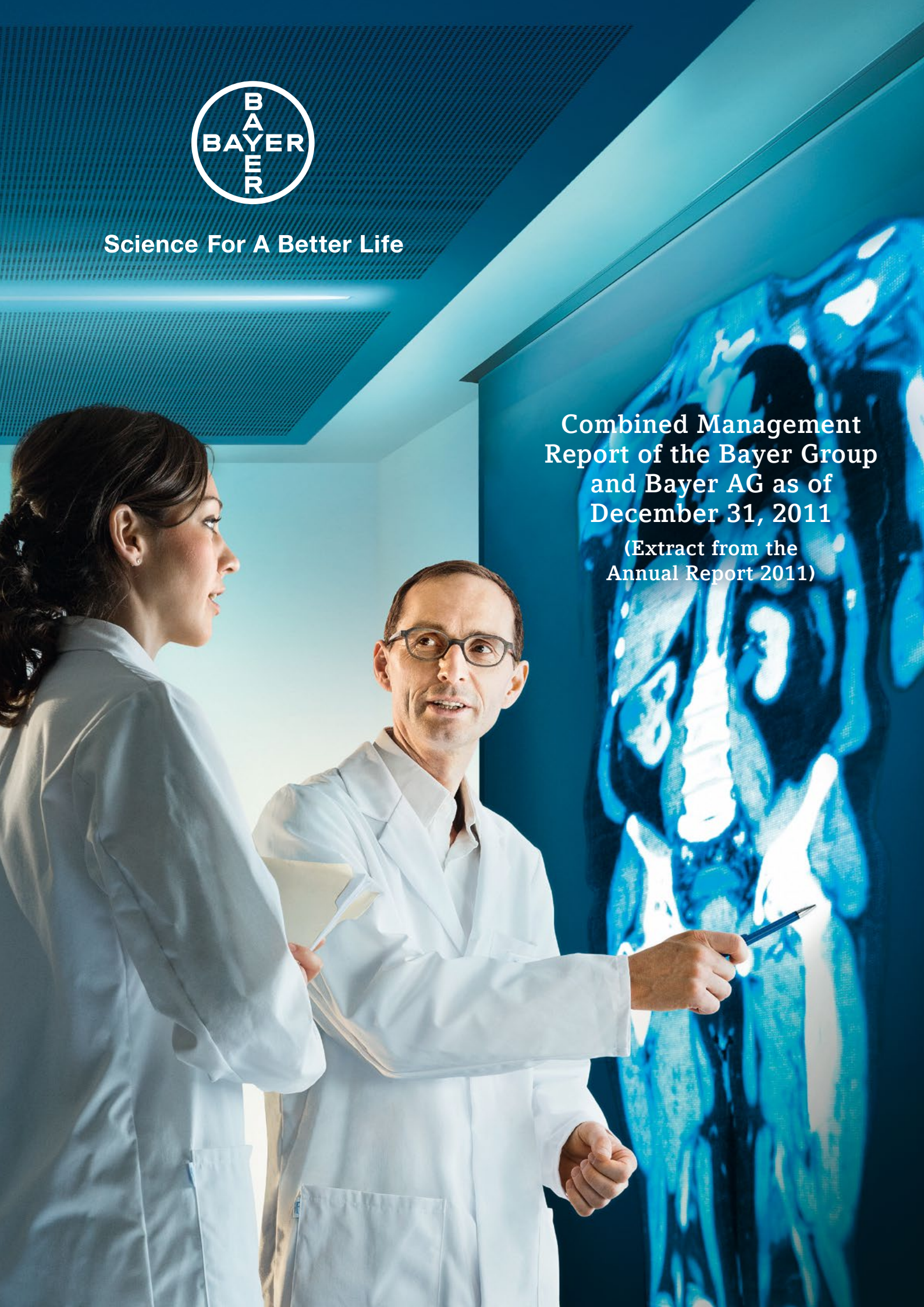


Combined Management Report of the Bayer Group and Bayer AG as of December 31, 2011

(Extract from the Annual Report 2011)

Combined Management Report
of the Bayer Group and Bayer AG as of December 31, 2011

For direct access to a chapter, simply click on its name.

Financial and innovation targets achieved in 2011

Bayer: sales and EBIT at record levels

- Sales €36.5 billion (Fx & portfolio adj. +5.5%)
- Operating result (EBIT) €4.1 billion (+52.0%)
- EBITDA before special items €7.6 billion (+7.2%)
- Growth at HealthCare and CropScience, decline in momentum at MaterialScience
- Net income rises to €2.5 billion (+89.9%)
- Success of new products creates optimism for the future
- Presence in emerging markets further expanded
- Forecast for 2012: slight increase in underlying earnings

1. Overview of Sales, Earnings and Financial Position

€36.5 billion Group sales	€4.1 billion EBIT	€7.6 billion EBITDA before special items
€2.5 billion Net income	€4.83 Core earnings per share	€7.0 billion Net financial debt

FULL YEAR 2011

Bayer had a very successful year in 2011, both strategically and operationally. We achieved the Group targets that we raised after the first quarter. We successfully drove forward our innovation projects in the subgroups – particularly the development of our pharmaceutical pipeline – and continued to expand our presence in the emerging markets*.

