

Accumulated comprehensive income

Accumulated comprehensive income comprises retained earnings and accumulated other comprehensive income. The retained earnings include prior years' undistributed income of consolidated companies and all remeasurements of the net liability for defined benefit pension and other post-employment benefit plans that are recognized outside profit or loss. The accumulated other comprehensive income comprises exchange differences, the changes in fair values of cash flow hedges and available-for-sale financial assets, and the revaluation surplus. In 2016, an amount of €4 million (2015: €5 million) corresponding to the annual amortization / depreciation of the respective assets was transferred from the revaluation surplus to retained earnings. The reserves for exchange differences included an amount of minus €51 million (2015: minus €45 million) attributable to associates and joint ventures accounted for using the equity method.

Dividend

Under the German Stock Corporation Act (AktG), the dividend payment is determined by the distributable profit reported in the annual financial statements of Bayer AG, which are prepared according to the German Commercial Code. Retained earnings were diminished by payment of the dividend of €2.50 per share for 2015. The proposed dividend for the 2016 fiscal year is €2.70 per share, which would result in a total dividend payment of €2,233 million. Payment of the proposed dividend is contingent upon approval by the stockholders at the Annual Stockholders' Meeting and therefore is not recognized as a liability in the consolidated financial statements.

Noncontrolling interest

In April 2016, Bayer AG contributed 10 million shares it held in Covestro AG – equivalent to 4.9% of the outstanding shares – to Bayer Pension Trust e.V. Bayer therefore currently holds 64.2% of the shares in the capital stock of Covestro AG.

The changes in noncontrolling interest in equity during 2015 and 2016 are shown in the following table:

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Components of Noncontrolling Interest in Equity

€ million	2015	2016
January 1	**112**	**1,180**
Changes in equity not recognized in profit or loss		
Remeasurements of the net pension liability	10	(27)
Changes in fair value of cash flow hedges	–	–
Changes in fair value of securities	–	–
Exchange differences on translation of operations outside the eurozone	23	17
Other changes in equity	1,055	157
Dividend payments	(8)	(58)
Income after income taxes	**(12)**	**295**
December 31	**1,180**	**1,564**

The reserves for exchange differences included an amount of minus €28 million (2015: minus €20 million) attributable to associates and joint ventures accounted for using the equity method.

Noncontrolling interest mainly pertained to the following companies:

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Material Noncontrolling Interests

		Covestro AG *		Bayer CropScience Limited, India	
		2015	2016	2015	2016
Interest held	%	30.9	35.8	31.4	31.4
Equity attributable to noncontrolling interest	€ million	1,092	1,472	73	85
Dividends paid to noncontrolling interest	€ million	0	52	3	3
Current assets	€ million	4,237	4,268	52	55
Noncurrent assets	€ million	6,294	5,966	304	352
Current liabilities	€ million	4,564	2,474	11	11
Noncurrent liabilities	€ million	2,355	3,544	92	97
Sales	€ million	12,082	11,904	465	484
Income after income taxes	€ million	352	806	6	44
Total comprehensive income	€ million	558	747	15	47
Net cash provided by (used in) operating activities	€ million	1,473	1,786	44	–
Net cash provided by (used in) investing activities	€ million	(380)	(1,042)	53	(4)
Net cash provided by (used in) financing activities	€ million	(645)	(1,122)	(79)	(9)

* Including direct and indirect subsidiaries

25. Provisions for pensions and other post-employment benefits

Provisions were established for defined benefit obligations pertaining to pensions and other post-employment benefits. The net liability was accounted for as follows:

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Net Defined Benefit Liability Reflected in the Statement of Financial Position

	Pensions		Other post-employment benefits		Total	
€ million	Dec 31, 2015	Dec 31, 2016	Dec 31, 2015	Dec 31, 2016	Dec 31, 2015	Dec 31, 2016
Provisions for pensions and other post-employment benefits (net liability)	**10,454**	**10,736**	**419**	**398**	**10,873**	**11,134**
of which Germany	8,972	9,176	–	–	8,972	9,176
of which other countries	1,482	1,560	419	398	1,901	1,958
Net defined benefit asset	**29**	**25**	**1**	**1**	**30**	**26**
of which Germany	23	23	–	–	23	23
of which other countries	6	2	1	1	7	3
Net defined benefit liability	**10,425**	**10,711**	**418**	**397**	**10,843**	**11,108**
of which Germany	8,949	9,153	–	–	8,949	9,153
of which other countries	1,476	1,558	418	397	1,894	1,955

The expenses for defined benefit plans for pensions and other post-employment benefits comprised the following components:

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Expenses for Defined Benefit Plans

	Pension plans						Other post-employment benefit plans	
	Germany		Other countries		Total		Other countries	
€ million	2015	2016	2015	2016	2015	2016	2015	2016
Current service cost	362	350	99	102	461	452	17	16
Past service cost	27	26	(3)	(5)	24	21	–	(1)
of which plan curtailments	–	–	(2)	1	(2)	1	–	–
Plan settlements	–	–	–	(9)	–	(9)	–	–
Plan administration cost paid out of plan assets	–	3	1	1	1	4	–	–
Net interest	204	204	52	52	256	256	20	20
Total	**593**	**583**	**149**	**141**	**742**	**724**	**37**	**35**

In addition, a total of minus €1,036 million in effects of remeasurements of the net defined benefit liability was recognized in 2016 outside profit or loss (2015: €1,216 million). Of this amount, minus €1,063 million (2015: €1,185 million) related to pension obligations, €34 million (2015: €53 million) to other post-employment benefit obligations, and minus €7 million (2015: minus €22 million) to the effects of the asset ceiling.

The net defined benefit liability developed as follows:

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Changes in Net Defined Benefit Liability

€ million	Defined benefit obligation	Fair value of plan assets	Effects of the asset ceiling	Net defined benefit liability
Germany				
January 1, 2016	**19,148**	**10,199**	**–**	**(8,949)**
Acquisitions	–	–	–	–
Divestments / changes in the scope of consolidation	(4)	(2)	–	2
Current service cost	350			(350)
Past service cost	26			(26)
(Gains) / losses from plan settlements	–			–
Net interest	452	248	–	(204)
Net actuarial (gain) loss	1,610			(1,610)
of which due to changes in financial assumptions	1,563			(1,563)
of which due to changes in demographic assumptions	1			(1)
of which due to experience adjustments	46			(46)
Return on plan assets excluding amounts recognized as interest income		669		669
Remeasurement of asset ceiling			–	–
Employer contributions		878		878
Employee contributions	39	39		–
Payments due to plan settlements	–	–		–
Benefits paid out of plan assets	(219)	(219)		–
Benefits paid by the company	(440)			440
Plan administration cost paid from plan assets		(3)		(3)
Reclassification to current assets / liabilities held for sale	–	–	–	–
December 31, 2016	**20,962**	**11,809**	**–**	**(9,153)**
Other countries				
January 1, 2016	**7,660**	**5,799**	**(32)**	**(1,893)**
Acquisitions	–	1	–	1
Divestments / changes in the scope of consolidation	(4)	(3)	–	1
Current service cost	118			(118)
Past service cost	(6)			6
(Gains) / losses from plan settlements	(9)			9
Net interest	284	215	(3)	(72)
Net actuarial (gain) loss	515			(515)
of which due to changes in financial assumptions	650			(650)
of which due to changes in demographic assumptions	(89)			89
of which due to experience adjustments	(46)			46
Return on plan assets excluding amounts recognized as interest income		427		427
Remeasurement of asset ceiling			(7)	(7)
Employer contributions		152		152
Employee contributions	12	12		–
Payments due to plan settlements	(83)	(84)		(1)
Benefits paid out of plan assets	(295)	(295)		–
Benefits paid by the company	(87)	–		87
Plan administration costs paid out of plan assets	–	(1)		(1)
Reclassification to current assets / liabilities held for sale	–	–	–	–
Exchange differences	(72)	(96)	(7)	(31)
December 31, 2016	**8,033**	**6,127**	**(49)**	**(1,955)**
of which other post-employment benefits	867	471	–	(396)
Total, December 31, 2016	**28,995**	**17,936**	**(49)**	**(11,108)**

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Changes in Net Defined Benefit Liability (Previous Year)

€ million	Defined benefit obligation	Fair value of plan assets	Effects of the asset ceiling	Net defined benefit liability
Germany				
January 1, 2015	**20,339**	**10,025**	**–**	**(10,314)**
Acquisitions	–	–	–	–
Divestments / changes in the scope of consolidation	21	17	–	(4)
Current service cost	362			(362)
Past service cost	27			(27)
(Gains) / losses from plan settlements	–			–
Net interest	425	221	–	(204)
Net actuarial (gain) loss	(1,393)			1,393
of which due to changes in financial assumptions	(1,371)			1,371
of which due to changes in demographic assumptions	–			–
of which due to experience adjustments	(22)			22
Return on plan assets excluding amounts recognized as interest income		(262)		(262)
Remeasurement of asset ceiling			–	–
Employer contributions		387		387
Employee contributions	37	37		–
Payments due to plan settlements	–	–		–
Benefits paid out of plan assets	(215)	(215)		–
Benefits paid by the company	(433)			433
Plan administration cost paid from plan assets		–		–
Reclassification to current assets / liabilities held for sale	(22)	11	–	11
December 31, 2015	**19,148**	**10,199**	**–**	**(8,949)**
Other countries				
January 1, 2015	**7,432**	**5,560**	**(9)**	**(1,881)**
Acquisitions	4	–	–	(4)
Divestments / changes in the scope of consolidation	–	–	–	–
Current service cost	116			(116)
Past service cost	(3)			3
(Gains) / losses from plan settlements	–			–
Net interest	287	215	–	(72)
Net actuarial (gain) loss	(318)			318
of which due to changes in financial assumptions	(310)			310
of which due to changes in demographic assumptions	(79)			79
of which due to experience adjustments	71			(71)
Return on plan assets excluding amounts recognized as interest income		(211)		(211)
Remeasurement of asset ceiling			(22)	(22)
Employer contributions		148		148
Employee contributions	11	11		–
Payments due to plan settlements	–	–		–
Benefits paid out of plan assets	(289)	(289)		–
Benefits paid by the company	(60)	–		60
Plan administration costs paid out of plan assets	–	(1)		(1)
Reclassification to current assets / liabilities held for sale	(20)	(8)	–	12
Exchange differences	501	374	(1)	(128)
December 31, 2015	**7,661**	**5,799**	**(32)**	**(1,894)**
of which other post-employment benefits	836	418	–	(418)
Total, December 31, 2015	**26,809**	**15,998**	**(32)**	**(10,843)**

The benefit obligations pertained mainly to Germany (72%; 2015: 71%), the United States (14%; 2015: 15%) and the United Kingdom (7%; 2015: 7%). In Germany, current employees accounted for about 46% (2015: 44%), retirees or their surviving dependents for about 47% (2015: 49%) and former employees with vested pension rights for about 7% (2015: 7%) of entitlements under defined benefit plans. In the United States, current employees accounted for about 25% (2015: 26%), retirees or their surviving dependents for about 53% (2015: 61%) and former employees with vested pension rights for about 22% (2015: 13%) of entitlements under defined benefit plans.

The actual return on the assets of defined benefit plans for pensions or other post-employment benefits amounted to €1,519 million (2015: minus €34 million) and €40 million (2015: minus €3 million), respectively.

The following table shows the defined benefit obligations for pensions and other post-employment benefits along with the funded status of the funded obligations.

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Defined Benefit Obligation and Funded Status

	Pension obligation		Other post-employment benefit obligation		Total	
€ million	2015	2016	2015	2016	2015	2016
Defined benefit obligation	**25,973**	**28,128**	**836**	**867**	**26,809**	**28,995**
of which unfunded	1,126	1,231	101	125	1,227	1,356
of which funded	24,847	26,897	735	742	25,582	27,639
Funded status of funded obligations						
Overfunding	61	74	1	1	62	75
Underfunding	9,328	9,506	318	272	9,646	9,778

Pension and other post-employment benefit obligations

Group companies provide retirement benefits for most of their employees, either directly or by contributing to privately or publicly administered funds. The way these benefits are provided varies according to the legal, fiscal and economic conditions of each country, the benefits generally being based on employee compensation and years of service. The obligations relate both to existing retirees' pensions and to pension entitlements of future retirees.

Bayer has set up funded pension plans for its employees in various countries. The most appropriate investment strategy is determined for each defined benefit pension plan based on the risk structure of the obligations (especially demographics, the current funded status, the structure of the expected future cash flows, interest sensitivity, biometric risks etc.), the regulatory environment and the existing level of risk tolerance or risk capacity. A strategic target investment portfolio is then developed in line with the plan's risk structure, taking capital market factors into consideration. Further determinants are risk diversification, portfolio efficiency and the need for both a country-specific and a global risk / return profile centered on ensuring the payment of all future benefits. As the capital investment strategy for each pension plan is developed individually in light of the plan-specific conditions listed above, the investment strategies for different pension plans may vary considerably. For example, the proportion of plan assets invested in equities is greater with the non-German pension plans than with the plans domiciled in Germany. The investment strategies are generally aligned less toward maximizing absolute returns and more toward the maximum probability of being able to finance pension commitments over the long term. For plan assets, stress scenarios are simulated and other risk analyses (such as value at risk) undertaken with the aid of risk management systems.

Bayer-Pensionskasse VVaG (Bayer-Pensionskasse), Leverkusen, Germany, is by far the most significant of the pension plans. It has been closed to new members since 2005. This legally independent fund is regarded as a life insurance company and therefore is subject to the German Insurance Supervision Act. The benefit obligations covered by Bayer-Pensionskasse comprise retirement, surviving dependents' and disability pensions. It constitutes a multi-employer plan, to which the active members and their employers contribute. The company contribution is a certain percentage of the employee contribution. This percentage is the same for all participating employers, including those outside the Bayer Group, and is set by agreement between the plan's executive committee and its supervisory board, acting on a proposal from the responsible actuary. It takes into account the differences between the actuarial estimates and the actual values for the factors used to determine liabilities and contributions. Bayer may also adjust the company contribution in agreement with the plan's executive committee and its supervisory board, acting on a proposal from the responsible actuary. The plan's liability is governed by Section 1, Paragraph 1, Sentence 3 of the German Law on the Improvement of Occupational Pensions. This means that if the pension plan exercises its right under the articles of association to reduce benefits, each participating employer has to make up the resulting difference. Bayer is not liable for the obligations of participating employers outside the Bayer Group, even if they cease to participate in the plan.

Pension entitlements for people who joined Bayer in Germany in 2005 or later are granted via Rheinische Pensionskasse VVaG, Leverkusen. Future pension payments from this plan are based on contributions and the return on plan assets; a guaranteed interest rate applies.

Another important pension provision vehicle is Bayer Pension Trust e.V. (BPT). This covers further retirement provision arrangements of the Bayer Group, such as deferred compensation, pension obligations previously administered by Schering Altersversorgung Treuhand e.V., and components of other direct commitments.

The defined benefit pension plans in the United States have been frozen for some years, and no significant new entitlements can be earned under these plans. The assets of all the U.S. pension plans are held by a master trust for reasons of efficiency. The applicable regulatory framework is based on the Employee Retirement Income Security Act (ERISA), which includes a statutory 80% minimum funding requirement to avoid benefit restrictions. The actuarial risks, such as investment risk, interest-rate risk and longevity risk, remain with the company.

The defined benefit pension plans in the United Kingdom have been closed to new members for some years. Plan assets in the U.K. are administered by independent trustees, who are legally obligated to act solely in the interests of the beneficiaries. A technical assessment is performed every three years in line with U.K. regulations. This serves as the basis for developing a plan to cover any potential financing requirements. Here, too, the actuarial risks remain with the company.

The other post-employment benefit obligations outside Germany mainly comprised health care benefit payments for retirees in the United States.

The fair value of the plan assets to cover pension and other post-employment benefit obligations was as follows:

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Fair Value of Plan Assets as of December 31

	Pension obligations				Other post-employment benefit obligations	
	Germany		Other countries		Other countries	
€ million	2015	2016	2015	2016	2015	2016
Plan assets based on quoted prices in active markets						
Real estate and special real estate funds	–	–	199	215	19	22
Equities and equity funds	2,105	2,919	1,855	1,861	130	149
Callable debt instruments	–	–	182	263	–	–
Noncallable debt instruments	112	556	752	736	121	128
Bond funds	3,543	3,754	1,744	1,823	90	104
Derivatives	18	11	(5)	(3)	–	–
Cash and cash equivalents	158	243	84	114	8	17
Other	–	–	4	6	–	–
	5,936	**7,483**	**4,815**	**5,015**	**368**	**420**
Plan assets for which quoted prices in active markets are not available						
Real estate and special real estate funds	517	563	83	124	–	–
Equities and equity funds	90	115	59	72	–	–
Callable debt instruments	1,555	1,525	2	–	–	–
Noncallable debt instruments	1,832	1,870	–	–	–	–
Bond funds	–	–	60	72	–	–
Derivatives	(2)	1	–	–	–	–
Other	271	252	362	373	50	51
	4,263	**4,326**	**566**	**641**	**50**	**51**
Total plan assets	**10,199**	**11,809**	**5,381**	**5,656**	**418**	**471**

The fair value of plan assets in Germany included real estate leased by Group companies, recognized at a fair value of €82 million (2015: €61 million), and Bayer AG shares and bonds held through investment funds, recognized at their fair value of €41 million (2015: €48 million) and €3 million (2015: €3 million), respectively. In April 2016, Bayer AG contributed 10 million shares it held in Covestro AG – equivalent to 4.9% of the outstanding shares – to BPT. This equity position had a market value of €652 million as of December 31, 2016. In 2016, Covestro placed short-term securities with a volume of €450 million into Metzler Trust e.V. In 2015, Bayer placed short-term securities with a volume of €300 million into BPT. The other plan assets comprised mortgage loans granted, other receivables and qualified insurance policies.

Risks

The risks from defined benefit plans arise partly from the defined benefit obligations and partly from the investment in plan assets. The risks lie in the possibility that higher direct pension payments will have to be made to the beneficiaries and / or that additional contributions will have to be made to plan assets in order to meet current and future pension obligations.

Demographic / biometric risks

Since a large proportion of the defined benefit obligations comprises lifelong pension payments to retirees or surviving dependents' pensions, longer claim periods or earlier claims may result in higher benefit obligations, higher benefit expense and / or higher pension payments than previously anticipated.

Investment risks

If the actual return on plan assets were below the return anticipated on the basis of the discount rate, the net defined benefit liability would increase, assuming there were no changes in other parameters. This could happen as a result of a drop in share prices, increases in market rates of interest, default of individual debtors or the purchase of low-risk but low-interest bonds, for example.

Interest-rate risk

A decline in capital market interest rates, especially for high-quality corporate bonds, would increase the defined benefit obligation. This effect would be at least partially offset by the ensuing increase in the market values of the debt instruments held.

Measurement parameters and their sensitivities

The following weighted parameters were used to measure the obligations for pensions and other post-employment benefits as of December 31 of the respective year:

B 25/7

Parameters for Benefit Obligations

	Germany		Other countries		Total	
%	2015	2016	2015	2016	2015	2016
Pension obligations						
Discount rate	2.40	1.80	3.85	3.25	2.75	2.15
of which U.S.A.			4.00	3.70	4.00	3.70
of which U.K.			3.80	2.65	3.80	2.65
Projected future salary increases	3.00	2.75	3.35	3.50	3.10	2.95
Projected future benefit increases	1.75	1.50	3.20	3.35	2.15	1.95
Other post-employment benefit obligations						
Discount rate	–	–	4.45	4.35	4.45	4.35

In Germany the Heubeck 2005 G mortality tables were used, in the United States the RP-2014 Mortality Tables, and in the United Kingdom 95% of S1NXA.

The following weighted parameters were used to measure the expense for pension and other post-employment benefits in the respective year:

B 25/8

Parameters for Benefit Expense

	Germany		Other countries		Total	
%	2015	2016	2015	2016	2015	2016
Pension obligations						
Discount rate	2.20	2.40	3.70	3.85	2.55	2.75
Projected future salary increases	3.00	3.00	3.65	3.35	3.15	3.10
Projected future benefit increases	1.75	1.75	3.30	3.20	2.10	2.15
Other post-employment benefit obligations						
Discount rate	–	–	3.95	4.45	3.95	4.45

The parameter sensitivities were computed by expert actuaries based on a detailed evaluation similar to that performed to obtain the data presented in Table B 25/4. Altering individual parameters by 5 percentage points (mortality by 10% per beneficiary) while leaving the other parameters unchanged would have impacted pension and other post-employment benefit obligations as of year end 2016 as follows:

B 25/9

Sensitivity of Benefit Obligations

	Germany		Other countries		Total	
€ million	**Increase**	**Decrease**	**Increase**	**Decrease**	**Increase**	**Decrease**
Pension obligations						
0.5%-pt. change in discount rate	(1,752)	2,014	(478)	539	(2,230)	2,553
0.5%-pt. change in projected future salary increases	135	(125)	50	(47)	185	(172)
0.5%-pt. change in projected future benefit increases	1,107	(1,009)	139	(94)	1,246	(1,103)
10% change in mortality	(670)	752	(195)	209	(865)	961
Other post-employment benefit obligations						
0.5%-pt. change in discount rate	–	–	(48)	53	(48)	53
10% change in mortality	–	–	(24)	27	(24)	27

B 25/10

Sensitivity of Benefit Obligations (prior year)

	Germany		Other countries		Total	
€ million	**Increase**	**Decrease**	**Increase**	**Decrease**	**Increase**	**Decrease**
Pension obligations						
0.5%-pt. change in discount rate	(1,544)	1,767	(450)	504	(1,994)	2,271
0.5%-pt. change in projected future salary increases	121	(113)	47	(44)	168	(157)
0.5%-pt. change in projected future benefit increases	1,006	(919)	127	(96)	1,133	(1,015)
10% change in mortality	(597)	669	(173)	185	(770)	854
Other post-employment benefit obligations						
0.5%-pt. change in discount rate	–	–	(46)	51	(46)	51
10% change in mortality	–	–	(21)	24	(21)	24

Provisions are also set up for the obligations, mainly of U.S. subsidiaries, to provide post-employment benefits in the form of health care cost payments for retirees. The valuation of health care costs was based on the assumption that they will increase at a rate of 6.8%, which should gradually decline to 5.0% by 2023 (assumption in 2015: 7.0%, which should gradually decline to 5.0% by 2023). The following table shows the impact on other post-employment benefit obligations and total benefit expense of a one-percentage-point change in the assumed cost increase rates:

B 25/11

Sensitivity to Health Care Cost Increases

	Increase of one percentage point		Decrease of one percentage point	
€ million	2015	2016	2015	2016
Impact on other post-employment benefit obligations	79	77	(68)	(66)
Impact on benefit expense	5	4	(4)	(3)

Payments made and expected future payments

The following payments or asset contributions correspond to the employer contributions made or expected to be made to funded benefit plans:

B 25/12

Employer Contributions Paid or Expected

	Germany			Other countries		
€ million	2015	2016	2017 expected	2015	2016	2017 expected
Pension obligations	387	878	74	148	151	123
Other post-employment benefit obligations	–	–	–	–	1	1
Total	**387**	**878**	**74**	**148**	**152**	**124**

Bayer has currently committed to make deficit contributions for its U.K. pension plans of approximately GBP 16 million annually through 2019. For its U.S. pension plans, Bayer made payments of US$50 million in 2016 and expects to make payments of US$50 million in 2017, the latter amount being subject to change depending on future circumstances.

Pensions and other post-employment benefits payable in the future from funded and unfunded plans are estimated as follows:

B 25/13

Future Benefit Payments

	Payments out of plan assets				Payments by the company			
		Pensions	Other post-employment benefits			Pensions	Other post-employment benefits	
€ million	Germany	Other countries	Other countries	Total	Germany	Other countries	Other countries	Total
2017	223	297	9	529	452	76	35	563
2018	226	305	9	540	457	77	38	572
2019	230	312	9	551	464	78	42	584
2020	236	321	9	566	471	83	43	597
2021	242	331	9	582	477	91	45	613
2022-2026	1,310	1,715	46	3,071	2,454	477	252	3,183

The weighted average term of the pension obligations is 18 years (2015: 17.3 years) in Germany and 13.3 years (2015: 13.4 years) in other countries. The weighted average term of the obligations for other post-employment benefits in other countries is 11.5 years (2015: 11.5 years).

26. Other provisions

Changes in the various provision categories in 2016 were as follows:

B 26/1

Changes in Other Provisions

€ million	Other Taxes	Environmental protection	Restructuring	Trade-related commitments	Litigations	Personnel commitments	Miscellaneous	Total
December 31, 2015	**65**	**272**	**306**	**2,113**	**663**	**3,099**	**267**	**6,785**
Additions	18	67	113	4,679	240	3,109	382	8,608
Utilization	(32)	(23)	(121)	(4,019)	(280)	(2,503)	(230)	(7,208)
Reversal	(12)	(5)	(29)	(477)	(123)	(457)	(48)	(1,151)
Reclassification to current liabilities	–	–	–	(12)	–	(1)	–	(13)
Interest cost	–	4	–	–	–	18	–	22
Exchange differences	2	6	7	91	12	25	15	158
December 31, 2016	**41**	**321**	**276**	**2,375**	**512**	**3,290**	**386**	**7,201**

The provisions recognized in the statement of financial position as of December 31, 2016, were expected to be utilized as follows:

B 26/2

Expected Utilization of Other Provisions

€ million	Other Taxes	Environmental protection	Restructuring	Trade-related commitments	Litigations	Personnel commitments	Miscellaneous	Total
2017	17	69	93	2,241	280	2,451	270	5,421
2018	–	31	79	66	152	147	6	481
2019	–	21	71	28	3	90	1	214
2020	–	11	11	5	1	186	1	215
2021	1	4	6	6	4	57	24	102
2022 or later	23	185	16	29	72	359	84	768
Total	**41**	**321**	**276**	**2,375**	**512**	**3,290**	**386**	**7,201**

The provisions were partly offset by claims for refunds in the amount of €110 million (2015: €97 million), which were recognized as receivables. These claims mainly related to product liability.

Restructuring

Provisions for restructuring included €179 million (2015: €180 million) for severance payments and €97 million (2015: €126 million) for other restructuring expenses, which mainly comprised other costs related to the closure of production facilities.

In the Pharmaceuticals segment, restructuring took place mainly in the areas of marketing and supply network optimization as part of the Continuous Efficiency Program. Provisions were established for this restructuring primarily in Japan, France and the United States. Provisions for the above and other restructuring measures in Pharmaceuticals as of December 31, 2016, totaled €66 million. Of this amount, severance payments accounted for €62 million and other restructuring expenses for €4 million.

In the Consumer Health segment, the restructuring initiated in prior years to integrate the acquired businesses continued. Provisions for restructuring in this segment totaled €8 million as of December 31, 2016. Of this amount, severance payments accounted for €7 million and other restructuring expenses for €1 million.

In the Crop Science segment, restructuring took place mainly in connection with the "Advancing our leadership strategy" program, which aims to increase customer focus, promote innovation and improve efficiency. The restructuring initiated in the United States in prior years, involving the closure of several carbamate production facilities and a formulation plant, continued in addition. Provisions for the above and other restructuring measures in Crop Science as of December 31, 2016, totaled €104 million. Of this amount, severance payments accounted for €53 million and other restructuring expenses for €51 million.

Provisions for restructuring in the Animal Health segment as of December 31, 2016, totaled €8 million. Of this amount, severance payments accounted for €5 million and other restructuring expenses for €3 million.

Provisions for restructuring at Covestro mainly existed for the closure of an MDI production facility at the site in Tarragona, Spain. The restructuring provisions at Covestro as of December 31, 2016, totaled €66 million. Of this amount, severance payments accounted for €31 million and other restructuring expenses for €35 million.

Restructuring continued in the central functions, particularly in France, to enhance their efficiency. Also included here are provisions for the residual costs for the closure of a Covestro production facility at the Belford Roxo site in Brazil. The restructuring provisions in the central functions as of December 31, 2016, totaled €24 million. Of this amount, severance payments accounted for €21 million and other restructuring expenses for €3 million.

Litigations

The legal risks currently considered to be material, and their development, are described in Note [32].

Personnel commitments

Stock-based compensation programs

Bayer offers stock-based compensation programs collectively to different groups of employees. As required by IFRS 2 (Share-based Payment) for compensation systems involving cash settlement, awards to be made under the stock-based programs are covered by provisions in the amount of the fair value of the obligations existing as of the date of the financial statements vis-à-vis the respective employee group. All resulting valuation adjustments are recognized in profit or loss.

The following table shows the changes in provisions for the various programs:

B 26/3

Changes in Provisions for Stock-Based Compensation Programs

€ million	Aspire I	Aspire II	Aspire 2.0	Aspire I Covestro	Aspire II Covestro	Covestro Prisma	Total
December 31, 2015	**125**	**339**	**–**	**22**	**59**	**–**	**545**
Additions	61	204	90	5	13	15	388
Utilization	(54)	(149)	–	(8)	(23)	–	(234)
Reversal	(71)	(194)	(7)	(2)	(2)	–	(276)
Exchange differences	–	3	2	–	1	–	6
December 31, 2016	**61**	**203**	**85**	**17**	**48**	**15**	**429**

The value of the Aspire tranches that were fully earned at the end of 2016, resulting in payments at the beginning of 2017, was €241 million (2015: €230 million).

The net expense for all stock-based compensation programs in 2016 was €118 million (2015: €248 million), including €5 million (2015: €6 million) for the BayShare program, €2 million (2015: €0 million) for Covestro's stock participation program and €1 million income from (2015: €8 million expense for) grants of virtual Bayer shares.

The fair value of the obligations under the Aspire I, Aspire II and Aspire 2.0 programs (excluding Aspire programs for Covestro) was calculated using the Monte Carlo simulation method based on the following key parameters:

B 26/4

Parameters for Monte Carlo Simulation

	2015	2016
Dividend yield	1.96%	2.90%
Risk-free interest rate	(0.159)%	(0.670)%
Volatility of Bayer stock	25.61%	22.78%
Volatility of EURO STOXX 50	19.08%	11.66%
Correlation between Bayer stock price and the EURO STOXX 50	0.83	0.67

Long-term incentive program for members of the Board of Management and other senior executives (Aspire I)

From 2005 through 2015, members of the Board of Management and other senior executives were entitled to participate in Aspire I on the condition that they purchased a certain number of Bayer shares – determined for each individual according to specific guidelines – and retained them for the full term of the program. A percentage of the executive's annual base salary – according to his or her position – was defined as a target for variable payments (Aspire target opportunity). Depending on the performance of Bayer stock, both in absolute terms and relative to the EURO STOXX 50 index over a four-year performance period, participants receive a payment of up to 300% of their individual Aspire target opportunity at the end of the period. The prices used to determine the amount of the payment are the averages of the official closing prices of Bayer shares over the last 30 stock-exchange trading days of the respective year. The tranche issued in 2012 expired at the end of 2015, and the maximum payment of 300% was made at the beginning of 2016. The tranche issued in 2013 expired at the end of 2016, and a payment of 270% was made at the beginning of 2017.

Long-term incentive program for middle management (Aspire II)

From 2005 through 2015, other senior managers were offered Aspire II, which is similar to Aspire I but did not require a personal investment in Bayer shares. The amount of the payment is based entirely on the absolute performance of Bayer stock over a four-year period. The maximum payment is 250% of each manager's Aspire target opportunity. The prices used to determine the amount of the payment are the averages of the official closing prices of Bayer shares over the last 30 stock-exchange trading days of the respec-

tive year. The tranche issued in 2012 expired at the end of 2015, and the maximum payment of 250% was made at the beginning of 2016. The tranche issued in 2013 expired at the end of 2016, and a payment of 220% was made at the beginning of 2017.

Long-term incentive program Aspire 2.0

Since 2016, Aspire has been offered to all eligible employees in a new, standardized format named Aspire 2.0. For the Board of Management, there is an additional hurdle in the form of a comparison between the performance of Bayer stock and that of the EURO STOXX 50. Aspire 2.0 is also based on a target value, which is a percentage of each employee's annual base salary, the percentage varying according to his or her position. This target value is multiplied by the employee's STI payment factor for the previous year to give the Aspire grant value. The STI payment factor reflects the employee's individual performance and the business performance under the global short-term incentive program (STI). The Aspire grant value is converted into virtual Bayer shares by dividing it by the share price at the start of the program. The program's performance is based on these virtual shares. The fair value of the obligations is determined from the price of Bayer stock at year end and the dividends paid up to that time. The payment made at the end of each tranche is determined by multiplying the number of virtual shares by the Bayer share price at that time and adding an amount equivalent to the dividends paid during the period of the tranche. The maximum payment for Aspire 2.0 is 250% of the Aspire grant value.

Special arrangement for Covestro employees concerning the Aspire programs

The compensation programs described above were modified for Covestro employees in December 2015 in light of the legal carve-out of the Covestro companies and the subsequent stock exchange listing of Covestro AG.

The arrangement for the 2012 tranches of both Aspire programs was the same as for Bayer employees. Based on the development of Bayer's share price, the maximum payment amounts were reached for both programs (Aspire I and Aspire II). Payments of 300% and 250%, respectively, were therefore made at the beginning of 2016.

Valuation for the other three Aspire tranches issued in 2013, 2014 and 2015, respectively, was based on the average price of Bayer shares on the last 30 trading days of 2015 (€119.17). This price was fixed in advance as the end price. Thus the amounts of the payments from the three remaining tranches – where these were fully vested – were already finally determined at the end of 2015. A payment of at least 100% is guaranteed. The tranches issued in 2013 expired at the end of 2016, and payments of 300% (Aspire I) and 250% (Aspire II) were made at the beginning of 2017.

Long-term incentive program for members of the Board of Management and other senior executives of Covestro (Prisma)

Effective January 1, 2016, Covestro established a new long-term compensation program named Prisma for the 2016-2019 performance period. Senior executives and other managers are eligible to participate. A percentage of the executive's annual base salary – according to his or her position – is defined as a target for variable payments (Prisma target opportunity). Depending on the performance of Covestro stock including dividends paid (total shareholder return) – both in absolute terms and relative to the STOXX Europe 600 Chemicals index – over a four-year performance period, participants are granted a payment of up to 200% of their individual Prisma target opportunity at the end of the period. Payment for the performance period ending December 31, 2019, will be made in January 2020 according to the performance of Covestro stock over the period. This will be determined by comparing the average stock price on the last 30 trading days of 2019 to the price at the start of the performance period. The fair value of the obligations was calculated using the Monte Carlo simulation method based on parameters applicable at the closing date.

BayShare 2016

All management levels and nonmanagerial employees are offered an annual stock participation program known as BayShare, under which Bayer subsidizes their personal investments in the company's stock. The discount under this program in 2016 was 20% (2015: 20%) of the subscription amount. Employees stated a fixed amount that they wished to invest in shares. The maximum subscription amount in Germany was set at €2,500 (2015: €2,500) or €5,000 (2015: €5,000), depending on the employee's position. The shares thus acquired must be retained until December 31, 2017.

In 2016, employees purchased a total of about 259,000 shares (2015: 208,000 shares) under the BayShare program.

Stock participation program at Covestro in 2016

The stock participation program at Covestro named Covestment allowed employees of Covestro AG and participating Group companies in Germany to invest a fixed amount of their compensation – plus a subsidy from the company – in Covestro shares. The subsidy, which will be reassessed annually, was 30% in 2016. The total amount for which shares could be purchased was capped at €1,200 or €3,600, depending on the employee's position. The shares were purchased at the volume-weighted average price of Covestro shares on four trading days in November 2016. Employees purchased a total of about 126,000 shares under the Covestment program. These shares must be retained until December 31, 2017.

27. Financial liabilities

Financial liabilities were comprised as follows:

B 27/1

Financial Liabilities

	Dec. 31, 2015		Dec. 31, 2016	
€ million	Total	Of which current	Total	Of which current
Bonds and notes / promissory notes	15,547	1,235	15,991	2,010
Liabilities to banks	2,779	1,174	1,837	820
Liabilities under finance leases	474	59	436	59
Liabilities from derivatives	765	598	587	309
Other financial liabilities	369	355	730	203
Total	**19,934**	**3,421**	**19,581**	**3,401**

A breakdown of financial liabilities by contractual maturity is given below:

B 27/2

Maturities of Financial Liabilities

€ million	Dec. 31, 2015	€ million	Dec. 31, 2016
2016	3,421	2017	3,401
2017	2,245	2018	3,241
2018	2,828	2019	2,456
2019	2,066	2020	44
2020	45	2021	2,714
2021 or later	9,329	2022 or later	7,725
Total	**19,934**	**Total**	**19,581**

In addition to promissory notes in the amount of €45 million (2015: €120 million), the Bayer Group has issued the following bonds and notes:

B 27/3

Bonds and Notes

Effective interest rate	Stated rate		Nominal volume	Dec. 31, 2015 € million	Dec. 31, 2016 € million
		Bayer AG, Germany			
Floating [1]	Floating [1]	DIP bond 2014/2016	EUR 500 million	500	–
1.253%	1.125%	DIP bond 2014/2018	EUR 750 million	748	749
5.774%	5.625%	DIP bond 2006/2018	GBP 250 million	339	292
5.541%	5.625%	DIP bond 2006/2018 (increase)	GBP 100 million	137	117
2.086%	1.875%	DIP bond 2014/2021	EUR 750 million	753	755
3.811%	3.750%	Hybrid bond 2014/2024 [7]/2074	EUR 1,500 million	1,493	1,494
2.517%	2.375%	Hybrid bond 2015/2022 [7]/2075	EUR 1,300 million	1,289	1,290
3.093%	3.000%	Hybrid bond 2014/2020 [7]/2075	EUR 1,750 million	1,743	1,745
		Bayer Capital Corporation B.V., Netherlands			
1.333%	1.250%	DIP bond 2014/2023	EUR 500 million	497	497
6.061%	5.625%	Mandatory Convertible Notes [8] 2016/2019	EUR 4,000 million	–	–
		Bayer Corporation, U.S.A.			
6.670%	6.650%	Notes 1998/2028	US$350 million	342	351
		Bayer Holding Ltd., Japan			
0.858%	0.816%	DIP bond 2012/2017	JPY 30 billion	229	243
1.493%	1.459%	DIP bond 2010/2017	JPY 10 billion	76	81
3.654%	3.575%	DIP bond 2008/2018	JPY 15 billion	115	122
0.629%	0.594%	DIP bond 2013/2019	JPY 10 billion	76	81
		Bayer Nordic SE, Finland			
Floating [2]	Floating [2]	DIP bond 2013/2016	EUR 200 million	200	–
Floating [3]	Floating [3]	DIP bond 2014/2017	EUR 500 million	500	500
		Bayer U.S. Finance LLC, U.S.A.			
Floating [4]	Floating [4]	Notes 2014/2016	US$500 million	459	–
Floating [5]	Floating [5]	Notes 2014/2017	US$400 million	367	379
1.615%	1.500%	Notes 2014/2017	US$850 million	779	806
2.564%	2.375%	Notes 2014/2019	US$2,000 million	1,826	1,889
3.096%	3.000%	Notes 2014/2021	US$1,500 million	1,372	1,419
3.579%	3.375%	Notes 2014/2024	US$1,750 million	1,587	1,642
		Covestro AG, Germany			
Floating [6]	Floating [6]	DIP bond 2016/2018	EUR 500 million	–	500
1.076 %	1.000%	DIP bond 2016/2021	EUR 500 million	–	497
1.782 %	1.750%	DIP bond 2016/2024	EUR 500 million	–	497
		Total		**15,427**	**15,946**

[1] Floating-rate coupon comprising three-month EURIBOR plus 22 basis points
[2] Floating-rate coupon comprising three-month EURIBOR plus 35 basis points
[3] Floating-rate coupon comprising three-month EURIBOR plus 22 basis points
[4] Floating-rate coupon comprising three-month USD-LIBOR plus 25 basis points
[5] Floating-rate coupon comprising three-month USD-LIBOR plus 28 basis points
[6] Floating-rate coupon comprising three-month EURIBOR plus 60 basis points
[7] Date of first option to early redeem the bond at par
[8] The mandatory convertible notes were allocated to capital reserves and to other financial liabilities.

Debt Issuance Programme

An important means of external financing are the bonds issued under the Debt Issuance Programme (DIP), previously known as the multi-currency European Medium Term Notes (EMTN) program. The Debt Issuance Programme allows bonds in different currencies and with different maturities to be placed flexibly with investors.

Hybrid bonds

The hybrid bonds issued by Bayer AG are subordinated, and 50% of their amount is treated by Moody's and S & P Global Ratings as equity. They therefore have a more limited effect on the Group's rating-relevant debt indicators than senior borrowings.

Mandatory convertible notes

On November 22, 2016, Bayer Capital Corporation B.V. placed subordinated mandatory convertible notes in the amount of €4,000 million, which will be converted into no-par shares of Bayer AG at maturity. The notes represented the first part of the equity component of the financing for the planned acquisition of Monsanto Company. After deducting transaction costs of €48 million and recognition of deferred taxes of €191 million, €3,491 million were allocated to capital reserves and €652 million to other financial liabilities.

Bayer AG guarantees all the notes and bonds issued by subsidiaries (except Covestro companies).

Lease liabilities

Lease payments totaling €609 million (2015: €646 million), including €173 million (2015: €172 million) in interest, are to be made under finance leases to the respective lessors in future years.

The liabilities under finance leases mature as follows:

B 27/4

Lease Liabilities

€ million	Dec. 31, 2015			€ million	Dec. 31, 2016		
Maturity	**Lease payments**	**Interest component**	**Liabilities under finance leases**	Maturity	**Lease payments**	**Interest component**	**Liabilities under finance leases**
2016	86	27	59	2017	88	29	59
2017	76	23	53	2018	76	24	52
2018	68	20	48	2019	68	21	47
2019	60	18	42	2020	59	17	42
2020	60	15	45	2021	57	15	42
2021 or later	296	69	227	2022 or later	261	67	194
Total	**646**	**172**	**474**	**Total**	**609**	**173**	**436**

Other information

As of December 31, 2016, the Group had undrawn credit facilities at its disposal totaling €55 billion (2015: €6.2 billion), including €50 billion in bridge financing for the planned acquisition of Monsanto Company and €1.5 billion in facilities available to Covestro.