On a currency- and portfolio-adjusted (Fx & portfolio adj.) basis, we raised Group sales by 5.5% (reported: +4.1%) to €36.5 billion, partly on account of strong growth in the emerging markets. The operating result (EBIT) advanced by 52.0% to €4.1 billion after special items of minus €0.9 billion (2010: minus €1.7 billion). EBITDA before special items improved by 7.2% to €7.6 billion. This increase in earnings was attributable to the good business development at HealthCare and CropScience, while earnings of MaterialScience were down in a difficult market environment that was losing momentum. Net income advanced to €2.5 billion (+89.9%), partly due to much lower special charges. Earnings per share came in at €2.99 (2010: €1.57), while core earnings per share were €4.83 (+15.3%).

Net financial debt fell by €0.9 billion to €7.0 billion.

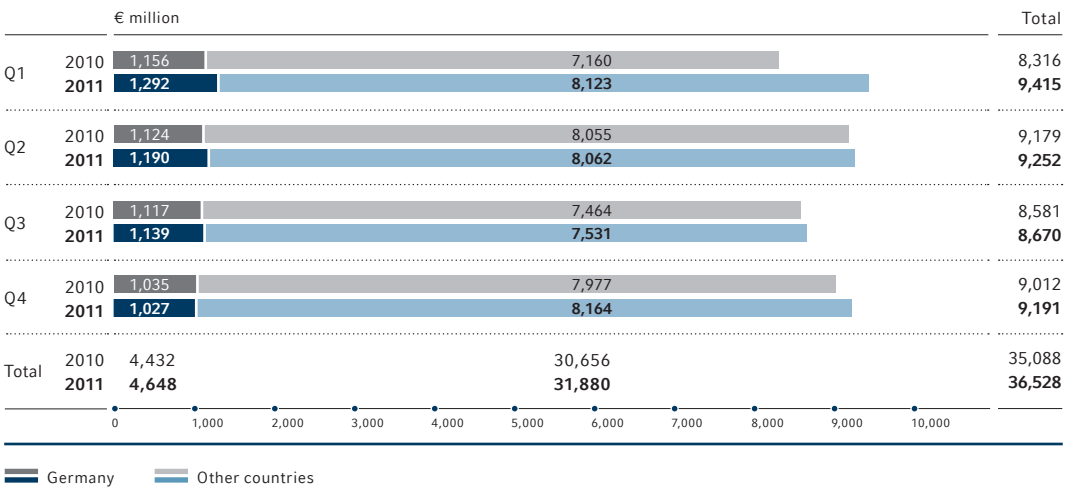
Changes in Sales [Table 3.1]

	2010	2011
	%	%
Volume	+6.7	+3.4
Price	+1.3	+2.1
Currency	+4.9	−1.5
Portfolio	−0.3	+0.1
Total	**+12.6**	**+4.1**

Group **sales** rose to €36,528 million (2010: €35,088 million). HealthCare posted a slight increase of 2.4% on a currency- and portfolio-adjusted basis. Sales of CropScience moved ahead by 8.9% (Fx & portfolio adj.) in a very positive market environment. MaterialScience posted currency- and portfolio-adjusted sales growth of 8.2%, largely as a result of selling price increases.

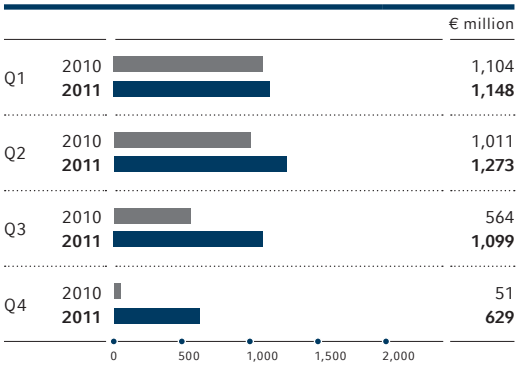
* For definition see Chapter 3.5 "Business Development in the Emerging Markets."