Further information on the accounting for liabilities from derivatives is given in Note [30].

28. Trade accounts payable

Trade accounts payable comprised €6,403 million (2015: €5,937 million) due within one year and €7 million (2015: €8 million) due after one year.

29. Other liabilities

Other liabilities comprised:

B 29/1

Other Liabilities

	Dec. 31, 2015		Dec. 31, 2016	
€ million	Total	Of which current	Total	Of which current
Other tax liabilities	435	428	544	527
Deferred income	1,148	204	1,463	651
Liabilities to employees	217	210	229	219
Liabilities for social expenses	174	165	168	157
Accrued interest on liabilities	189	180	186	181
Miscellaneous liabilities	436	347	788	686
Total	**2,599**	**1,534**	**3,378**	**2,421**

Deferred income included an upfront payment, originally amounting to US$1 billion, in connection with the strategic pharmaceutical collaboration agreed between Bayer and Merck & Co., Inc., United States, in the field of soluble guanylate cyclase (sGC) modulation. This deferred income is being amortized over a period of 13.5 years as the obligations are satisfied. The remaining amount deferred at the end of 2016 was €660 million (2015: €719 million). The amount amortized in 2016 was €59 million (2015: €59 million).

Deferred income also included the proceeds from the sale of the Diabetes Care business at the beginning of 2016. The original sale proceeds of around €1 billion are being realized over a period of up to 24 months as the obligations are satisfied. €469 million remained deferred at the end of 2016.

The deferred income included €62 million (2015: €62 million) in grants and subsidies received from governments, of which €15 million (2015: €7 million) was reversed and recognized in profit or loss.

The miscellaneous liabilities included €271 million (2015: €125 million) from derivatives.

30. Financial instruments

The system used by the Bayer Group to manage credit risks, liquidity risks and the different types of market price risk (interest-rate and currency risks), together with its objectives, methods and procedures, is outlined in the Opportunity and Risk Report, which forms part of the Combined Management Report.

30.1 Financial instruments by category

The following table shows the carrying amounts and fair values of financial assets and liabilities for each financial instrument category and a reconciliation to the corresponding line item in the statements of financial position. Since the line items “Other receivables,” “Trade accounts payable” and “Other liabilities” contain both financial instruments and nonfinancial assets or liabilities (such as other tax receivables or advance payments for services to be received in the future), the reconciliation is shown in the column headed “Nonfinancial assets / liabilities.”

B 30.1/1

Carrying Amounts and Fair Values of Financial Instruments

Dec. 31, 2016

	Carried at amortized cost	Carried at fair value [Fair value for information [1]]			Non-financial assets / liabilities	
€ million	Carrying amount	Based on quoted prices in active markets (Level 1) Carrying amount	Based on observable market data (Level 2) Carrying amount	Based on unobservable inputs (Level 3) Carrying amount	Carrying amount	Carrying amount in the statement of financial position
Trade accounts receivable	10,969					10,969
Loans and receivables	10,969					10,969
Other financial assets	2,245	523	3,985	803		7,556
Loans and receivables	2,148		[2,145]	[16]		2,148
Available-for-sale financial assets	32	520	3,283	794		4,629
Held-to-maturity financial assets	65		[68]			65
Derivatives that qualify for hedge accounting			269			269
Derivatives that do not qualify for hedge accounting		3	433	9		445
Other receivables	633			57	2,103	2,793
Loans and receivables	633		[633]			633
Available-for-sale financial assets				57		57
Nonfinancial assets					2,103	2,103
Cash and cash equivalents	1,899					1,899
Loans and receivables	1,899		[1,899]			1,899
Total financial assets	**15,746**	**523**	**3,985**	**860**		**21,114**
of which loans and receivables	15,649					15,649
of which available-for-sale financial assets	32	520	3,283	851		4,686
Financial liabilities	18,994		587			19,581
Carried at amortized cost	18,994	[16,040]	[3,362]			18,994
Derivatives that qualify for hedge accounting			312			312
Derivatives that do not qualify for hedge accounting			275			275
Trade accounts payable	6,035				375	6,410
Carried at amortized cost	6,035					6,035
Nonfinancial liabilities					375	375
Other liabilities	840	2	252	25	2,259	3,378
Carried at amortized cost	840		[840]			840
Carried at fair value (nonderivative)				8		8
Derivatives that qualify for hedge accounting			165			165
Derivatives that do not qualify for hedge accounting		2	87	17		106
Nonfinancial liabilities					2,259	2,259
Total financial liabilities	**25,869**	**2**	**839**	**25**		**26,735**
of which carried at amortized cost	25,869					25,869
of which derivatives that qualify for hedge accounting			477			477
of which derivatives that do not qualify for hedge accounting		2	362	17		381

[1] The exemption provisions under IFRS 7.29(a) were applied for information on specific fair values.

B 30.1/2

Carrying Amounts and Fair Values of Financial Instruments

						Dec. 31, 2015
	Carried at amortized cost	Carried at fair value [Fair value for information[1]]			Non-financial assets/ liabilities	
€ million	Carrying amount	Based on quoted prices in active markets (Level 1) Carrying amount	Based on observable market data (Level 2) Carrying amount	Based on unobservable inputs (Level 3) Carrying amount	Carrying amount	Carrying amount in the statement of financial position
Trade accounts receivable	9,933					9,933
Loans and receivables	9,933					9,933
Other financial assets	185	363	509	791		1,848
Loans and receivables	72		[64]	[18]		72
Available-for-sale financial assets	40	363		774		1,177
Held-to-maturity financial assets	73		[74]			73
Derivatives that qualify for hedge accounting			125			125
Derivatives that do not qualify for hedge accounting			384	17		401
Other receivables	506			59	1,882	2,447
Loans and receivables	506		[506]			506
Available-for-sale financial assets				59		59
Nonfinancial assets					1,882	1,882
Cash and cash equivalents	1,859					1,859
Loans and receivables	1,859		[1,859]			1,859
Total financial assets	**12,483**	**363**	**509**	**850**		**14,205**
of which loans and receivables	12,370					12,370
of which available-for-sale financial assets	40	363		833		1,236
Financial liabilities	19,169		765			19,934
Carried at amortized cost	19,169	[15,440]	[4,121]			19,169
Derivatives that qualify for hedge accounting			470			470
Derivatives that do not qualify for hedge accounting			295			295
Trade accounts payable	5,680				265	5,945
Carried at amortized cost	5,680					5,680
Nonfinancial liabilities					265	265
Other liabilities	606		117	45	1,831	2,599
Carried at amortized cost	606		[606]			606
Carried at fair value (nonderivative)				37		37
Derivatives that qualify for hedge accounting			93			93
Derivatives that do not qualify for hedge accounting			24	8		32
Nonfinancial liabilities					1,831	1,831
Total financial liabilities	**25,455**		**882**	**45**		**26,382**
of which carried at amortized cost	25,455					25,455
of which derivatives that qualify for hedge accounting			563			563
of which derivatives that do not qualify for hedge accounting			319	8		327

[1] The exemption provisions under IFRS 7.29(a) were applied for information on specific fair values.

The loans and receivables reflected in other financial assets and the liabilities measured at amortized cost also include receivables and liabilities under finance leases in which Bayer is the lessor or lessee and which are therefore measured in accordance with IAS 17.

Because of the short maturities of most trade accounts receivable and payable, other receivables and liabilities, and cash and cash equivalents, their carrying amounts at the closing date do not significantly differ from the fair values.

The fair values of loans and receivables, held-to-maturity financial investments and of financial liabilities carried at amortized cost that are given for information are the present values of the respective future cash flows. The present values are determined by discounting the cash flows at a closing-date interest rate, taking into account the term of the assets or liabilities and the creditworthiness of the counterparty. Where a market price is available, however, this is deemed to be the fair value.

The fair values of available-for-sale financial assets correspond to quoted prices in active markets (Level 1), are determined using valuation techniques based on observable market data as of the end of the reporting period (Level 2) or are the present values of the respective future cash flows, determined on the basis of unobservable inputs (Level 3).

The fair values of derivatives for which no publicly quoted prices exist in active markets (Level 1) are determined using valuation techniques based on observable market data as of the end of the reporting period (Level 2). In applying valuation techniques, credit value adjustments are determined to allow for the contracting party's credit risk.

Currency and commodity forward contracts are measured individually at their forward rates or forward prices on the closing date. These depend on spot rates or prices, including time spreads. The fair values of interest-rate hedging instruments and cross-currency interest-rate swaps are determined by discounting future cash flows over the remaining terms of the instruments at market rates of interest, taking into account any foreign currency translation as of the closing date.

Fair values estimated using unobservable inputs are categorized within Level 3 of the fair value hierarchy. This applies to certain available-for-sale debt or equity instruments, in some cases to the fair values of embedded derivatives, and to obligations for contingent consideration in business combinations. Credit risk is frequently the principal unobservable input used to determine the fair values of debt instruments classified as available-for-sale financial assets by the discounted cash flow method. Here the credit spreads of comparable issuers are applied. A significant increase in credit risk could result in a lower fair value, whereas a significant decrease could result in a higher fair value. However, a relative change of 10% in the credit spread does not materially affect the fair value.

Embedded derivatives are separated from their respective host contracts. Such host contracts are generally sale or purchase agreements relating to the operational business. The embedded derivatives cause the cash flows from the contracts to vary with exchange-rate or price fluctuations. The internal measurement of embedded derivatives is mainly performed using the discounted cash flow method, which is based on unobservable inputs. These include planned sales and purchase volumes, and prices derived from market data. Regular monitoring is carried out based on these fair values as part of quarterly reporting.

The changes in the amount of financial assets and liabilities recognized at fair value based on unobservable inputs (Level 3) for each financial instrument category were as follows:

B 30.1/3

Development of Financial Assets and Liabilities (Level 3)

	2015				2016			
€ million	Available-for-sale financial assets	Derivatives (net)	Liabilites measured at fair value (non-derivative)	Total	Available-for-sale financial assets	Derivatives (net)	Liabilites carried at fair value (non-derivative)	Total
Carrying amounts of net assets/(net liabilities), Jan. 1	**803**	**6**	**(31)**	**778**	**833**	**9**	**(37)**	**805**
Gains (losses) recognized in profit or loss	22	(12)	(3)	7	18	(17)	23	24
of which related to assets/liabilities recognized in the statements of financial position	22	(17)	(3)	2	18	(17)	–	1
Gains (losses) recognized outside profit or loss	19	–	–	19	9	–	–	9
Additions of assets/(liabilities)	11	–	(4)	7	46	–	–	46
Settlements of (assets)/liabilities	(22)	9	1	(12)	(23)	–	6	(17)
Transfers (IFRS 5)	–	6	–	6	–	–	–	–
Transfers to a different fair-value hierarchy	–	–	–	–	(32)	–	–	(32)
Net carrying amounts of assets/(liabilities), Dec. 31	**833**	**9**	**(37)**	**805**	**851**	**(8)**	**(8)**	**835**

The changes recognized in profit or loss were included in other operating income/expenses, interest income or exchange gains/losses.

Income, expense, gains and losses on financial instruments can be assigned to the following categories:

B 30.1/4

Income, Expense, Gains and Losses on Financial Instruments

						2016
€ million	Loans and receivables	Held-to-maturity financial investments	Available-for-sale financial assets	Held for trading	Liabilities carried at amortized cost	Total
Interest income	44	–	21	2	62	129
Interest expense	–	–	–	(3)	(642)	(645)
Income / expenses from affiliated companies	–	–	–	–	–	–
Changes in fair value	–	–	–	(77)	–	(77)
Impairment losses	(171)	–	(2)	–	–	(173)
Impairment loss reversals	26	–	–	–	–	26
Exchange gains / losses	355	–	–	(103)	(374)	(122)
Gains / losses from retirements	–	–	6	–	–	6
Other financial income / expenses	(1)	–	–	–	(34)	(35)
Net result	**253**	**–**	**25**	**(181)**	**(988)**	**(891)**

B 30.1/5

Income, Expense, Gains and Losses on Financial Instruments (Previous Year)

						2015
€ million	Loans and receivables	Held-to-maturity financial investments	Available-for-sale financial assets	Held for trading	Liabilities carried at amortized cost	Total
Interest income	55	1	22	25	86	189
Interest expense	–	–	–	(25)	(703)	(728)
Income / expenses from affiliated companies	–	–	3	–	–	3
Changes in fair value	–	–	–	147	–	147
Impairment losses	(93)	–	(1)	–	–	(94)
Impairment loss reversals	32	–	–	–	–	32
Exchange gains / losses	450	–	–	(235)	(679)	(464)
Gains / losses from retirements	–	–	31	–	–	31
Other financial income / expenses	(1)	–	13	–	(12)	–
Net result	**443**	**1**	**68**	**(88)**	**(1,308)**	**(884)**

The interest expense of €642 million (2015: €703 million) from nonderivative financial liabilities also included the income and expense from interest-rate swaps that qualified for hedge accounting. Interest income from financial assets not measured at fair value through profit or loss amounted to €65 million (2015: €73 million). Interest income from interest-rate derivatives that qualified for hedge accounting was €62 million (2015: €86 million). The changes in fair values of financial assets held for trading related mainly to forward commodity contracts and embedded derivatives.

Derivatives that form part of a master netting arrangement, constitute a financial asset or liability and can only be netted in the event of breach of contract by, or insolvency of, one of the contracting parties do not satisfy, or only partially satisfy, the criteria for offsetting in the statement of financial position according to IAS 32. The volume of such derivatives with positive fair values was €630 million (2015: €415 million), and the volume with negative fair values was €762 million (2015: €761 million). Included here is an amount of €362 million (2015: €256 million) in positive and negative fair values of derivatives concluded with the same contracting party.

30.2 Maturity analysis

The liquidity risks to which the Bayer Group was exposed from its financial instruments at the end of the reporting period comprised obligations for future interest and repayment installments on financial liabilities and the liquidity risk arising from derivatives, as shown in the table in Note [30.3].

In addition, loan commitments existed for an as yet unpaid €1,213 million (2015: €1,213 million) portion of the effective initial fund of Bayer-Pensionskasse VVaG, which may result in further payments by Bayer AG (€1,005 million) and / or Covestro AG (€208 million) in subsequent years.

B 30.2/1

Maturity Analysis of Financial Instruments

€ million	Dec. 31, 2016 Carrying amount	2017	2018	2019	2020	2021	after 2021
		Interest and repayment					
Financial liabilities							
Bonds and notes / promissory notes	15,991	2,261	2,160	2,367	295	2,916	8,093
Liabilities to banks	1,837	884	998	39	–	–	9
Remaining liabilities	1,166	293	303	382	61	58	268
Trade accounts payable	6,035	6,028	4	2	1	–	–
Other liabilities							
Accrued interest on liabilities	186	181	1	1	1	–	2
Remaining liabilities	662	626	3	5	2	1	25
Liabilities from derivatives							
Derivatives that qualify for hedge accounting	477	178	231	157	2	–	–
Derivatives that do not qualify for hedge accounting	381	374	3	4	2	1	1
Receivables from derivatives							
Derivatives that qualify for hedge accounting	269	210	23	4	3	2	–
Derivatives that do not qualify for hedge accounting	445	467	2	2	1	1	1
Loan commitments	–	1,213	–	–	–	–	–
Financial guarantees	–	14	–	–	–	–	3

B 30.2/2

Maturity Analysis of Financial Instruments

€ million	Dec. 31, 2015 Carrying amount	2016	2017	2018	2019	2020	after 2020
						Interest and repayment	
Financial liabilities							
Bonds and notes / promissory notes	15,547	1,475	2,334	1,704	2,282	277	9,845
Liabilities to banks	2,779	1,221	298	1,387	38	–	10
Remaining liabilities	843	440	79	69	60	61	307
Trade accounts payable	5,680	5,673	3	3	2	–	–
Other liabilities							
Accrued interest on liabilities	189	180	1	2	1	1	4
Remaining liabilities	454	420	5	2	1	1	25
Liabilities from derivatives							
Derivatives that qualify for hedge accounting	563	397	11	122	50	–	–
Derivatives that do not qualify for hedge accounting	327	312	8	1	3	1	2
Receivables from derivatives							
Derivatives that qualify for hedge accounting	125	66	26	13	2	2	1
Derivatives that do not qualify for hedge accounting	401	379	2	3	2	2	4
Loan commitments	–	1,213	–	–	–	–	–
Financial guarantees	–	14	–	–	–	–	2

30.3 Information on derivatives

Asset and liability fair values and future cash flows are exposed to currency, interest-rate and commodity price risks. Derivatives are used to reduce this risk. In some cases they are designated as hedging instruments in a hedge accounting relationship.

Currency risks

Foreign currency receivables and liabilities are hedged using foreign exchange derivatives without the existence of a hedge accounting relationship. A bond of Bayer AG denominated in British pounds was swapped on the issuance date into a fixed-rate euro bond by means of a cross-currency interest-rate swap, which was designated as a cash flow hedge. Cross-currency interest-rate swaps used to hedge intra-Group loans were also designated as cash flow hedges.

Fluctuations in future cash flows resulting from forecasted foreign currency transactions and procurement activities are avoided partly through derivatives contracts, most of which are designated as cash flow hedges.

Foreign currency risks related to the planned acquisition of Monsanto Company were partially hedged with currency derivatives, which were designated as cash flow hedges.

Interest-rate risk

The interest-rate risks from fixed-interest borrowings are managed in part using interest-rate swaps. Two interest-rate swaps in the total amount of €200 million were designated as fair value hedges for the €750 million DIP bond issued in 2014 and maturing in 2021.

Losses of €1 million were recorded on fair-value hedging instruments in 2016 (2015: €26 million). Gains of €1 million were recorded on the underlying hedged items (2015: €25 million).

Commodity price risks

Hedging contracts are also used to partly reduce exposure to fluctuations in future cash outflows and inflows resulting from price changes on procurement and selling markets.

Hedging of obligations under stock-based employee compensation programs

A portion of the obligations to make variable payments to employees under stock-based compensation programs (Aspire) is hedged against share price fluctuations using derivatives contracts that are settled in cash at maturity. These derivatives are designated as cash flow hedges.

Further information on cash flow hedges

Accumulated other comprehensive income from cash flow hedges increased in 2016 by €44 million (2015: decreased by €203 million) due to changes in the fair values of derivatives net of tax. Total changes of €3 million in the fair values of derivatives were expensed in 2016 (2015: €304 million). The respective pro-rated deferred tax income of €2 million (2015: €88 million) was likewise recognized through profit or loss.

No material ineffective portions of hedges required recognition through profit or loss in 2016 or 2015.

The income and expense from cash flow hedges recognized in accumulated other comprehensive income mainly comprised gains of €204 million (2015: €91 million) and losses of €143 million (2015: €90 million) from the hedging of forecasted transactions in foreign currencies and the planned acquisition of Monsanto Company. Of these gains and losses, a net amount of minus €91million (2015: minus €5 million) will be reclassifiable to profit or loss within one year, and a net amount of €2 million (2015: €6 million) in subsequent years.

The fair values of existing contracts in the major categories at the end of the reporting period are indicated in the following table together with the included volumes of cash flow hedges.

B 30.3/1

Fair Values of Derivatives

	Dec. 31, 2015			Dec. 31, 2016		
€ million	Notional amount[1]	Positive fair value	Negative fair value	Notional amount[1]	Positive fair value	Negative fair value
Currency hedging of recorded transactions	**22,275**	**337**	**(753)**	**22,645**	**299**	**(587)**
Forward exchange contracts	19,896	336	(283)	20,454	296	(273)
of which cash flow hedges	–	–	–	–	–	–
Cross-currency interest-rate swaps	2,379	1	(470)	2,191	3	(314)
of which cash flow hedges	2,362	–	(470)	2,146	3	(312)
Currency hedging of forecasted transactions	**4,082**	**99**	**(100)**	**17,799**	**317**	**(206)**
Forward exchange contracts	3,627	86	(99)	3,805	48	(145)
of which cash flow hedges	3,255	78	(90)	3,672	43	(138)
Currency options	455	13	(1)	13,994	269	(61)
of which cash flow hedges	368	13	(1)	13,698	161	(5)
Interest-rate hedging of recorded transactions	**200**	**13**	**–**	**200**	**14**	**–**
Interest-rate swaps	200	13	–	200	14	–
of which fair value hedges	200	13	–	200	14	–
Commodity price hedging	**91**	**14**	**(12)**	**168**	**5**	**(4)**
Forward commodity contracts	86	12	(10)	167	4	(4)
Commodity option contracts	5	2	(2)	1	1	–
Hedging of stock-based employee compensation programs	**80**	**21**	**(2)**	**532**	**48**	**(22)**
Share price options	30	21	–	152	48	–
of which cash flow hedges	30	21	–	152	48	–
Share price forwards	50	–	(2)	380	–	(22)
of which cash flow hedges	50	–	(2)	380	–	(22)
Total	**26,728**	**484**	**(867)**	**41,344**	**683**	**(819)**
of which current derivatives	25,022	435	(692)	38,349	635	(514)
for currency hedging	24,931	420	(680)	38,111	597	(510)
for interest-rate hedging[2]	–	1	–	–	3	–
for commodity price hedging	91	14	(12)	168	5	(4)
for hedging of stock-based employee compensation programs	–	–	–	70	30	–

[1] The notional amount is reported as gross volume, which also contains economically closed hedges.
[2] The portion of the fair value of long-term interest-rate swaps that relates to current interest payments is classified as current.

31. Contingent liabilities and other financial commitments

Contingent liabilities

The following warranty contracts, guarantees and other contingent liabilities existed at the end of the reporting period:

B 31/1

Contingent Liabilities

€ million	Dec. 31, 2015	Dec. 31, 2016
Warranties	99	100
Guarantees	123	264
Other contingent liabilities	562	444
Total	**784**	**808**

The guarantees mainly comprise a declaration issued by Bayer AG to the trustees of the U.K. pension plans guaranteeing the pension obligations of Bayer Public Limited Company and Bayer CropScience Limited. Under the declaration, Bayer AG – in addition to the two companies – undertakes to make further payments into the plans upon receipt of a payment request from the trustees. The net liability with respect to these defined benefit plans as of December 31, 2016, rose to €264 million (2015: €123 million) due to the sharp drop in interest rates.

Other financial commitments

The other financial commitments were as follows:

B 31/2

Other Financial Commitments

€ million	Dec. 31, 2015	Dec. 31, 2016
Operating leases	891	1,101
Orders already placed under purchase agreements	690	722
Capital contribution commitments	391	182
Definitive merger agreement with Monsanto Company, St. Louis, Missouri, U.S.A. [1]	–	53,000
Unpaid portion of the effective initial fund	1,213	1,213
Potential payment obligations under R&D collaboration agreements	2,887	2,444
Revenue-based milestone payment commitments	2,241	1,839
Total	**8,313**	**60,501**

[1] The contingent financial commitment of around US$56 billion was translated at the closing rate.

On September 14, 2016, Bayer signed a definitive merger agreement with Monsanto Company, St. Louis, Missouri, United States, which provides for Bayer's acquisition of all outstanding shares in Monsanto Company against a cash payment of US$128 per share. Bayer thus has a contingent financial commitment in the amount of approximately US$56 billion to acquire Monsanto's entire outstanding capital stock. Further details of this planned acquisition are given in Note [6.2].

The nondiscounted future minimum lease payments relating to operating leases totaled €1,101 million (2015: €891 million). The maturities of the respective payment obligations were as follows:

B 31/3

Operating Leases

Maturing in	Dec. 31, 2015	Maturing in	Dec. 31, 2016
	€ million		€ million
2016	195	2017	237
2017	155	2018	192
2018	110	2019	161
2019	94	2020	138
2020	79	2021	102
2021 or later	258	2022 or later	271
Total	**891**	**Total**	**1,101**

Financial commitments resulting from orders already placed under purchase agreements related to planned or ongoing capital expenditure projects totaled €722 million (2015: €690 million).

The Bayer Group has entered into cooperation agreements with third parties under which it has agreed to fund various research and development projects or has assumed other payment obligations based on the achievement of certain milestones or other specific conditions. If all of these payments have to be made, their maturity distribution as of December 31, 2016, was expected to be as set forth in the following table. The amounts shown represent the maximum payments to be made, and it is unlikely that they will all fall due. Since the achievement of the conditions for payment is highly uncertain, both the amounts and the dates of the actual payments may vary considerably from those stated in the table.

B 31/4

Potential Payment Obligations Under R&D Collaboration Agreements

Maturing in	Dec. 31, 2015	Maturing in	Dec. 31, 2016
	€ million		€ million
2016	262	2017	233
2017	229	2018	151
2018	96	2019	333
2019	240	2020	66
2020	78	2021	28
2021 or later	1,982	2022 or later	1,633
Total	**2,887**	**Total**	**2,444**

In addition to the above commitments, there were also revenue-based milestone payment commitments totaling €1,839 million (2015: €2,241 million), of which €1,834 million (2015: €2,237 million) was not expected to fall due until 2022 (2015: 2021) or later. These commitments are also highly uncertain.

32. Legal risks

As a global company with a diverse business portfolio, the Bayer Group is exposed to numerous legal risks, particularly in the areas of product liability, competition and antitrust law, anticorruption, patent disputes, tax assessments and environmental matters. The outcome of any current or future proceedings cannot normally be predicted. It is therefore possible that legal or regulatory judgments or future settlements could give rise to expenses that are not covered, or not fully covered, by insurers' compensation payments and could significantly affect our revenues and earnings.

Legal proceedings currently considered to involve material risks are outlined below. The legal proceedings referred to do not represent an exhaustive list.

Product-related litigation

Yasmin™ / YAZ™: Most of the lawsuits and claims concerning Bayer's drospirenone-containing oral contraceptives in the United States have been resolved. Claimants allege that users have suffered personal injuries, some of them fatal, from the use of Yasmin™ and / or YAZ™ or their generic versions, and seek compensatory and punitive damages, claiming, in particular, that Bayer had not adequately warned of the alleged risks.

As of January 23, 2017, lawsuits and claims of approximately 100 claimants remain pending against Bayer in the United States. Without admission of liability, Bayer is considering about a dozen of the lawsuits and claims for possible settlement after a case-specific analysis of medical records.

A few U.S. State Attorney Generals are investigating alleged violations of consumer protection statutes, including off-label promotion and failure to warn. One Attorney General has filed an action against Bayer.

As of January 23, 2017, 13 lawsuits seeking class action certification had been served upon Bayer in Canada. In two of these lawsuits a class has been certified. Two motions for certification of a class action are pending in Israel.

Bayer believes that it has meritorious defenses and will continue to defend itself vigorously against all claims that are not considered for settlement.

Mirena™: As of January 23, 2017, lawsuits from approximately 2,600 users of Mirena™, a levonorgestrel-releasing intrauterine system providing long-term contraception, had been served upon Bayer in the United States (excluding lawsuits no longer pending). Plaintiffs allege personal injuries resulting from the use of Mirena™, including perforation of the uterus, ectopic pregnancy or idiopathic intracranial hypertension, and seek compensatory and punitive damages. Plaintiffs claim, inter alia, that Mirena™ is defective and that Bayer knew or should have known of the risks associated with it and failed to adequately warn its users. Additional lawsuits are anticipated. Most of the cases pending in U.S. federal courts have been consolidated in a multidistrict litigation proceeding for common pre-trial management. In July 2016, the multidistrict litigation court granted summary judgment dismissing approximately 1,230 cases pending before that court. Plaintiffs have appealed the decision. As of January 23, 2017, five Canadian lawsuits relating to Mirena™ seeking class action certification had been served upon Bayer. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

Xarelto™: As of January 23, 2017, U.S. lawsuits from approximately 16,400 recipients of Xarelto™, an oral anticoagulant for the treatment and prevention of blood clots, had been served upon Bayer. Plaintiffs allege personal injuries from the use of Xarelto™, including cerebral, gastrointestinal or other bleeding and death, and seek compensatory and punitive damages. They claim, amongst other things, that Xarelto™ is defective and that Bayer knew or should have known of these risks associated with the use of Xarelto™ and failed to adequately warn its users. Additional lawsuits are anticipated. Cases pending in U.S. federal courts have been consolidated in a multidistrict litigation for common pre-trial management. As of January 23, 2017, ten Canadian lawsuits relating to Xarelto™ seeking class action certification had been served upon Bayer. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

Essure™: As of January 23, 2017, U.S. lawsuits from approximately 3,700 users of Essure™, a medical device offering permanent birth control with a nonsurgical procedure, had been served upon Bayer. Plaintiffs allege personal injuries from the use of Essure™, including hysterectomy, perforation, pain, bleeding, weight gain, nickel sensitivity, depression and unwanted pregnancy. Additional lawsuits are anticipated. As of January 23, 2017, two Canadian lawsuits relating to Essure™ seeking class action certification had been served upon Bayer. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

In connection with the above-mentioned proceedings, Bayer is insured against statutory product liability claims against Bayer to the extent customary in the respective industries and has, based on the information currently available, taken appropriate accounting measures for anticipated defense costs. However, the accounting measures relating to Yasmin™/YAZ™ and Essure™ claims exceed the available insurance coverage. Concerning Yasmin™/YAZ™, the accounting measures include costs for agreed and anticipated future settlements based on the information currently available and based on the number of pending and estimated future claims alleging venous clot injuries.

Patent disputes

Beyaz™/Safyral™: Beyaz™ and Safyral™ are Bayer's oral contraceptives containing folate. In 2015, a U.S. federal court ruled in favor of Bayer regarding both the validity of its patent and the infringement thereof by Watson Laboratories, Inc. ("Watson"). Watson had filed Abbreviated New Drug Applications with a Paragraph IV certification ("ANDA IV") seeking approval of generic versions of both Beyaz™ and Safyral™ in the United States. In May 2016, the U.S. Court of Appeals for the Federal Circuit invalidated the patent claims asserted by Bayer and reversed the judgment by the U.S. federal court. Bayer petitioned the U.S. Supreme Court to review the decision by the U.S. Court of Appeals for the Federal Circuit. In January 2017, the U.S. Supreme Court denied Bayer's petition. The decision by the U.S. Court of Appeals for the Federal Circuit against Bayer is now final. In 2015, Bayer filed two lawsuits against Lupin Ltd. and Lupin Pharmaceuticals, Inc. (together "Lupin") in a U.S. federal court for infringement of the same patent. Prior to this in 2015, Bayer had received two notices of an ANDA IV application by Lupin seeking approval to market generic versions of Safyral™ and Beyaz™ in the United States. In view of the May 2016 decision by the U.S. Court of Appeals for the Federal Circuit, the U.S. federal court ruled in favor of Lupin in November 2016. This decision is now also final.

Betaferon™/Betaseron™: In 2010, Bayer filed a complaint against Biogen Idec MA Inc. in a U.S. federal court seeking a declaration by the court that a patent issued to Biogen in 2009 is invalid and not infringed by Bayer's production and distribution of Betaseron™, Bayer's drug product for the treatment of multiple sclerosis. Biogen is alleging patent infringement by Bayer through Bayer's production and distribution of Betaseron™ and Extavia™ and has sued Bayer accordingly. Bayer manufactures Betaseron™ and distributes the product in the United States. Extavia™ is also a drug product for the treatment of multiple sclerosis; it is manufactured by Bayer, but distributed in the United States by Novartis Pharmaceuticals Corporation, another defendant in the lawsuit. In March 2016, the U.S. federal court decided a disputed issue regarding the scope of the patent in Biogen's favor. Bayer disagrees with the decision, which may be appealed at the conclusion of the proceedings in the U.S. federal court.

Damoctocog alfa pegol (BAY 94-9027, long-acting rFVIII): In 2013, Bayer filed a lawsuit against Nektar Therapeutics in the district court of Munich, Germany. In this proceeding, Bayer claims rights to certain European patent applications based on a past collaboration between Bayer and Nektar in the field of hemophilia. The European patent applications with the title "Polymer-factor VIII moiety conjugates" are part of a patent family registered in the name of Nektar comprising further patent applications and patents in other countries including the United States. However, Bayer believes that the patent family does not include any valid patent claim relevant for Bayer's drug candidate BAY 94-9027 for the treatment of hemophilia A.

Nexavar™: In 2015, Bayer filed patent infringement lawsuits in a U.S. federal court against Mylan Pharmaceuticals Inc. and Mylan Inc. (together "Mylan"). In 2014 and 2015, Bayer had received notices of an ANDA IV application pursuant to which Mylan seeks approval of a generic version of Bayer's cancer drug Nexavar™ in the United States. In November 2016, Bayer received another notice of such an ANDA IV application by Teva Pharmaceuticals USA, Inc. In December 2016, Bayer filed a patent infringement lawsuit against Teva Pharmaceuticals USA, Inc. and Teva Pharmaceutical Industries LTD in the same U.S. federal court.

Stivarga™: In December 2016, Bayer filed patent infringement lawsuits in a U.S. federal court against Apotex, Inc. and Apotex Corp. (together "Apotex") and against Teva Pharmaceuticals USA, Inc. and Teva Pharmaceutical Industries LTD (together "Teva"). In November 2016, Bayer had received notices of an ANDA IV application pursuant to which Apotex and Teva each seek approval of a generic version of Bayer's cancer drug Stivarga™ in the United States.

Xarelto™: In 2015, Bayer and Janssen Pharmaceuticals, Inc. filed a patent infringement lawsuit in a U.S. federal court against Aurobindo Pharma Limited, Aurobindo Pharma USA, Inc. (together "Aurobindo"), Breckenridge Pharmaceutical Inc. ("Breckenridge"), Micro Labs Ltd., Micro Labs USA Inc. (together "Micro Labs"), Mylan Pharmaceuticals Inc., Mylan Inc. (together "Mylan"), Prinston Pharmaceutical Inc. ("Prinston"), Sigmapharm Laboratories, LLC ("Sigmapharm"), Torrent Pharmaceuticals, Limited and Torrent Pharma Inc. (together "Torrent"). Earlier in 2015, Bayer had received notices of an ANDA IV application by Aurobindo, Breckenridge, Micro Labs, Mylan, Prinston, Sigmapharm and Torrent, each seeking approval to market a generic version of Xarelto™, an oral anticoagulant for the treatment and prevention of blood clots, in the United States. In January 2016, Bayer received another notice of such an ANDA IV application by InvaGen Pharmaceuticals, Inc. ("InvaGen"). In February 2016, Bayer and Janssen Pharmaceuticals, Inc. filed a patent infringement lawsuit against InvaGen in the same U.S. federal court.

Bayer believes it has meritorious defenses in the above ongoing patent disputes and intends to defend itself vigorously.

Further legal proceedings

Trasylol™ / Avelox™: A qui tam complaint relating to marketing practices for Trasylol™ (aprotinin) and Avelox™ (moxifloxacin) filed by a former Bayer employee is pending in the United States District Court in New Jersey. The U.S. government has declined to intervene at the present time.

Newark Bay Environmental Matters: In the United States, Bayer is one of numerous parties involved in a series of claims brought by federal and state environmental protection agencies. The claims arise from operations by entities which historically were conducted near Newark Bay or surrounding bodies of water, or which allegedly discharged hazardous waste into these waterways or onto nearby land. Bayer and the other potentially responsible parties are being asked to remediate and contribute to the payment of past and future remediation or restoration costs and damages. In August 2016, Bayer learned that two major potentially responsible parties had filed for protection under Chapter 11 of the U.S. Bankruptcy Code. While Bayer remains unable to determine the extent of its liability for these matters, this development is likely to adversely affect the share of costs potentially allocated to Bayer.

In the Lower Passaic River matter, a group of more than sixty companies including Bayer is investigating contaminated sediments in the riverbed under the supervision of the United States Environmental Protection Agency (EPA) and other governmental authorities. Future remediation will involve some form of dredging, the nature and scope of which are not yet defined, and potentially other tasks. The cost of the investigation and the remediation work may be substantial if the final remedy involves extensive dredging and disposal of impacted sediments. In the Newark Bay matter, an unaffiliated party is currently conducting an investigation of sediments in Newark Bay under EPA supervision. The investigation is in a preliminary stage. Bayer has contributed to certain investigation costs in the past and may incur costs for future investigation and remediation activities in Newark Bay.

Bayer has also been notified by governmental authorities acting as natural resource trustees that it may have liability for natural resource damages arising from the contamination of the Lower Passaic River, Newark Bay and surrounding water bodies. Bayer is currently unable to determine the extent of its liability.

Asbestos: A further risk may arise from asbestos litigation in the United States. In many cases, the plaintiffs allege that Bayer and co-defendants employed third parties on their sites in past decades without providing them with sufficient warnings or protection against the known dangers of asbestos. Additionally, a Bayer affiliate in the United States is the legal successor to companies that sold asbestos products until 1976. Union Carbide has agreed to indemnify Bayer for this liability. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

Covestro U.S. Lawsuit: In September 2016, Covestro LLC – along with three other defendants – was served with a lawsuit filed by a law firm in a California federal court. The parties recently agreed to change the venue to a federal court in the District of Columbia. The aim of the lawsuit is to recover financial damages in the form of statutory fines allegedly owed by the defendants to the United States Environmental Protection Agency for the companies' failure to disclose health risk information associated with the manufacture and handling of TDI, MDI and PMDI. Under the pertinent statutes, the U.S. government was afforded an opportunity to intervene and prosecute the claims, but it has declined to do so. Accordingly, the law firm is prosecuting the claims on the government's behalf. Violations of the Toxic Substances Control Act ("TSCA") and False Claims Act ("FCA") are asserted. Covestro will defend itself vigorously and regards the claims asserted against the company as meritless.

Tax proceedings:

Stamp taxes in Greece: In 2014, 2016 and 2017, a Greek administrative court of first instance dismissed Bayer's lawsuits against the assessment of stamp taxes and contingent penalties in the total amounts of approximately €130 million on certain intra-Group loans to a Greek subsidiary. Bayer is convinced that the decisions are wrong and has appealed or will do so in due course. Bayer believes it has meritorious arguments to support its legal position and intends to defend itself vigorously.

Notes to the Statements of Cash Flows

The statement of cash flows shows how cash inflows and outflows during the fiscal year affected the cash and cash equivalents of the Bayer Group. Cash flows are classified by operating, investing and financing activities in accordance with IAS 7 (Statement of Cash Flows). Effects of changes in the scope of consolidation are stated separately.

Of the cash and cash equivalents, an amount of €15 million (2015: €17 million) had limited availability due to foreign exchange restrictions. Past experience has shown such restrictions to be of short duration. The above amount included €1 million (2015: €3 million) of exchange-restricted cash in Venezuela. The conversion of cash from Venezuelan bolivars (VEF) into U.S. dollars is subject to a government approval process.

The cash flows reported by consolidated companies outside the eurozone are translated at average monthly exchange rates, with the exception of cash and cash equivalents, which are translated at closing rates. The “Change in cash and cash equivalents due to exchange rate movements” is reported in a separate line item.

33. Net cash provided by (used in) operating activities

Following the switch to a different value management concept, the gross cash flow is no longer used as an indicator. The previous disclosure of “income taxes paid or accrued” is replaced by “income taxes paid.” This has also resulted in amendments to “Changes in other working capital, other noncash items.”

The transfers of bonds with a total value of €450 million (2015: €300 million) to pension funds and of Covestro shares with a value of €337 million to Bayer Pension Trust e.V. were noncash transactions and therefore did not result in operating cash outflows.

34. Net cash provided by (used in) investing activities

The net cash outflow for investing activities in 2016 amounted to €8,729 million (2015: €2,762 million).

Additions to property, plant and equipment and intangible assets in 2016 resulted in a cash outflow of €2,578 million (2015: €2,517 million). Cash inflows from sales of property, plant and equipment and intangible assets amounted to €111 million (2015: €193 million).

The net cash outflow for noncurrent and current financial assets amounted to €6,335 million (2015: €370 million).

The transfers of bonds in the total amount of €450 million (2015: €300 million) to pension funds were noncash transactions and therefore did not result in investing cash inflows.

35. Net cash provided by (used in) financing activities

In 2016 there was a net cash outflow of €350 million (2015: €3,974 million) for financing activities. Net loan repayments amounted to €730 million (2015: €2,929 million).

Cash outflows for dividend payments amounted to €2,126 million (2015: €1,869 million). Net interest payments – including payments for and receipts from interest-rate swaps – rose to €794 million (2015: €652 million). The net inflow of €3,952 million from the mandatory convertible notes is reflected as a capital contribution of €3,300 million and a borrowing of €652 million. In 2015, the proceeds from the stock market flotation of Covestro AG accounted for a €1,490 million cash inflow.

The transfer of Covestro shares with a value of €337 million to Bayer Pension Trust e.V. was a noncash transaction and therefore did not result in a financing cash inflow.

Other Information

36. Audit fees

The following fees for the services of the worldwide network of PricewaterhouseCoopers (PwC), including PricewaterhouseCoopers Aktiengesellschaft Wirtschaftsprüfungsgesellschaft (PwC AG WPG), were recognized as expenses:

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Audit Fees

	PwC		of which PwC AG WPG	
€ million	2015	2016	2015	2016
Financial statements auditing	17	16	7	7
Audit-related services and other audit work	9	2	9	1
Tax consultancy	3	3	–	–
Other services	7	7	5	5
Total	**36**	**28**	**21**	**13**

The fees for the auditing of financial statements mainly comprised those for the audits of the consolidated financial statements of the Bayer Group and the financial statements of Bayer AG and its subsidiaries. The decrease in fees for audit-related services and other audit work mainly resulted from the absence of fees related to the carve-out and stock market flotation of Covestro, which took place in 2015.

The Independent Auditor's Report on the consolidated financial statements for fiscal 2016 was signed by Dr. Peter Bartels and Eckhard Sprinkmeier. Eckhard Sprinkmeier is the responsible audit partner. Dr. Peter Bartels signed the Independent Auditor's Report for the first time for the year ended December 31, 2012, and Eckhard Sprinkmeier for the year ended December 31, 2014. PwC has served as the auditor of Bayer's consolidated financial statements since the merger of Price Waterhouse Deutschland and Coopers & Lybrand Deutsche Revision in 1998. The predecessor firm of Coopers & Lybrand Deutsche Revision had already audited Bayer's consolidated financial statements for some years prior to that date.

37. Related parties

Related parties as defined in IAS 24 (Related Party Disclosures) are those legal entities and natural persons that are able to exert influence on Bayer AG and its subsidiaries or over which Bayer AG or its subsidiaries exercise control or joint control or have a significant influence. They include, in particular, nonconsolidated subsidiaries, joint ventures and associates included in the consolidated financial statements at cost of acquisition or using the equity method, and post-employment benefit plans, as well as the corporate officers of Bayer AG whose compensation is reported in Note [38] and in the Compensation Report, which forms part of the Combined Management Report.

Transactions with nonconsolidated subsidiaries, joint ventures and associates included in the consolidated financial statements at cost of acquisition or using the equity method, and post-employment benefit plans are carried out on an arm's-length basis.

The following table shows the volume of transactions with related parties included in the consolidated financial statements of the Bayer Group at amortized cost or using the equity method, and with post-employment benefit plans:

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Related Parties

	2015				2016			
€ million	Sales of goods and services	Purchases of goods and services	Receivables	Liabilities	Sales of goods and services	Purchases of goods and services	Receivables	Liabilities
Nonconsolidated subsidiaries	21	4	11	22	4	5	9	19
Joint ventures	25	–	4	1	24	–	4	243
Associates	36	645	–	4	34	557	3	6
Post-employment benefit plans	–	–	822	68	–	–	823	63

Goods and services in the amount of €524 million (2015: €609 million) were purchased from the associate PO JV, LP, Wilmington, United States, mainly in the course of day-to-day business operations.

Liabilities rose mainly with respect to Casebia Therapeutics Limited Liability Partnership, Ascot, United Kingdom, the newly established joint venture with CRISPR Therapeutics AG, Basel, Switzerland.

Intercompany profits and losses for companies accounted for in the consolidated financial statements using the equity method were immaterial in 2016 and 2015.

Bayer AG has undertaken to provide jouissance right capital (Genussrechtskapital) in the form of an interest-bearing loan with a nominal volume of €150 million (2015: €150 million) for Bayer-Pensionskasse VVaG. The entire amount remained drawn as of December 31, 2016. The carrying amount as of December 31, 2016, was €154 million (2015: €153 million). Loan capital was first provided to Bayer-Pensionskasse VVaG in 2008 for its effective initial fund. This capital had a nominal volume of €595 million as of December 31, 2016 (2015: €595 million). The carrying amount as of December 31, 2016, was €612 million (2015: €610 million). The outstanding receivables, comprised of different tranches, are each subject to a five-year interest-rate adjustment mechanism. Interest income of €18 million was recognized for 2016 (2015: €22 million).

38. Total compensation of the Board of Management and the Supervisory Board, advances and loans

The compensation of the Board of Management comprises short-term payments, stock-based payments and post-employment benefits.

The following table shows the individual components of the Board of Management's compensation according to IFRS:

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Board of Management Compensation according to IFRS

€ thousand	2015	2016
Fixed annual compensation	4,455	6,385
Fringe benefits	207	664
Total short-term non-performance-related compensation	**4,662**	**7,049**
Short-term performance-related cash compensation	5,983	9,063
Total short-term compensation	**10,645**	**16,112**
Stock-based compensation (virtual Bayer shares) earned in the respective year	5,983	–
Change in value of existing entitlements to stock-based compensation (virtual Bayer shares)	556	(1,275)
Stock-based compensation (Aspire) earned in the respective year	2,330	5,217
Change in value of existing entitlements to stock-based compensation (Aspire)	272	(923)
Total stock-based compensation (long-term incentive)	**9,141**	**3,019**
Service cost for pension entitlements earned in the respective year	2,891	3,902
Total long-term compensation	**12,032**	**6,921**
Severance indemnity in connection with the termination of a service contract	1,131	4,542
Aggregate compensation (IFRS)	**23,808**	**27,575**

In addition to the above compensation, actuarial losses of €3,196 thousand (2015: gains of €2,309 thousand) incurred in connection with pension obligations to the currently serving members of the Board of Management were recognized outside profit or loss. These changes mainly resulted from the decline (2015: slight increase) in the level of interest rates.

Further details are provided in the Compensation Report, which forms part of the Combined Management Report.

In addition to the provisions of €6,575 thousand (2015: €5,983 thousand) for the short-term variable cash compensation, an amount of €7,777 thousand (2015: €18,663 thousand) was recognized in the statement of financial position for future payments of stock-based compensation based on virtual shares to the members of the Board of Management serving as of December 31, 2016.

An amount of €7,288 thousand (2015: €7,110 thousand) was recognized in the statement of financial position for future payments of stock-based compensation based on the Aspire program to the members of the Board of Management serving as of December 31, 2016.

The present value of the defined benefit pension obligation for the members of the Board of Management serving as of December 31, 2016, was €38,427 thousand (2015: €33,491 thousand).

Pension payments to former members of the Board of Management and their surviving dependents in 2016 amounted to €12,800 thousand (2015: €13,416 thousand). The defined benefit obligation for former members of the Board of Management and their surviving dependents amounted to €188,850 thousand (2015: €172,767 thousand).

The compensation of the Supervisory Board amounted to €3,479 thousand (2015: €3,291 thousand).

In addition to their compensation as members of the Supervisory Board, those employee representatives who are employees of Bayer Group companies receive compensation unrelated to their service on the Supervisory Board. The total amount of such compensation in 2016 was €939 thousand (2015: €741 thousand).

Pension obligations for employee representatives on the Supervisory Board amounted to €4,399 thousand (2015: €3,756 thousand).

There were no advances or loans to members of the Board of Management or the Supervisory Board outstanding as of December 31, 2016, or at any time during 2016 or 2015.

39. Events After the End of the Reporting Period

Acquisition of Cydectin™

On January 3, 2017, Bayer acquired the Cydectin™ portfolio in the United States from Boehringer Ingelheim Vetmedica Inc., St. Joseph, United States. A payment of €158 million was made on January 3, 2017, in connection with the acquisition.

Leverkusen, February 14, 2017

Bayer Aktiengesellschaft

The Board of Management

Responsibility Statement

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

Leverkusen, February 14, 2017
Bayer Aktiengesellschaft

The Board of Management

Werner Baumann
Chairman

Liam Condon

Johannes Dietsch

Dr. Hartmut Klusik

Kemal Malik

Erica Mann

Dieter Weinand

Independent Auditor's Report

To Bayer AG, Leverkusen

Report on the Audit of the Consolidated Financial Statements

Audit Opinion on the Consolidated Financial Statements

We have audited the consolidated financial statements of Bayer AG, Leverkusen, and its subsidiaries (the Group), which comprise the consolidated statement of financial position as at December 31, 2016, and the consolidated income statement, the consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the financial year from January 1, to December 31, 2016, and notes to the consolidated financial statements, including a summary of significant accounting policies.

According to § (Article) 322 Abs. (paragraph) 3 Satz (sentence) 1 zweiter Halbsatz (second half sentence) HGB ("Handelsgesetzbuch": German Commercial Code), we state that, in our opinion, based on the findings of our audit, the accompanying consolidated financial statements comply, in all material respects, with IFRS, as adopted by the EU, and the additional requirements of German commercial law pursuant to § 315a Abs. 1 HGB, and give a true and fair view of the net assets and financial position of the Group as at December 31, 2016, as well as the results of operations for the financial year from January 1 to December 31, 2016, in accordance with these requirements.

According to § 322 Abs. 3 Satz 1 erster Halbsatz HGB, we state that our audit has not led to any reservations with respect to the propriety of the consolidated financial statements.

Basis for Audit Opinion on the Consolidated Financial Statements

We conducted our audit in accordance with § 317 HGB and German generally accepted standards for the audit of financial statements promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW), and additionally considered the International Standards on Auditing (ISA). Our responsibilities under those provisions and standards, as well as supplementary standards, are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements" section of our report. We are independent of the Group entities in accordance with the provisions under German commercial law and professional requirements, and we have fulfilled our other German ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Key Audit Matters

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 to December 31, 2016. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our audit opinion thereon, and we do not provide a separate audit opinion on these matters.

In our view, the key audit matters were as follows:

1. Change in segment reporting
2. Impairment of goodwill and intangible assets with indefinite useful lives
3. Financial instruments – Issuance of mandatory convertible notes
4. Financial instruments – Accounting treatment of hedging transactions

❺ Accounting treatment of the discontinued operation “Diabetes Care”
❻ Accounting treatment of legal risks stemming from product-related disputes
❼ Adjusting EBITDA and earnings per share for non-recurring items

Our presentation of these key audit matters has been structured as follows:

① Matter and issue
② Audit approach and findings
③ Reference to further information

❶ Change in segment reporting

① As part of the organizational and strategic restructuring of the Bayer Group following the spin-off of the former MaterialScience subgroup, which has been listed under the name Covestro AG since the 2015 financial year, the Bayer Group’s internal reporting structure was reorganized. Since the internal reporting structure is used as a basis for determining the reportable segments under IFRS 8, the revised reporting structure consequently resulted in a change in the Bayer Group’s segment reporting. From our point of view, this matter was of particular importance because, in the context of capital market communications, segment reporting has a special significance and the change in the segment structure also affects other accounting-related areas.

② During our audit we, among other procedures, considered the internal reporting and its sub-categorization of the individual reporting units and the changes in presentation, and reconciled this structure to the presentation used in the segment reporting. Moreover, we examined the method applied for the reallocation of goodwill and questioned the decision-makers on the Board of Management about the allocation of resources. We were able to satisfy ourselves that the changes in segment reporting applied by management were consistent with the reorganization of the internal reporting structure.

③ The Company’s disclosures about the change of the internal reporting structure in connection with the organizational and strategic restructuring of the Bayer Group are contained in section 5 of the notes to the consolidated financial statements.

❷ Impairment of goodwill and intangible assets with indefinite useful lives

① An amount of EUR 16,312 million (20% of consolidated total assets) is reported under the line item "Goodwill" in the consolidated financial statements. Intangible assets with indefinite useful lives amounting to EUR 760 million (1% of consolidated total assets) are reported under “Other intangible assets.” The Company allocates goodwill to strategic business units or groups of strategic business units within the Bayer Group. As part of the regular impairment testing of goodwill and intangible assets with indefinite useful lives the carrying amounts of the Company’s strategic business units or intangible assets with indefinite useful lives are compared against their respective recoverable amount. In general, the recoverable amount is calculated on the basis of the fair value less costs to sell. This is based on the present value of future cash flows since, as a rule, market values are not available for the individual business units. The present value is calculated using discounted cash flow models on the basis of the Bayer Group’s three-year operating plan prepared by management and approved by the Supervisory Board and extrapolated on the basis of assumptions about long-term growth rates. The discount rate used is the weighted average cost of capital for the relevant reporting segment. The result of this measurement depends to a large extent on management’s assessment of future cash inflows of the respective strategic business unit and the discount rate used, and is therefore subject to considerable uncertainty. Against this background and due to the underlying complexity of the measurement models, this matter was of particular importance during our audit.

② As part of our audit, we, among other things, reviewed the method used for performing impairment tests and assessed the calculation of the weighted average cost of capital. We satisfied ourselves as to the appropriateness of the future cash inflows used in the measurement by, inter alia, comparing this data with the current budgets in the three-year plan prepared by management and approved by the Supervisory Board, and reconciling them against general and sector-specific market expectations. We also satisfied ourselves that the costs of the corporate functions reported in the "Corporate Functions and Consolidation" segment in the segment reporting were properly taken into consideration when testing the respective strategic business units for impairment. With the knowledge that even relatively small changes in the discount rate applied can have material effects on the recoverable amount calculated in this way, we also focused our testing in particular on the parameters used to determine the discount rate applied, and evaluated the measurement model. Furthermore, due to the materiality of goodwill, we also performed our own sensitivity analyses for the strategic business units (comparison of carrying and recoverable amounts) and determined that the respective goodwill was sufficiently covered by the discounted future cash flows. Overall, we consider the measurement inputs and assumptions used by management to be in line with our expectations.

③ The Company's disclosures pertaining to goodwill and intangible assets with indefinite useful lives are contained in sections 4 and 17 of the notes to the consolidated financial statements.

❸ Financial instruments – Issuance of mandatory convertible notes

① On November 22, 2016, the Bayer Group placed mandatory convertible notes amounting to EUR 4.0 billion, excluding the pre-emptive subscription rights of the Company's existing shareholders. The mandatory convertible notes are issued in denominations of EUR 100,000 by Bayer Capital Corporation B.V. under the subordinate guarantee of Bayer AG. The notes carry a fixed coupon of 5.625% p.a. until maturity. The coupon is payable annually in arrears on the respective coupon payment date. At maturity in 2019, the notes will automatically convert into ordinary shares of Bayer AG (these shares will either already exist or will stem from a conditional capital increase). The conversion ratio will be calculated on the basis of the share price on the conversion date. Both the "Minimum Conversion Price" and the "Maximum Conversion Price" were fixed upon conclusion of the agreement. In addition to the mandatory conversion upon maturity, the issuer may exercise its right to early conversion at any time during the "Conversion Period." In the case of an early conversion, the issuer must deliver shares at the "Maximum Conversion Ratio." Upon initial recognition, the present value of the coupon payments (taking into account the expected coupon payment dates) was recognized as a financial liability, and the difference to the fair value of the instrument as a whole was recognized as equity. Of the mandatory convertible notes, EUR 3.3 billion was recognized as capital reserves and EUR 0.7 billion as financial liabilities. Since the classification of mandatory convertible notes as debt or partially as equity and partially as debt impacts the Bayer Group's capital structure (and thus the credit quality as well as the cost of capital for new loans), this matter was of particular importance during our audit.

② As part of our audit, we critically assessed the terms and conditions for the issuance of the mandatory convertible notes and evaluated whether the mandatory convertible bond constitutes a contract within the meaning of IAS 32.13 that must be recognized in Bayer AG's consolidated financial statements as a financial liability and as an equity instrument in accordance with IAS 32.28. For the equity component, we, inter alia, assessed to what extent the requirements under IAS 32.16 were met and whether the substance of the contractual terms and conditions of the mandatory convertible notes suffice to classify the notes as equity (IAS 32.16 in conjunction with IFRIC Update, January 2014). We evaluated the obligation to make ongoing coupon payments in accordance with IAS 32.16 in conjunction with IAS 32.19 in order to determine to what extent Bayer AG does not have a right to avoid delivering cash to settle a contractual obligation, thus giving rise to a financial liability. Ultimately, the mandatory convertible notes represent a compound financial instrument that must be broken down into an equity component and a liability component upon initial recognition. Therefore, the obligation to make ongoing coupon payments must be classified as a financial liability whereas the obligation to redeem, i.e. convert, the notes must be classified as an equity component.

③ The Company's disclosures pertaining to the accounting treatment of the mandatory convertible notes are contained in sections 24 and 27 of the notes to the consolidated financial statements.

④ Financial instruments – Accounting treatment of hedging transactions

① The companies of the Bayer Group use a number of different derivative financial instruments to hedge against currency, commodity price and interest rate risks associated with ordinary business activities. Management's hedging policy is documented in corresponding internal guidelines and serves as the basis for these transactions. Currency risks arise primarily from revenue, sales and procurement transactions (in particular commodities) and financing denominated in foreign currencies. Interest rate hedges are entered into for the purpose of achieving a sensible ratio of variable and fixed interest rate exposures. Derivative financial instruments are recognized at fair value as of the balance sheet date. The positive fair value of the derivative financial instruments used as hedges amounts to EUR 683 million as of the balance sheet date and the negative fair value amounts to EUR 819 million. If the financial instruments used by the Bayer Group are effective hedges of future cash flows in the context of hedging relationships in accordance with the requirements of IAS 39, the effective portion of the changes in fair value are recognized over the duration of the hedging relationships directly in equity until the maturity of the hedged cash flows. As of the balance sheet date, a cumulative EUR 61 million were recognized outside profit or loss as expenses and income before taxes on income. We believed that these matters were of particular importance due to the high complexity and number of transactions as well as the extensive accounting and reporting requirements under IAS 39.

② As a part of our audit and together with the help of our internal specialists from Corporate Treasury Solutions, we, among other things, assessed the contractual and financial parameters and reviewed the accounting treatment, including the effects on equity and profit or loss, of the various hedging transactions. Together with these specialists, we also assessed the Company's internal control system with regard to derivative financial instruments, including the internal activities to monitor compliance with the hedging policy. Furthermore, we also used market data to review the measurement method applied to measure the fair value of the financial instruments. In addition, we also obtained bank confirmations in order to assess the completeness of and to examine the fair values of the recorded transactions. With regard to the expected cash flows and the assessment of the effectiveness of hedges, we essentially retrospectively assessed past hedge levels. We verified that hedges were accounted for and measured in accordance with the provisions of IAS 39.

③ The Company's disclosures pertaining to the accounting treatment of hedging transactions are contained in sections 4 and 30 of the notes to the consolidated financial statements.

5 Accounting treatment of the discontinued operation "Diabetes Care"

① During the financial year, as part of optimizing its portfolio and on the basis of a share and asset purchase agreement dated June 10, 2015 with Panasonic Healthcare Holdings Co., Ltd., Tokyo, Japan, the Company disposed of its global Diabetes Care business for approximately EUR 1 billion on January 4, 2016. The business will continue to operate as an independent enterprise under the name Ascensia Diabetes Care ("ADC"). Until such a time that ADC has established its own, appropriate and functioning infrastructure, Bayer Group companies – for a transition period of up to two years – will act, among other things, as a distributor for ADC in various countries and provide ADC with accounting services. The Diabetes Care business generated revenue of EUR 573 million in financial year 2016. The business activities of the Diabetes Care business were presented as a discontinued operation in the consolidated financial statements of Bayer AG in accordance with the provisions of IFRS 5. The assets, liabilities, expenses and income from this discontinued operation are calculated and allocated in accordance with the share and asset purchase agreement. In our view, this matter was of particular importance during our audit due to the complexity of the underlying agreement and the inherent risk that not all of the assets and liabilities transferring to ADC as part of the sale would be identified.

② As part of our audit, we, among other things, conducted an in-depth review of the provisions of the underlying share and asset purchase agreement. We assessed the Bayer Group's plan for identifying and recognizing the assets and liabilities that will transfer to ADC in accordance with the share and asset purchase agreement, and reconciled this with the underlying agreement. In identifying those assets and liabilities that are assigned to the Diabetes Care business and that will transfer to ADC in 2016 in accordance with the share and asset purchase agreement, we reviewed whether management's actions were in line with the underlying plan and whether all of the relevant assets and liabilities had been identified. We also assessed and reviewed the determination of the income and expenses that are to be assigned to the discontinued operation "Diabetes Care" and that must be recognized separately in the income statement and in the notes to the financial statements in accordance with IFRS 5. We found that the assets, liabilities, income and expenses of the discontinued operation "Diabetes Care" were appropriately recognized in the consolidated financial statements in accordance with the provisions of IFRS 5.

③ The Company's disclosures pertaining to the discontinued operation "Diabetes Care" are contained in section 6.3 of the notes to the consolidated financial statements.

6 Accounting treatment of legal risks stemming from product-related disputes

① Bayer Group entities are involved in court and out-of-court proceedings with authorities, peers and other parties. This gives rise to legal risks, in particular in the area of product liability, competition and antitrust law, patent law, tax law and environmental protection.

As of January 23, 2017, 100 claims had been asserted against Bayer Group in the United States of America both in and out-of-court, with regard to Yasmin™/YAZ™ products. Several attorneys general in U.S. states are reviewing allegations that consumer protection provisions had been violated and one attorney general has brought legal action against Bayer Group. Furthermore, class action lawsuits are pending in Canada and Israel and claims are known to have been asserted in other countries. Against the background of the pending and expected product liability lawsuits in connection with Mirena™, as of January 23, 2017, approximately 2,600 (previous year: 3,500) users of Mirena™ had brought action against the Bayer Group in the United States of America. Furthermore, as of January 23, 2017, approximately 16,400 (previous year: 4,300) users of Xarelto™ had asserted claims for compensatory and punitive damages against the Bayer Group in the United States of America. As of January 23, 2017, in Canada 10 lawsuits had also been brought against the Bayer Group in connection with Xarelto™; in each of those lawsuits, the plaintiffs were applying for class action status. As of January 23, 2017, approximately 3,700 users of Essure™ had brought action against the Bayer Group in the United States of America, and two lawsuits had been filed in Canada; in each of those lawsuits, the plaintiffs were applying for class action status.

The evaluation whether or not a provision should be recognized to cover the risks stemming from a pending legal dispute, and if so, in what amount, is shaped to a high degree by estimates and assumptions made by management. In the light of this background and due to the high monetary amount of the asserted claims, we considered the aforementioned product-related disputes of the Bayer Group to be of particular importance.

② As part of our audit, we, among other things, assessed the process established by the Company to ensure that a legal dispute is recorded, its outcome is assessed, and the dispute is accounted for. Furthermore, we also hold regular meetings with the Company's legal department in order to receive updates on current developments and the reasons for the corresponding assessments. The development of material legal disputes, including management's assessments as to their potential outcome, is provided to us by the company in writing. As of the balance sheet date, we also obtained external legal confirmations that support management's risk assessments with regard to the product-related disputes discussed under ① above. In connection with these product-related disputes, we reviewed management's assessments on the basis of the grounds of the claims asserted against the Bayer Group, and we agree with the assessments taken by management.

③ The Company's disclosures relating to the aforementioned legal disputes are contained in section 32 of the notes to the consolidated financial statements.

❼ Adjusting EBITDA and earnings per share for non-recurring items

① For the Bayer Group's management and analysis purposes, EBITDA (earnings before interests, taxes, depreciation and amortization) is used and adjusted for special items (by their nature and amount of specific effects). Adjustments to EBITDA in the amount of EUR 517 million have been reported in the consolidated financial statements of the Bayer AG. The adjusted EBITDA is used for capital market communication as a core financial performance indicator. Furthermore, the adjusted EBITDA is used as a target achievement measure for the annual performance-related remuneration of the Bayer Group's employees. The adjustments to EBITDA were of particular importance during our audit, because the applied adjustments are based on the Bayer Group's internal accounting guidelines and there is a risk of bias in management's judgment.

② We reviewed the calculation of underlying EBITDA and critically assessed the special items identified by the management. Based on the knowledge obtained during the audit and the information provided to us by management, we examined at the same time whether the adjustments had been applied in accordance with the definition and approach presented in the segment reporting disclosures. We were able to satisfy ourselves that the adjustments applied to EBITDA by management were in line with the segment reporting disclosures and had been applied consistently.

③ The Company's disclosures about the adjustments to and determination of EBITDA are presented under section 5 of the notes to the consolidated financial statements.

Other Information

Management is responsible for the other information. The other information comprises

- the Corporate Governance Report according to section 3.10 of the German Corporate Governance Code,
- the Corporate Governance Statement pursuant to § 289a HGB and § 315 Abs. 5 HGB, as well as
- other parts of the annual report of Bayer AG, Leverkusen, for the financial year ended on December 31, 2016, which were not subject of our audit.

Our audit opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information, and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation of the consolidated financial statements, which comply with IFRS, as adopted by the EU, and the additional German legal requirements applicable under § 315a Abs. 1 HGB, and give a true and fair view of the net assets, financial position and results of operations of the Group in accordance with these requirements. Furthermore, management is responsible for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objective is 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 to issue an auditor's report that includes our audit opinion on the consolidated financial statements. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB and German generally accepted standards for the audit of financial statements promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW), under additional consideration of the ISA, 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 economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with § 317 HGB and German generally accepted standards for the audit of financial statements promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW), under additional consideration of the ISA, 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, 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 opinion. 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 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 the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or the group management report or, if such disclosures are inadequate, to modify our audit opinion. 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 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 represent the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the net assets and financial position as well as the results of operations of the Group in accordance with IFRS, as adopted by the EU, and the additional German legal requirements applicable under § 315a Abs. 1 HGB.
- Obtain sufficient and appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an audit opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our report on the audit of the consolidated financial statements unless law or regulation precludes public disclosure about the matter.

Other Legal and Regulatory Requirements

Report on the Audit of the Group Management Report

Audit Opinion on the Group Management Report

We have audited the group management report of Bayer AG, Leverkusen, which is combined with the Company's management report, for the financial year from January 1 to December 31, 2016.

In our opinion, based on the findings of our audit, the accompanying group management report as a whole provides a suitable view of the Group's position. In all material respects, the group management report is consistent with the consolidated financial statements, complies with legal requirements and suitably presents the opportunities and risks of future development.

Our audit has not led to any reservations with respect to the propriety of the group management report.

Basis for Audit Opinion on the Group Management Report

We conducted our audit of the group management report in accordance with § 317 Abs. 2 HGB and German generally accepted standards for the audit of management reports promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW). We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management and Those Charged with Governance for the Group Management Report

Management is responsible for the preparation of the group management report, which as a whole provides a suitable view of the Group's position, is consistent with the consolidated financial statements, complies with legal requirements, and suitably presents the opportunities and risks of future development. Furthermore, management is responsible for such policies and procedures (systems) as management determines are necessary to enable the preparation of a group management report in accordance with the German legal requirements applicable under § 315 Abs. 1 HGB and to provide sufficient and 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 group management report.

Auditor's Responsibilities for the Audit of the Group Management Report

Our objective is to obtain reasonable assurance about whether the group management report as a whole provides a suitable view of the Group's position as well as, in all material respects, is consistent with the consolidated financial statements as well as the findings of our audit, complies with legal requirements, and suitably presents the opportunities and risks of future development, and to issue an auditor's report that includes our audit opinion on the group management report.

As part of an audit, we examine the group management report in accordance with § 317 Abs. 2 HGB and German generally accepted standards for the audit of management reports promulgated by the IDW. In this connection, we draw attention to the following:

- The audit of the group management report is integrated into the audit of the consolidated financial statements.
- We obtain an understanding of the policies and procedures (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 audit opinion on the effectiveness of these policies and procedures (systems).

- We perform audit procedures on the prospective information presented by management in the group management report. Based on appropriate and sufficient audit evidence, we hereby, in particular, evaluate the material assumptions used by management as a basis for the prospective information and assess the reasonableness of these assumptions as well as the appropriate derivation of the prospective information from these assumptions. We are not issuing a separate audit opinion on the prospective information or the underlying assumptions. There is a significant, unavoidable risk that future events will deviate significantly from the prospective information.
- We are also not issuing a separate audit opinion on individual disclosures in the group management report; our audit opinion covers the group management report as a whole.

Responsible Auditor

The auditor responsible for the audit is Eckhard Sprinkmeier.

Essen, February 15, 2017

PricewaterhouseCoopers
Aktiengesellschaft
Wirtschaftsprüfungsgesellschaft

Dr. Peter Bartels
Wirtschaftsprüfer
(German Public Auditor)

Eckhard Sprinkmeier
Wirtschaftsprüfer
(German Public Auditor)

Independent Practitioner's Limited Assurance Report on the Sustainability Information

To Bayer AG, Leverkusen

PricewaterhouseCoopers AG Wirtschaftsprüfungsgesellschaft has performed a moderate assurance engagement on the German version of the augmented online version of the Annual Report of Bayer AG and issued an independent assurance report, authoritative in German language, which has been translated as follows:

We have been engaged to perform a limited assurance engagement on the sustainability information marked with "limited assurance" in the online annexes of the augmented online version of the Annual Report of Bayer AG, Leverkusen, (hereafter: the "Company") for the period 1 January 2016 to 31 December 2016 ("Annual Report 2016 – Augmented Version"; hereafter: "Online Version").

Management's Responsibility

The Company's Management is responsible for the preparation and presentation of the Online Version in accordance with the criteria as set out in the G4 Sustainability Reporting Guidelines of the Global Reporting Initiative (GRI) (hereafter the "GRI Criteria") and for the selection of the information to be assessed.

This responsibility includes the selection and application of appropriate methods to prepare the Online Version as well as the use of assumptions and estimates for individual sustainability disclosures which are reasonable in the circumstances. Furthermore, the responsibility includes designing, implementing and maintaining systems and processes relevant for the preparation of the Sustainability Report, which is free of material misstatements due to intentional or unintentional errors.

Audit Firm's Independence and Quality Control

We have complied with the German professional provisions regarding independence as well as other ethical requirements.

The audit firm applies the national legal requirements and professional standards – in particular the Professional Code for German Public Auditors and German Chartered Auditors ("Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer": "BS WP/vBP") as well as the Institut der Wirtschaftsprüfer ("Institute of Public Auditors in Germany; IDW"): Requirements to quality control for audit firms ("Entwurf eines IdW Qualitätssicherungsstandards 1 "Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis" (IdW EQS 1)") – and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Practitioner's Responsibility

Our responsibility is to express an opinion on the sustainability information marked with "limited assurance" in the Online Version based on our work performed.

Within the scope of our engagement we did not perform an audit on external sources of information or expert opinions, referred to in the Online Version.

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information" published by IAASB. This Standard requires that we plan and perform the assurance engagement to obtain limited assurance whether any matters have come to our attention that cause us to believe that the sustainability information marked with " √ " in the Online Version has not been prepared, in all material respects, in accordance with the GRI Criteria.

In a limited assurance engagement the evidence-gathering procedures are more limited than for a reasonable assurance engagement and therefore significantly less assurance is obtained than in a reasonable assurance engagement. The procedures selected depend on the practitioner's judgement. This includes the assessment of the risks of material misstatements of the sustainability information marked with "limited assurance" in the Online Version with regard to the GRI Criteria.

Within the scope of our work we performed amongst others the following procedures:

- Obtaining an understanding of the structure of the sustainability organization and of the stakeholder engagement
- Inquiries of personnel involved in the preparation of the Online Version regarding the preparation process, the underlying internal control system and selected sustainability information
- Site visits as part of the inspection of processes and analysis of selected data at the following Bayer sites: Pharmaceuticals, Bergkamen, Germany; Consumer Health, Myerstown, USA; Crop Science, Frankfurt, Germany; Crop Science, Kansas City, USA; as well as the Covestro site Baytown, USA; and the Currenta sites Leverkusen, Dormagen, Krefeld-Uerdingen, Germany;
- Analytical procedures on selected sustainability information of the Online Version
- Comparison of selected sustainability information with corresponding data in the consolidated financial statements and in the group management report
- Assessment of the presentation of selected sustainability information in the Online Version regarding the sustainability performance

Conclusion

Based on our limited assurance engagement, nothing has come to our attention that causes us to believe that the sustainability information marked with "limited assurance" in the Online Version of the Company for the period 1 January 2016 to 31 December 2016 has not been prepared, in all material respects, in accordance with the GRI Criteria.

Emphasis of Matter – Recommendations

Without qualifying our conclusion above, we make the following recommendations for the further development of the Company's sustainability management and sustainability reporting:

- Further alignment of the sustainability reporting in consideration of the changing focus topics of a life science company;
- Further development and formalization of internal controls and systems for non-financial indicators particularly at decentralized level, as well as increasing implementation of automated system interfaces and controls

Restriction on Use and Distribution

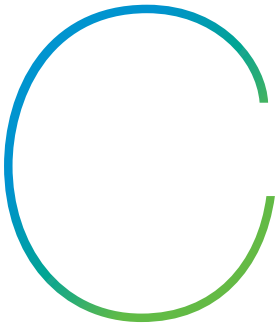
We issue this report on the basis of the engagement agreed with the Company. The review has been performed for purposes of the Company and is solely intended to inform the Company about the results of the review. The report is not intended for any third parties to base any (financial) decision thereon. We do not assume any responsibility towards third parties.

Essen, February 21, 2017

PricewaterhouseCoopers
Aktiengesellschaft
Wirtschaftsprüfungsgesellschaft

Hendrik Fink
Wirtschaftsprüfer
(German Public Auditor)

ppa. Juliane v. Clausbruch



Further Information

Governance Bodies

Supervisory Board

Members of the Supervisory Board held offices as members of the supervisory board or a comparable supervising body of the corporations listed (as at December 31, 2016, or the date on which they ceased to be members of the Supervisory Board of Bayer AG) and as shown attended the meetings of the Supervisory Board and committees to which he or she belonged:

Werner Wenning
Leverkusen, Germany
(born October 21, 1946)

Chairman of the Supervisory Board effective October 2012

Chairman of the Supervisory Board of Bayer AG

Memberships on other supervisory boards:

- E.ON SE (Chairman) (until June 2016)
- Henkel Management AG
- Siemens AG (Vice Chairman)

Memberships in comparable supervising bodies of German or foreign corporations:

- Henkel AG & Co. KGaA (Member of the Shareholders' Committee)

Attendance at Supervisory Board and committee meetings: 19 of 19

Oliver Zühlke
Solingen, Germany
(born December 11, 1968)

Vice Chairman of the Supervisory Board effective July 2015

Member of the Supervisory Board effective April 2007

Chairman of the Bayer Central Works Council

Memberships on other supervisory boards:

- Bayer Pharma AG (until January 2017)

Attendance at Supervisory Board and committee meetings: 10 of 12

Dr. Paul Achleitner
Munich, Germany
(born September 28, 1956)

Member of the Supervisory Board effective April 2002

Chairman of the Supervisory Board of Deutsche Bank AG

Memberships on other supervisory boards:

- Daimler AG
- Deutsche Bank AG (Chairman)

Memberships in comparable supervising bodies of German or foreign corporations:

- Henkel AG & Co. KGaA (Member of the Shareholders' Committee)

Attendance at Supervisory Board and committee meetings: 13 of 13

Dr. rer. nat. Simone Bagel-Trah
Düsseldorf, Germany
(born January 10, 1969)

Member of the Supervisory Board effective April 2014

Chairwoman of the Supervisory Board of Henkel AG & Co. KGaA and Henkel Management AG and of the Shareholders' Committee of Henkel AG & Co. KGaA

Memberships on other supervisory boards:

- Henkel AG & Co. KGaA (Chairwoman)
- Henkel Management AG
- Heraeus Holding GmbH

Memberships in comparable supervising bodies of German or foreign corporations:

- Henkel AG & Co. KGaA (Chairwoman of the Shareholders' Committee)

Attendance at Supervisory Board meetings: 5 of 5

Dr. Clemens Börsig
Frankfurt am Main, Germany
(born July 27, 1948)

Member of the Supervisory Board effective April 2007

Member of various supervisory boards

Memberships on other supervisory boards:

- Daimler AG
- Linde AG

Memberships in comparable supervising bodies of German or foreign corporations:

- Emerson Electric Co.
- Istituto per le Opere di Religione (Member of the Board of Superintendence) (until May 2016)

Attendance at Supervisory Board meetings: 5 of 5

André van Broich
Dormagen, Germany
(born June 19, 1970)

Member of the Supervisory Board effective April 2012

Chairman of the Works Council of the Dormagen site

Memberships on other supervisory boards:

- Bayer CropScience AG (until January 2017)

Attendance at Supervisory Board and committee meetings: 7 of 7

Thomas Ebeling
Muri bei Bern, Switzerland
(born February 9, 1959)

Member of the Supervisory Board effective April 2012

Chief Executive Officer of ProSiebenSat.1 Media SE

Memberships in comparable supervising bodies of German or foreign corporations:

- Lonza Group AG

Attendance at Supervisory Board meetings: 5 of 5

Johanna W. (Hanneke) Faber
Amstelveen, Netherlands
(born April 19, 1969)

Member of the Supervisory Board effective April 2016

Chief E-Commerce and Innovation Officer and Member of the Executive Committee of Koninklijke Ahold Delhaize N.V.

Attendance at Supervisory Board meetings: 3 of 3

Dr.-Ing. Thomas Fischer
Krefeld, Germany
(born August 27, 1955)

Member of the Supervisory Board effective October 2005

Chairman of the Managerial Employees Committee of Covestro Deutschland AG

Memberships on other supervisory boards:

- Covestro AG
- Covestro Deutschland AG

Attendance at Supervisory Board and committee meetings: 9 of 9

Reiner Hoffmann
Wuppertal, Germany
(born May 30, 1955)

Member of the Supervisory Board effective October 2006

Chairman of the German Trade Union Confederation

Attendance at Supervisory Board meetings: 5 of 5

Yüksel Karaaslan
Hohen Neuendorf, Germany
(born March 1, 1968)

Member of the Supervisory Board effective April 2012

Chairman of the Bayer Group Works Council

Vice Chairman of the Bayer Central Works Council

Chairman of the Works Council of the Berlin site

Memberships on other supervisory boards:

- Bayer Pharma AG (Vice Chairman) (until January 2017)

Attendance at Supervisory Board and committee meetings: 8 of 8

Petra Kronen
Krefeld, Germany
(born August 22, 1964)

Member of the Supervisory Board effective July 2000

Chairwoman of the Central Works Council of Covestro

Chairwoman of the Works Council of Covestro of the Uerdingen site

Memberships on other supervisory boards:

- Covestro AG (Vice Chairwoman)
- Covestro Deutschland AG (Vice Chairwoman)

Attendance at Supervisory Board and committee meetings: 7 of 8

Frank Löllgen
Cologne, Germany
(born June 14, 1961)

Member of the Supervisory Board effective November 2015

North Rhine District Secretary of the German Mining, Chemical and Energy Industrial Union

Memberships on other supervisory boards:

- IRR-Innovationsregion Rheinisches Revier GmbH
- Evonik Industries AG

Attendance at Supervisory Board and committee meetings: 8 of 8

Dr. rer. nat. Helmut Panke
Munich, Germany
(born August 31, 1946)

Member of the Supervisory Board until April 2016

Member of various supervisory boards

Memberships in comparable supervising bodies of German or foreign corporations:

- Microsoft Corporation
- Singapore Airlines Limited

Attendance at Supervisory Board and committee meetings: 4 of 4

Prof. Dr. Wolfgang Plischke
Aschau im Chiemgau, Germany
(born September 15, 1951)

Member of the Supervisory Board effective April 2016

Independent consultant

Memberships in comparable supervising bodies of German or foreign corporations:

- Evotec AG (Chairman)

Attendance at Supervisory Board and committee meetings: 6 of 6

Sue H. Rataj
Sebastopol, U.S.A.
(born January 8, 1957)

Member of the Supervisory Board effective April 2012

Member of the Board of Directors of Cabot Corporation, Boston, U.S.A.

Member of the Board of Directors of Agilent Technologies Inc., Santa Clara, U.S.A.

Attendance at Supervisory Board meetings: 5 of 5

Petra Reinbold-Knape
Gladbeck, Germany
(born April 16, 1959)

Member of the Supervisory Board effective April 2012

Member of the Executive Committee of the German Mining, Chemical and Energy Industrial Union

Memberships on other supervisory boards:

- Lausitz Energie Bergbau AG (formerly Vattenfall Europe Mining AG) (Vice Chairwoman)
- Lausitz Energie Kraftwerk AG (formerly Vattenfall Europe Generation AG)

Memberships in comparable supervising bodies of German or foreign corporations:

- MDSE Mitteldeutsche Sanierungs- und Entsorgungs-gesellschaft mbH (until August 2016)

Attendance at Supervisory Board and committee meetings: 8 of 8

Michael Schmidt-Kießling
Schwelm, Germany
(born March 24, 1959)

Member of the Supervisory Board effective April 2012

Chairman of the Works Council of the Elberfeld site

Attendance at Supervisory Board meetings: 4 of 5

Dr. Klaus Sturany*
Ascona, Switzerland
(born October 23, 1946)

Member of the Supervisory Board effective April 2007

Member of various supervisory boards

Memberships on other supervisory boards:

- Hannover Rück SE (Vice Chairman)

Memberships in comparable supervising bodies of German or foreign corporations:

- Sulzer AG (until April 2016)

Attendance at Supervisory Board and committee meetings: 9 of 9

Heinz Georg Webers
Bergkamen, Germany
(born December 27, 1959)

Member of the Supervisory Board effective July 2015

Chairman of the Bayer European Forum

Chairman of the Works Council of the Bergkamen site

Memberships on other supervisory boards:

- Bayer Pharma AG (until January 2017)

Attendance at Supervisory Board meetings: 5 of 5

Prof. Dr. Dr. h.c. Otmar D. Wiestler
Berlin, Germany
(born November 6, 1956)

Member of the Supervisory Board effective October 2014

President of the Helmholtz Association of German Research Centres

Attendance at Supervisory Board and committee meetings: 7 of 7

Prof. Dr. Dr. h.c. mult. Ernst-Ludwig Winnacker
Munich, Germany
(born July 26, 1941)

Member of the Supervisory Board until April 2016

Professor-Emeritus of Ludwig-Maximilians University Munich

Memberships on other supervisory boards:

- Medigene AG (until August 2016)
- Wacker Chemie AG

Attendance at Supervisory Board and committee meetings: 3 of 3

Standing committees of the Supervisory Board of Bayer AG (as at December 31, 2016)

Presidial Committee / Mediation Committee
Wenning (Chairman), Achleitner, Reinbold-Knape, Zühlke

Audit Committee
Sturany* (Chairman), Fischer, Löllgen, Plischke, Wenning, Zühlke

Human Resources Committee
Wenning (Chairman), Achleitner, Karaaslan, Kronen

Nominations Committee
Wenning (Chairman), Achleitner

Innovation Committee
Plischke (Chairman), van Broich, Reinbold-Knape, Wenning, Wiestler, Zühlke

* Expert member pursuant to Section 100, Paragraph 5 of the German Stock Corporation Act (AktG)

Board of Management

Members of the Board of Management held offices as members of the supervisory board or a comparable supervising body of the corporations listed (as at December 31, 2016):

Werner Baumann
(born October 6, 1962)

Chairman
(effective May 2016)

Member of the Board of Management effective January 1, 2010, appointed until April 30, 2021

- Bayer CropScience AG (Chairman) (until April 2016)
- Bayer Pharma AG (until April 2016)

Liam Condon
(born February 27, 1968)

Member of the Board of Management effective January 1, 2016, appointed until December 31, 2018

Johannes Dietsch
(born January 2, 1962)

Member of the Board of Management effective September 1, 2014, appointed until August 31, 2017

- Bayer Business Services GmbH (Chairman)
- Bayer CropScience AG (Chairman) (May 2016 until February 2017)
- Covestro AG
- Covestro Deutschland AG

Dr. Hartmut Klusik
(born July 30, 1956)

Member of the Board of Management effective January 1, 2016, appointed until December 31, 2018

Labor Director

- Bayer HealthCare AG (Chairman) (until July 2016)
- Bayer Pharma AG (Chairman) (until February 2017)
- Bayer Technology Services GmbH (Chairman) (until July 2016)
- Currenta Geschäftsführungs-GmbH (Chairman)

Kemal Malik
(born September 29, 1962)

Member of the Board of Management effective February 1, 2014, appointed until January 31, 2022

Erica Mann
(born October 11, 1958)

Member of the Board of Management effective January 1, 2016, appointed until December 31, 2018

Dieter Weinand
(born August 16, 1960)

Member of the Board of Management effective January 1, 2016, appointed until December 31, 2018

- Board of Directors of HealthPrize Technologies LLC

Chairman of the Board of Management until April 2016

Dr. Marijn Dekkers
(born September 22, 1957)

- Board of Directors of General Electric Company
- Chairman of Unilever N.V.

Organization Chart

C 1

Werner Baumann
Chairman

M. Arnold
Corporate Office

T.-P. Hausner
Strategy

O. Maier[1]
Investor Relations

M. Preuss
Communications and Public Affairs

F. Rittgen
Mergers, Licencing & Acquisitions

R. Schwarz
Internal Audit

M. Vehreschild
Country & Functional Excellence

Johannes Dietsch
Finance

H. Baum
Risk Management

B.-P. Bier
Accounting & Taxes

V. Hahn
Regional Coordination

G. Harnier
Law, Patents & Compliance

D. Hartert
Business Services

P. Müller
Finance

G. Schildmeyer
Corporate Controlling

T. Udesen
Procurement

Hartmut Klusik*
Human Resources, Technology & Sustainability

A. Günther
Human Resources & Organization

P.-G. Heiden
Corporate Quality

R. Heumann
Corporate Supply Chain

G. Hilken
Currenta

A. Knors
Engineering & Technology

K. van Laak
Corporate Health, Safety & Sustainability

C. Pörtner
Corporate Technology & Manufacturing

Kemal Malik
Innovation

A. Bouchon
Bayer Lifescience Center

M. Lessl
Corporate Innovation and Research & Development

* Labor Director
[1] From March 1, 2017
[2] Europe / Middle East / Africa
[3] Asia / Pacific
[4] Until March 31, 2017; J. Koelink from April 1, 2017

C 1 continued

Dieter Weinand
Pharmaceuticals

C. Brunn
Commercial Operations Americas

A. Busch
Drug Discovery

W. Carius
Product Supply

M. Devoy
Chief Medical Officer

R. Franzen
Commercial Operations EMEA [2]

S. Guth
Strategic Marketing

W. Jiang
Commercial Operations China & APAC [3]

R. LaCaze
Oncology

J. Möller
Development

H. Prinz
Commercial Operations Japan

J. Triana
Finance

Erica Mann
Consumer Health

N. Bartner
Commercial Operations North America

S. Davies
Division Operations

O. Mauroy-Bressier
Finance

J. Ohle
Commercial Operations International

J. O'Mullane
Innovation & Development

F. Reiff
Strategic Marketing

R. Spoor [4]
Product Supply

L. Yuen
Commercial Operations China

Liam Condon
Crop Science

J. Applegate
Environmental Science

D. Backhaus
Product Supply

M. Dawkins
Post Merger Integration

M. Kremer
Crop Strategies & Portfolio Management

T. Menne
Digital Farming

B. Naaf
Business Affairs & Communications

A. Percy
Research & Development

M. Reichardt
Agricultural Commercial Operations

M. A. Schulz
Finance

F. Terhorst
Pre-Merger Planning

D. Ehle
Animal Health

As of March 1, 2017

G4 Content Index of the Global Reporting Initiative (GRI) with the 10 Principles of the U.N. Global Compact

For fiscal 2016, we are once again applying the GRI G4 Guidelines in accordance with the "comprehensive" option. Where there is insufficient information for a particular GRI indicator, we have explained this. In addition, the detailed GRI Content Index includes the corresponding principles of the UNGC and the assignment of our areas of activity to the GRI aspects. Moreover, we indicate whether our scope to exercise influence lies within or outside the company (GRI G4-19, G4-20, G4-21).

For the implementation of the GRI Materiality Disclosure Service the GRI had access to the "Annual Report 2016 – Augmented Version." The correct positioning of the "G4 Materiality Disclosures" (G4-17 – G4-27) was confirmed by the GRI.

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	General Standard Disclosures						
	Strategy and Analysis						
	G4–1	Statement from the most senior decision-maker	1-7				
	G4–2	Key impacts, risks and opportunities concerning sustainability	41, 47-57, 62, 92, 95, 171, 173, 179				
	Organizational Profile						
	G4–3	Name of the organization	44				
	G4–4	Primary brands, products and services	41, 44-46				
	G4–5	Location of the organization's headquarters	42				
	G4–6	Countries with significant operations	42-44				
	G4–7	Nature of ownership and legal form	40, 44				
	G4–8	Markets served	42-43, 52, 99-100				
	G4–9	Scale of the organization	Cover 3 (front inside cover), 42-43, 77, 96, 203, 205				
6	G4–10	Employees by employment type, gender and region	77-79, 84				

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	General Standard Disclosures						
3	G4–11	Percentage of employees covered by collective bargaining agreements	86				
	G4–12	Description of the supply chain	90-91				
	G4–13	Significant changes during the reporting period	5, 44, 129, 144				
	G4–14	Implementation of the precautionary principle	105				
	G4–15	External initiatives that the organization endorses	28, 55-56, 61, 87, 93, 103, 105, 125				
	G4–16	Significant memberships in industry and business associations	55, 59, 82, 92, 105, 117				
	Identified Material Aspects and Boundaries						
	G4–17	Entities included in the consolidated financial statements	28, 232- 233				
	G4–18	Process for defining the report content	56-57; www.bayer.com/materiality				
	G4–19	Material Aspects identified	320-333; www.bayer.com/areas-of-activity, www.bayer.com/gri				
	G4–20	Aspect Boundaries within the organization	320-333; www.bayer.com/areas-of-activity, www.bayer.com/gri				
	G4–21	Aspect Boundaries outside the organization	320-333; www.bayer.com/areas-of-activity, www.bayer.com/gri				
	G4–22	Restatements of information provided in previous reports	28-29				
	G4–23	Significant changes in the Scope and Aspect Boundaries	56-57; www.bayer.com/areas-of-activity				
	Stakeholder Engagement						
	G4–24	Stakeholder groups engaged	58-59				
	G4–25	Identification and selection of stakeholders	58				
	G4–26	Approach to stakeholder engagement and frequency	39, 56-62, 65, 77, 82, 94				
	G4–27	Key topics and concerns raised through stakeholder engagement and response	39, 56-57; www.bayer.com/en/corporate-governance.aspx				

GRI G4 Content Index

UNGC Prin-ciples	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20	G4-21
	General Standard Disclosures					**within**	**out-side**
	Report Profile						
	G4– 28	Reporting period	28				
	G4–29	Date of most recent previous report	Annual Report: 2016-02-26				
	G4–30	Reporting cycle	Annually				
	G4–31	Contact point for questions regarding the report	Cover 5 (back inside cover)				
	G4–32	“In accordance” option with GRI and Content Index chosen	28, 320-333				
	G4–33	External verification of the report	29, 303-314				
	Governance						
	G4–34	Governance structure, incl. committees of the highest governance body	30-32, 34-36, 182-184				
	G4–35	Process for delegating authority for economic, environmental and social topics	56, 182, 185				
	G4–36	Executive-level position with responsibility for economic, environ-mental and social topics	30-31, 56, 88, 102, 168, 170, 182-183				
	G4–37	Processes for consultation between stakeholders and the highest governance body	39, Cover 5 (back inside cover); www.bayer.com/en/corporate-governance.aspx				
	G4–38	Composition of the highest governance body and its committees	32, 181				
	G4–39	Independence of the Chair of the highest governance body	32, 183				
	G4–40	Nomination and selection processes for the highest governance body and its committees	35, 180-181, 184				
	G4–41	Process for avoiding conflicts of interest	180-182, 185				
	G4–42	Highest governance body's role concerning strategy and goals	32-34, 182-183				
	G4–43	Measures taken concerning the highest governance body’s knowledge in sustainability issues	34-35				

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20	G4-21
	General Standard Disclosures					**within**	**outside**
	G4–44	Evaluation of the highest governance body's performance concerning sustainability	32				
	G4–45	Highest governance body's role concerning sustainability impacts, risks, and opportunities	168-170, 183, 185				
	G4–46	Highest governance body's role concerning the effectiveness of the risk management	33-35, 169-170, 183				
	G4–47	Frequency of the highest governance body's review of sustainability impacts, risks, and opportunities	34-35, 170				
	G4–48	Highest committee that formally reviews and approves the sustainability report	56				
	G4–49	Process for communicating critical concerns to the highest governance body	36, 39, 185-186; www.bayer.com/asm				
	G4–50	Critical concerns that were communicated to the highest governance body	33; www.bayer.com/asm				
	G4–51	Remuneration policies for the highest governance body and senior executives	41, 185, 187-191, 198-199				
	G4–52	Process for determining remuneration	34, 187, 198				
	G4–53	Stakeholders' views regarding remuneration	187, 198; www.bayer.com/asm				
	G4–54	Ratio of the highest annual total compensation to the median annual total compensation		Not available: we do not consider this compensation detail to be of informative value for the evaluation of the appropriateness of our compensation structures. We report on these in detail in the section "Competitive compensation and variable pay" and in our Compensation Report.			
	G4–55	Ratio of percentage increase in the highest annual total compensation		Not available: we do not consider this compensation detail to be of informative value for the evaluation of the appropriateness of our compensation structures. We report on these in detail in the section "Competitive compensation and variable pay" and in our Compensation Report.			

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	General Standard Disclosures					**within**	**outside**
	Ethics and Integrity						
10	G4–56	Values, principles, standards and norms of behavior	41, 56, 81, 87, 184-185				
10	G4–57	Mechanisms for seeking advice on ethical and lawful behavior	185				
10	G4–58	Mechanisms for reporting concerns about unethical or unlawful behavior	87, 101, 185				
	Specific Standard Disclosures G4-19					**within**	**outside**
	Economic						
					Employee relations & development	X	
					Product and process innovation	X	X
7	Aspect: Economic Performance – Management Approach		47, 88		Environmental protection / resource efficiency	X	X
	G4-EC1	Direct economic value created and distributed	47, 83-84, 87-88, 244				
7	G4-EC2	Financial implications and other risks and opportunities due to climate change	171; www.bayer.cm/CDP-Climate				
	G4-EC3	Coverage of benefit plan obligations	83, 86, 177, 264-269, 272				
	G4-EC4	Financial assistance received from government	65				
6	Aspect: Market Presence – Management Approach		82		Employee relations & development	X	
6	G4-EC5	Ratios of standard entry level wage compared to local minimum wage		We align our compensation with local market conditions in Emerging Markets and developing countries. Furthermore, in keeping with our human rights position, we pursue the goal of paying adequate salaries that ensure a suitable standard of living for our employees and their families. In all Emerging Markets where we are active, the lowest salary paid by Bayer is at least in line with the applicable minimum wage and in most cases higher. We are not currently reporting on the margin between standard entry salary and minimum wage. A new survey on this aspect is currently being performed.			
6	G4-EC6	Proportion of senior management hired from the local community	82				

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	Specific Standard Disclosures G4-19						
					Sustainable food supply		X
	Aspect: Indirect Economic Impacts – Management Approach		47, 88		Access to health care		X
	G4-EC7	Infrastructure investments and services provided	49, 88-89, 95				
	G4-EC8	Indirect economic impacts	47				
	Aspect: Procurement Practices – Management Approach		91		Supplier management		X
	G4-EC9	Proportion of spending on local suppliers	91, 335				
	Environmental						
7, 8	Aspect: Materials – Management Approach		96, 102-103, 120		Environmental protection / resource efficiency	X	X
7, 8	G4-EN1	Materials used by weight or volume	91	We do not report on the weight and volume of the materials used. This information constitutes a business secret.			
8	G4-EN2	Percentage of materials used that are recycled input materials	127-128	We do not provide any information on volumes relating to the total material use of secondary raw materials since this also constitutes a business secret. We do provide information on production-, material- and, where possible, product-related recycling.			
7, 8, 9	Aspect: Energy – Management Approach		54, 96, 102-103, 120-121		Environmental protection / resource efficiency	X	X
7, 8	G4-EN3	Energy consumption within the organization	120-121				
	G4-EN4	Energy consumption outside of the organization		Such energy consumption is contained in the details of greenhouse gas emissions for Scope 3, which we publish in the CDP Report (www.bayer.com/CDP-Climate).			
8	G4-EN5	Energy intensity	120-121				
8, 9	G4-EN6	Reduction of energy consumption	121				
8, 9	G4-EN7	Reductions in energy requirements of products and services		We do not consider this indicator to be applicable to our product portfolio as a Life Science company. Data are therefore not available.			
7; 8	Aspect: Water – Management Approach		54, 96, 102-103, 120, 124-125		Environmental protection / resource efficiency	X	X
7, 8	G4-EN8	Total water withdrawal by source	125				
8	G4-EN9	Water resources significantly affected	124; www.bayer.com/CDP-Water				

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20	G4-21
	Specific Standard Disclosures G4-19					**within**	**outside**
8	G4-EN10	Water recycled and reused	125				
7, 8, 9	Aspect: Emissions – Management Approach		54, 96, 102-103, 120-123		Environmental protection / resource efficiency	X	X
7, 8	G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	122				
7, 8	G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	122				
7, 8	G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope 3)	122-123; www.bayer.com/CDP-Climate				
8	G4-EN18	Greenhouse gas (GHG) emissions intensity	122-123				
8, 9	G4-EN19	Reduction of greenhouse gas (GHG) emissions	121, 127				
7, 8	G4-EN20	Emissions of ozone-depleting substances (ODS)	123				
7, 8	G4-EN21	NOx, SOx and other significant air emissions	123				
8	Aspect: Effluents and Waste – Management Approach		96, 102-103, 110, 120, 124-128, 174		Environmental protection / resource efficiency	X	X
8	G4-EN22	Total water discharge by quality and destination	125-126				
8	G4-EN23	Total weight of waste by type and disposal method	126-127				
8	G4-EN24	Total number and volume of significant spills	124				
8	G4-EN25	Handling of hazardous waste	126-127	Waste transported across borders is recorded in Europe in line with legal regulations and reported to the responsible authorities.			
8	G4-EN26	Water bodies significantly affected by discharges of water and runoff	124	We give detailed information on all water-related issues in our CDP Water Report (www.bayer.com/CDP-Water)			
					Product and process innovation	X	X
					Product stewardship	X	X
7, 8, 9	Aspect: Products and Services – Management Approach		104, 111, 114, 120, 174		Environmental protection / resource efficiency	X	X
7, 8, 9	G4-EN27	Mitigation of environmental impacts of products and services	76, 111-113				

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	Specific Standard Disclosures G4-19						
8	G4-EN28	Reclaimed products and packaging	127-128				
8	Aspect: Compliance – Management Approach		54, 169, 175, 184-186		Business ethics	X	X
8	G4-EN29	Fines and sanctions for noncompliance with environmental regulations	223, 273, 291, 294-295				
					Safety	X	X
8	Aspect: Transport – Management Approach		90, 98-99, 174		Environmental protection / resource efficiency	X	X
8	G4-EN30	Significant environmental impacts of transporting products	98-99				
8	Aspect: Supplier Environmental Assessment – Management Approach		53, 90, 92-93, 99, 174		Supplier management		X
8	G4-EN32	Percentage of new suppliers that were screened using environmental criteria	92-93	We do not report on the percentage of new suppliers screened using environmental criteria because these data are not available. We report on the procedure used for assessment.			
8	G4-EN33	Significant environmental impacts in the supply chain	93-94	We do not report in detail on the negative environmental impact determined during supplier assessment. We give details on the areas in which essential impacts were identified and corrective measures were defined.			
8	Aspect: Environmental Grievance Mechanisms – Management Approach		113, 185-186		Business ethics	X	X
8	G4-EN34	Grievances about environmental impacts	185-186	We do not report on the number of grievances with respect to negative environmental impact. We report on the total number of notifications registered with the compliance hotline. We internally record the precise reason for the grievance, track how it is followed up and take corresponding action in line with our corporate policy. More detailed information on this would constitute a business secret.			
	Labor Practices and Decent Work						
6	Aspect: Employment – Management Approach		76-77, 84		Employee relations & development	X	
6	G4-LA1	New employee hires and employee turnover	79-80				
	G4-LA2	Benefits provided to full-time employees	83				

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20	G4-21
	Specific Standard Disclosures G4-19					**within**	**outside**
6	G4-LA3	Return to work and retention rates after parental leave	84-85				
3	Aspect: Labor / Management Relations – Management Approach		81-82		Employee relations & development	X	
3	G4-LA4	Minimum notice period(s) regarding operational changes	81				
1, 6	Aspect: Occupational Health and Safety – Management Approach		54, 76, 85, 96, 102-103, 114-116, 174, 185		Safety	X	X
	G4-LA5	Percentage of total workforce represented in health and safety committees		We do not report on the percentage of the total workforce represented in health and safety committees as these data are not available. We plan to record these data in the future.			
	G4-LA6	Injuries, occupational diseases, lost days and work-related fatalities	115-116	We do not report on occupational injuries by gender, as these data have to be collected in certain regions anonymously. It is important for us to have classification by incident type and a detailed analysis of the causes of the individual incidents.			
	G4-LA7	Workers with high incidence or risk of diseases	115-116				
	G4-LA8	Health and safety topics covered in formal agreements with trade unions	85-86				
6	Aspect: Training and Education – Management Approach		76-77, 80, 174		Employee relations & development	X	
6	G4-LA9	Average hours of training	81				
	G4-LA10	Programs that support the continued employability of employees	80, 86, 116				
6	G4-LA11	Percentage of employees receiving regular performance and career development reviews	81				
1, 6	Aspect: Diversity and Equal Opportunity – Management Approach		54, 76-77, 81-82, 174, 181		Employee relations & development	X	
6	G4-LA12	Composition of governance bodies and breakdown of employees by aspects of diversity	30-31, 77-78, 82-83, 87, 181, 315-317	We do not report on minorities, as these data may not be recorded in some countries on grounds of protection of personal rights.			
6	Aspect: Equal Remuneration for Women and Men – Management Approach		83		Employee relations & development	X	

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	Specific Standard Disclosures G4-19						
6	G4-LA13	Ratio of basic salary and remuneration of women to men	83	We do not report quantitatively on the ratio of the basic salary and compensation of women to men. Male and female employees at Bayer receive equal compensation. It is awarded on the basis of qualifications and responsibility.			
	Aspect: Supplier Assessment for Labor Practices – Management Approach		53, 90, 92-93, 174		Supplier management		X
	G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	92-93	We do not report on the percentage of new suppliers screened using labor practices criteria because these data are not available. We report on the procedure used for assessment.			
	G4-LA15	Significant impacts for labor practices in the supply chain	93-94	We do not report in detail on the negative impact on labor practices determined during supplier assessment. We give details on the areas in which essential impacts were identified and corrective measures were defined.			
	Aspect: Labor Practices Grievance Mechanisms – Management Approach		87, 185-186		Business ethics	X	X
	G4-LA16	Grievances about labor practices	185-186	We do not report on the number of grievances with respect to the negative impact on labor practices. We report on the total number of notifications registered with the compliance hotline. We internally record the precise reason for the grievance, track how it is followed up and take corresponding action in line with our corporate policy. More detailed information on this would constitute a business secret.			
	Human Rights						
6	Aspect: Non-discrimination – Management Approach		81, 87, 185		Business ethics	X	X
6	G4-HR3	Incidents of discrimination and corrective actions taken	185-186	We do not report on the number of incidents of discrimination. We report on the total number of notifications registered with the compliance hotline. We internally record the precise reason for the grievance, track how it is followed up and take corresponding action in line with our corporate policy. More detailed information on this would constitute a business secret.			
2, 3	Aspect: Freedom of Association and Collective Bargaining – Management Approach		87, 92, 185		Employee relations & development Supplier management	X X	 X

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20	G4-21
	Specific Standard Disclosures G4-19					**within**	**outside**
2, 3	G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association may be violated or at risk, and measures taken	87, 93				
					Employee relations & development	X	
2, 5	Aspect: Child Labor – Management Approach		87, 90, 95, 185		Supplier management	X	X
2, 5	G4-HR5	Operations and suppliers having significant risk for incidents of child labor, and measures taken	87, 95-96				
					Employee relations & development	X	
2, 4	Aspect: Forced or Compulsory Labor – Management Approach		87, 92, 185		Supplier management	X	X
2, 4	G4-HR6	Operations and suppliers having significant risk for incidents of forced or compulsory labor, and measures taken	87, 93				
1	Aspect: Security Practices – Management Approach		87		Employee relations & development	X	
1	G4-HR7	Percentage of security personnel trained in the field of human rights	87				
2	Aspect: Supplier Human Rights Assessment – Management Approach		53, 87, 90, 92-93, 174		Supplier management		X
2	G4-HR10	Percentage of new suppliers that were screened using human rights criteria	92-93	We do not report on the percentage of new suppliers screened using human rights criteria because these data are not available. We report on the procedure used for assessment.			
2	G4-HR11	Significant human rights impacts in the supply chain	93-94	We do not report in detail on the negative impact on human rights determined during supplier assessment. We give details on the areas in which essential impacts occurred and corrective measures were defined.			
1	Aspect: Human Rights Grievance Mechanisms – Management Approach		87, 185-186		Business ethics	X	X
1	G4-HR12	Grievances about human rights impacts	185-186	We do not report on the number of formal grievances with respect to human rights violations, but on the total number of notifications registered with the compliance hotline. We internally record the precise reason for the grievance and take corresponding action in line with our corporate policy. More detailed information on this would constitute a business secret.			

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	Specific Standard Disclosures G4-19					**within**	**outside**
	Society						
					Safety	X	X
					Stakeholder engagement / partnering	X	X
1	Aspect: Local Communities – Management Approach		54, 58, 62, 88, 90, 96, 98-99, 102-103, 114-115, 117-118, 124-125, 174, 185		Societal engagement	X	X
1	G4-SO1	Percentage of operations with implemented local community engagement, impact assessments and development programs	58, 62				
1	G4-SO2	Operations with actual and potential negative impacts on local communities	117, 119, 124				
10	Aspect: Anti-corruption – Management Approach		54, 101-102, 169, 175, 184-186		Business ethics	X	X
10	G4-SO3	Percentage of operations assessed for risks related to corruption and risks identified	185	We do not report such risks in relation to operations but in relation to sales. Complete coverage across segments is key in compliance / anti-corruption in the first instance. Areas at risk are monitored more frequently than others.			
10	G4-SO4	Communication and training on anti-corruption	186	We do not report quantitatively on training for the Board of Management, Supervisory Board and business partners. Anti-corruption training is performed globally, we therefore do not disclose such information explicitly according to region.			
10	G4-SO5	Confirmed incidents of corruption and actions taken	185-186	We do not report on the number of confirmed incidents of corruption. We report on the total number of notifications registered with the compliance hotline. We internally record the precise reason for the grievance, track how it is followed up and take corresponding action in line with our corporate policy. More detailed information on this would constitute a business secret.			
10	Aspect: Public Policy – Management Approach		60, 63		Business ethics	X	X
10	G4-SO6	Total value of political contributions	60-61				
	Aspect: Anti-competitive Behavior – Management Approach		54, 102, 169, 175, 184-186		Business ethics	X	X
	G4-SO7	Legal actions for anti-competitive behavior, anti-trust and monopoly practices	223, 273, 291				
	Aspect: Compliance – Management Approach		54, 169, 175, 184-186		Business ethics	X	X

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	Specific Standard Disclosures G4-19						
	G4-SO8	Fines and sanctions for noncompliance with laws and regulations	223, 273, 291, 294-295				
2	Aspect: Supplier Assessment for Impacts on Society – Management Approach		53, 90, 92-93, 98-99, 174		Supplier management		X
	G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society	92-93	We do not report on the percentage of new suppliers screened using criteria for impact on society because these data are not available. We report on the procedure used for assessment.			
2	G4-SO10	Negative impacts on society in the supply chain and actions taken	93-94	We do not report in detail on the negative impact on society determined during supplier evaluation. We give details on the areas in which essential impacts occurred and corrective measures were defined.			
2, 3	Aspect: Grievance Mechanisms for Impacts on Society – Management Approach		101, 185-186		Business ethics	X	X
2, 3	G4-SO11	Number of grievances about impacts on society	185-186	We do not report on the number of formal grievances with respect to the negative impact on society. We report on the total number of notifications registered with the compliance hotline. We internally record the precise reason for the grievance, track how it is followed up and take corresponding action in line with our corporate policy. More detailed information on this would constitute a business secret.			
	Product Responsibility						
	Aspect: Customer Health and Safety – Management Approach		54, 102-107,109-112, 114, 172, 184		Sustainable food supply		X
					Product stewardship	X	X
	G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed	68, 76, 104-106, 109, 114				
	G4-PR2	Incidents of noncompliance with regulations and voluntary codes concerning the health and safety impacts of products and services	291	We do not report on the number of incidents of noncompliance with regulations and voluntary codes concerning the health and safety impact of products and services. Any proceedings on account of violations would be reported in B Note 32 to the Consolidated Financial Statements, Chapter “Legal Risks.”			
7	Aspect: Product and Service Labelling – Management Approach		90, 99-100, 104-106, 111, 113-114		Product stewardship	X	X
7	G4-PR3	Principles / procedures for product and service information and labeling	104-106, 109				
	G4-PR4	Incidents of noncompliance with regulations and voluntary codes concerning product and service information and labeling	291	We do not report on the number of incidents of noncompliance with regulations and voluntary codes concerning product and service information and labeling. Any proceedings on account of violations would be reported in B Notes to the Consolidated Financial Statements, Chapter “Legal Risks.”			

GRI G4 Content Index

UNGC Principles	G4 Standard Disclosures		Page	Comments	Bayer area of activity	GRI aspect limitation G4-20 within	GRI aspect limitation G4-21 outside
	Specific Standard Disclosures G4-19						
	G4-PR5	Results of surveys measuring customer satisfaction	100				
7	Aspect: Marketing Communications – Management Approach		101-102, 107, 111		Product stewardship	X	X
7	G4-PR6	Sale of banned or disputed products	113				
	G4-PR7	Incidents of noncompliance with regulations and voluntary codes concerning marketing communications	291	We do not report on the number of incidents of noncompliance with regulations and voluntary codes concerning marketing communications. Any proceedings on account of violations would be reported in B Note 32 to the Consolidated Financial Statements, Chapter "Legal Risks."			
	Aspect: Compliance – Management Approach		54, 169, 175, 184-186		Business ethics	X	X
	G4-PR9	Significant fines concerning the provision and use of products and services	223, 273, 291-293				
Further G4 Standard Disclosures							
8	Aspect: Biodiversity – Management Approach		96, 107-108				
8	G4-EN11	Operational sites in protected areas	96	We use our site register to record all site-related data (including size). For confidentiality reasons, we do not publish any size data on our sites, for example.			
8	G4-EN12	Impacts on protected areas or areas of high biodiversity value	107-108				
2	G4-HR1	Significant investment agreements and contracts that include human rights clauses or screening	96				
1	G4-HR2	Employee training on human rights issues	87, 94				
	Aspect: Customer Privacy – Management Approach		175, 185				
	G4-PR8	Substantiated complaints regarding breaches of customer privacy	175				

Glossary

A

APM is the abbreviation for alternative performance measure; see A 2.4 for more information.

B

Biocides are substances and products that control pests such as insects, mice and rats, as well as algae, fungi and bacteria.

C

CDP is a nonprofit organization that works on behalf of institutional investors to compile annual rankings of detailed environmental data, especially in respect of greenhouse gas emissions (CDP-Climate) and water management (CDP-Water), from the top 500 publicly listed companies in the world. According to CDP, more than 800 investors representing fund assets of around US$100 trillion currently draw on this information for their investment decisions.

Conflict minerals are those mined in conflict regions. They include tin, tungsten and tantalum ores, gold or their derivatives. Armed conflicts over the control of these resources occur particularly in the eastern part of the Democratic Republic of Congo and neighboring countries.

Continuing operations Sales and earnings reporting for continuing operations pertains only to business operations that are expected to remain in the company's portfolio for the foreseeable future; opposite of discontinued operations.

(Corporate) compliance comprises the observance of statutory and company regulations on lawful and responsible conduct.

Corporate governance comprises the long-term management and oversight of the company in accordance with the principles of responsibility and transparency. The German Corporate Governance Code sets out basic principles for the management and oversight of publicly listed companies.

Corruption Perceptions Index (CPI) Since 1995, NGO Transparency International has produced an annual index of countries – 176 in 2016 – by the perceived level of public-sector corruption. The CPI ranks countries according to the extent to which public servants and politicians are believed to engage in bribery and to grant or accept undue advantage.

Credit default swaps (CDS) are tradable insurance contracts used to hedge against the default of a borrower.

D

Debt Issuance Program (DIP) Formerly the multi-currency European Medium Term Notes (EMTN) program, DIP is a documentation platform that enables Bayer to flexibly issue notes in various currencies and with different maturities.

Diversity designates the variation within the workforce in terms of gender, origin, nationality, age, religion, sexual orientation and physical capability.

F

Foreign exchange Claims for payments in foreign currencies traded on foreign exchanges, usually in the form of balances with foreign banks or bills of exchange or checks payable abroad; banknotes and coins denominated in foreign currencies are not considered to be foreign exchange.

G

GHG protocol The Greenhouse Gas Protocol is an internationally recognized tool for recording, quantifying and reporting greenhouse gas emissions. Its standards cover all emissions within a company's value chain. Bayer aligns itself to the Corporate Standard for direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions and also to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, which covers further indirect emissions along the value chain. Dual reporting was introduced in 2015 with the updating of the GHG guidelines for Scope 2. Indirect emissions have now to be reported using both the location-based and the market-based methods. The location-based method uses regional or national average emissions factors, while the market-based method applies provider- or product-specific emissions factors based on contractual instruments.

Global commercial paper program Commercial paper (CP) issued under Bayer's program is a short-term, unsecured debt instrument normally issued at a discount and redeemed at nominal value. It is a flexible way of obtaining short-term funding on the capital market. Bayer's commercial paper program allows the company to issue commercial paper on both the U.S. and European markets.

GRI (Global Reporting Initiative) is a nonprofit organization that works to promote the dissemination and optimization of sustainability reporting. The GRI guidelines are considered the most frequently used and internationally most recognized standard for sustainability reporting. These guidelines are evolved in a multi-stakeholder process. GRI was established in 1997 by Ceres (Coalition for Environmentally Responsible Economies) and UNEP (United Nations Environment Programme).

GxP is a collective term for all guidelines that govern "good working practice" and are particularly relevant for the fields of medicine, pharmacy and pharmaceutical chemistry. The "G" stands for "Good" and the "P" for "Practice," while the "x" in the middle is replaced by the respective abbreviation for the specific area of application – such as Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP), Good Clinical Practice (GCP) or Good Agricultural Practice (GAP). These guidelines are established by institutions such as the European Medicines Agency or the U.S. Food and Drug Administration.

H

HSEQ stands for health, safety, environment and quality.

Hybrid bond A hybrid bond is a corporate bond with equity-equivalent properties, usually with either no maturity date or a very long maturity. Due to its subordination, it has a lower likelihood of repayment than a normal bond in the event of issuer bankruptcy.

I

ILO core labor standards The eight core labor standards of the ILO (International Labour Organization) that define the minimum requirements for humane working conditions are internationally recognized "qualitative social standards." They represent universal human rights that are deemed valid in all countries regardless of their economic development status.

Innovative Medicine Initiative (IMI) is a public-private partnership developed by the European Commission and the European Federation of Pharmaceutical Industries and Associations (EFPIA) with the goal of promoting biomedical research in Europe. IMI finances research projects aimed at overcoming the major bottlenecks in the research and development of new pharmaceuticals. The partnership provides funding to project participants from academic institutes, small and medium-sized businesses, patient organizations and other institutions. The pharmaceutical industry contributes to these projects by donating capacities and resources.

L

Life Sciences This term describes Bayer's activities in health care and agriculture and comprises the Bayer Group excluding its legally independent subsidiary Covestro. It refers to the businesses of the Pharmaceuticals, Consumer Health and Crop Science divisions and the Animal Health business unit.

Local procurement means that the procuring (Bayer) company is located in the same country as the supplier.

N

Neonicotinoids are a chemical class of systemic insecticides.

O

OTC (over-the-counter) designates the business with nonprescription medicines.

P

Pharmacovigilance is defined as the science of, and activities related to, the identification, assessment, comprehension and prevention of side effects or other problems associated with pharmaceutical products.

Phase I-IV studies are clinical phases in the development of a drug product. The active ingredient candidate is generally tested in healthy subjects in Phase I, and in patients in Phases II and III. The studies test the therapeutic tolerability and efficacy of active ingredients in a specific indication. Phase IV studies are conducted following the approval of a new drug product to monitor its safety and efficacy over an extended period of time. The studies are subject to strict legal requirements and documentation procedures.

Price / cash flow ratio The price / cash flow ratio is the ratio of the share price to gross cash flow per share. It shows how long it would take for the company's cash flow to cover the share price.

Price / earnings ratio This is the ratio of the current share price to earnings per share (EPS). A high price/earnings ratio indicates that the market assigns a high value to the stock in the expectation of future earnings growth.

R

3RS principle (replace, reduce, refine) Replace: prior to each project, Bayer checks whether an approved method is available that does not rely on animal studies and then applies it. Reduce: if no alternative method exists, only as many animals are used as are needed to achieve scientifically meaningful results based on statutory requirements. Refine: Bayer ensures that animal studies are performed in a way that minimizes any suffering.

Reconciliation The reconciliation records, on the one hand, those business activities not assigned to any other segment ("All Other Segments"), including particularly the services provided by Business Services, Technology Services and Currenta. It also includes "Corporate Functions and Consolidation," which largely comprises Bayer holding companies and the Bayer Lifescience Center.

S

Short-Term Incentive program (STI program) is a variable income component for all managerial staff.

Significant locations of operation A selection of countries that accounted for more than 80% of total Bayer Group sales in 2016 (United States, Germany, China, Brazil, Japan, France, Canada, Italy, Mexico, U.K., India, Spain, Australia, Russia, Switzerland, Poland, Turkey, Argentina and Belgium)

Syndicated credit facility Credit line agreed with a group of banks; generally used for extensive financing requirements, such as when making an acquisition, to increase available liquidity or as security for the issuance of debt instruments. The credit facility can be utilized and repaid flexibly, either in full or in portions, during its term.

U

United Nations Global Compact (UNGC) The United Nations Global Compact is the most far-reaching and important responsible corporate governance initiative in the world. Based on ten universal principles in the areas of human rights, labor, environment and anticorruption, the UNGC pursues the vision of an inclusive and sustainable global economy that benefits people, communities and markets everywhere. By committing to the UNGC, companies agree to document each year their efforts to uphold the ten principles.

V

Vector control describes methods for the avoidance or targeted control of organisms that transmit pathogens triggering infectious diseases. Vectors include blood-sucking insects such as the Anopheles mosquito, which can transfer malaria parasites, for example.

W

Working capital is the difference between short-term current assets and short-term liabilities; it is calculated by deducting short-term liabilities from current assets (excluding cash and cash equivalents). In the statement of cash flows, the change in working capital is one of the variables used to assess a company's financial health. The objective of working capital management is to reduce working capital by minimizing the "financing gap" caused by the time lapse between the disbursement of funds (= payment for necessary raw materials) and the receipt of funds for the finished product.

Five-Year Summary

€ million	2012	2013	2014	2015	2016
Bayer Group					
Sales	39,741	40,157	41,339	46,085	46,769
EBITDA[1]	6,916	7,830	8,315	9,573	10,785
EBITDA before special items[1]	8,280	8,401	8,685	10,256	11,302
EBITDA margin before special items[1]	20.8%	20.9%	21.0%	22.3%	24.2%
EBIT[1]	3,928	4,934	5,395	6,241	7,042
EBIT before special items[1]	5,639	5,773	5,833	7,060	8,130
Income before income taxes	3,176	4,207	4,414	5,236	5,887
Net income (from continuing and discontinued operations)	2,403	3,189	3,426	4,110	4,531
Earnings per share (from continuing and discontinued operations) (€)[1]	2.91	3.86	4.14	4.97	5.44
Core earnings per share (from continuing operations) (€)[1]	5.30	5.61	5.89	6.82	7.32
Net cash provided by operating activities (from continuing and discontinued operations)	4,530	5,171	5,810	6,890	9,089
Net financial debt	7,022	6,731	19,612	17,449	11,778
Capital expenditures as per segment table	2,012	2,155	2,484	2,511	2,578
Bayer AG					
Total dividend payment	1,571	1,737	1,861	2,067	2,233
Dividend per share (€)	1.90	2.10	2.25	2.50	2.70
Innovation					
Research and development expenses	3,013	3,406	3,537	4,274	4,666
Ratio of R&D expenses to sales – Pharmaceuticals (%)	14.5	15.8	15.6	16.0	17.0
Ratio of R&D expenses to sales – Crop Science (%)	9.3	9.8	10.3	10.7	11.7
Employees in research and development	12,900	13,509	13,900	14,753	15,229
Employees					
Number of employees[2] (Dec. 31)	110,000	112,400	117,400	116,600	115,200
Personnel expenses (including pension expenses) (€ million)	9,194	9,430	9,693	11,176	11,357
Proportion of women in senior management (%)	23	25	26	28	29
Proportion of employees with health insurance (%)	94	95	96	96	98
Fluctuation (voluntary / total) (%)	– / 14.1	5.5 / 14.0	4.8 / 11.4	5.0 / 13.9	4.6 / 12.3
Hours of vocational and ongoing training per employee	–	17.8	18.0	20.0	22.1
Safety & Environmental Protection					
Recordable Incident Rate (RIR) for Bayer employees	0.49	0.47	0.43	0.42	0.39
Loss of Primary Containment Incident Rate (LoPC-IR)[3]	0.38	0.35	0.23	0.22	0.32
Total energy consumption (terajoules)	83,184	80,848	85,317	83,182	84,494
Energy efficiency (MWh/t)[4]	8.86	8.54	7.62	6.34	6.77
Total greenhouse gas emissions (CO_2 equivalents in million t)[5]	8.96	9.00	9.55	9.71	9.87
Specific greenhouse gas emissions (CO_2 equivalents in t / manufactured sales volume in t), according to the market-based method[6]	1.88	1.83	1.72	1.69	1.54
Hazardous waste generated (thousand t)	603	467	487	541	547
Water use (million m^3)	384	361	350	346	330

2015 figures restated; figures for 2012-2014 as last reported

[1] For definitions of the indicators see Chapter 2.4.

[2] Employees calculated as full-time equivalents (FTEs)

[3] Number of incidents per 200,000 working hours in which chemicals leak from their primary container, such as pipelines, pumps, tanks or drums

[4] Quotient of total energy consumption and manufactured sales volume; Life Sciences only

[5] Direct emissions from power plants, waste incinerators and production plants and indirect emissions from external supplies of electricity, steam and refrigeration (according to the market-based method); portfolio-adjusted in accordance with the GHG Protocol

[6] Life Sciences without Currenta

Financial Calendar

Q1 2017 Interim Report	**April 27, 2017**
Annual Stockholders' Meeting 2017	**April 28, 2017**
Planned dividend payment date	**May 4, 2017**
Q2 2017 Interim Report	**July 27, 2017**
Q3 2017 Interim Report	**October 26, 2017**
2017 Annual Report	**February 28, 2018**
Q1 2018 Interim Report	**May 3, 2018**
Annual Stockholders' Meeting 2018	**May 25, 2018**

Masthead

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Cautionary Statements Regarding Forward-Looking Information
Certain statements contained in this Annual Report may constitute "forward-looking statements." Actual results could differ materially from those projected or forecast in the forward-looking statements. The factors that could cause actual results to differ materially include the following: uncertainties as to the timing of the transaction; the possibility that the parties may be unable to achieve expected synergies and operating efficiencies in the merger within the expected time-frames or at all and to successfully integrate Monsanto's operations into those of Bayer; such integration may be more difficult, time-consuming or costly than expected; revenues following the transaction may be lower than expected; operating costs, customer loss and business disruption (including, without limitation, difficulties in maintaining relationships with employees, customers, clients or suppliers) may be greater than expected following the announcement of the transaction; the retention of certain key employees at Monsanto; risks associated with the disruption of management's attention from ongoing business operations due to the transaction; the conditions to the completion of the transaction may not be satisfied, or the regulatory approvals required for the transaction may not be obtained on the terms expected or on the anticipated schedule; the parties' ability to meet expectations regarding the timing, completion and accounting and tax treatments of the merger; the impact of indebtedness incurred by Bayer in connection with the transaction and the potential impact on the rating of indebtedness of Bayer; the effects of the business combination of Bayer and Monsanto, including the combined company's future financial condition, operating results, strategy and plans; other factors detailed in Monsanto's Annual Report on Form 10-K filed with the SEC for the fiscal year ended August 31, 2016 and Monsanto's other filings with the SEC, which are available at http://www.sec.gov and on Monsanto's website at www.monsanto.com; and other factors discussed in Bayer's public reports which are available on the Bayer website at www.bayer.com. Bayer and Monsanto assume no obligation to update the information in this communication, except as otherwise required by law. Readers are cautioned not to place undue reliance on these forward-looking statements that speak only as of the date hereof.