Bayer Group Quarterly Sales [Graphic 3.1]

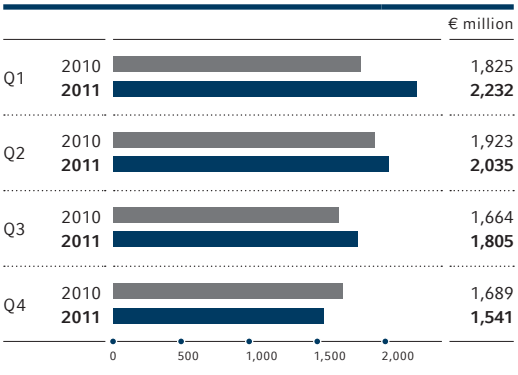


EBIT of the Bayer Group advanced by 52.0% to €4,149 million (2010: €2,730 million). Earnings were held back by special items of minus €876 million (2010: minus €1,722 million), including €741 million in special charges connected with our Group-wide restructuring initiative, €260 million in litigation expenses and €99 million in divestiture gains. EBIT before special items amounted to €5,025 million (2010: €4,452 million). **EBITDA** before special items increased by 7.2% to €7,613 million (2010: €7,101 million). HealthCare raised EBITDA before special items by 6.7% to €4,702 million (2010: €4,405 million), mainly due to positive business development at Consumer Health and cost savings in the Pharmaceuticals segment. EBITDA before special items at CropScience rose by a substantial 27.9% to €1,654 million (2010: €1,293 million), largely as a result of higher volumes. EBITDA before special items of MaterialScience receded by 13.6% to €1,171 million (2010: €1,356 million), with selling price increases not fully offsetting higher raw material and energy costs in the second half of the year.

Bayer Group Quarterly EBIT [Graphic 3.2]

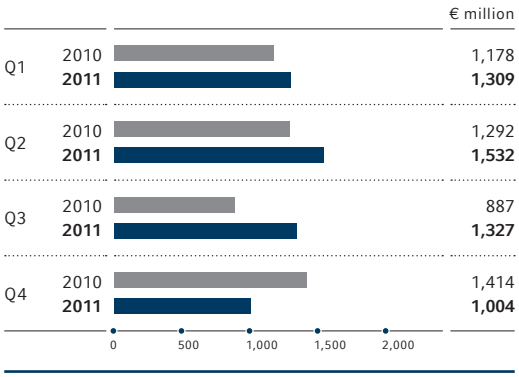


Bayer Group Quarterly EBITDA Before Special Items [Graphic 3.3]

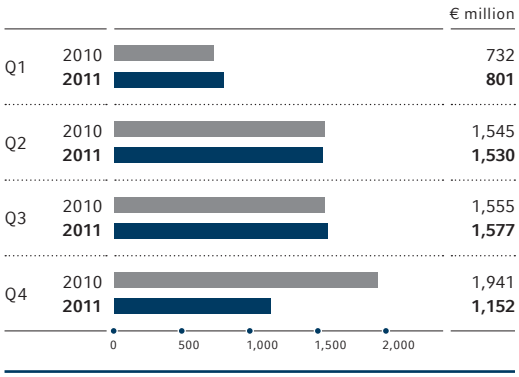


After a **non-operating result** of minus €786 million (2010: minus €1,009 million), including net interest expense of €335 million (2010: €499 million), **income before income taxes** amounted to €3,363 million (2010: €1,721 million). After tax expense of €891 million (2010: €411 million) and non-controlling interest, **net income** in 2011 came in at €2,470 million (2010: €1,301 million). Earnings per share were €2.99 (2010: €1.57). Core earnings per share advanced by 15.3% to €4.83 (2010: €4.19), calculated as explained in Chapter 4.3 "Core Earnings Per Share."

Gross Cash Flow by Quarter [Graphic 3.4]



Net Cash Flow by Quarter [Graphic 3.5]



Gross cash flow grew by 8.4% in 2011 to €5,172 million (2010: €4,771 million), thanks to the improvement in the operational business. Net cash flow, however, fell by 12.4% to €5,060 million (2010: €5,773 million) due to payments of €502 million made in connection with litigations concerning genetically modified rice (LL RICE) in the United States and a business-related increase in working capital. We reduced net financial debt by €0.9 billion against December 31, 2010, to €7.0 billion. The net amount recognized for post-employment benefits after deducting plan assets from the defined benefit obligation rose to €7.8 billion (2010: €7.2 billion), with the drop in long-term capital market interest rates accounting for a €1.3 billion increase.

FOURTH QUARTER OF 2011

Group **sales** in the fourth quarter of 2011 rose by 1.9% (Fx & portfolio adj.) to €9,191 million (reported: +2.0%). Sales of HealthCare rose by 2.5% (Fx & portfolio adj.) to €4,595 million (reported: +2.8%). Sales in the Pharmaceuticals segment increased by 0.8% (Fx & portfolio adj.) to €2,680 million (reported: +1.2%), with declines in the established markets offset by higher sales in the emerging economies. Sales of Consumer Health moved ahead by 5.0% (Fx & portfolio adj.) to €1,915 million (reported: +5.2%). CropScience sales increased by 2.8% (Fx & portfolio adj.) in the fourth quarter to €1,676 million (reported: +1.4%) due to higher volumes. Sales of MaterialScience were flat with the prior-year period at €2,596 million (Fx & portfolio adj. +0.0%; reported: +0.5%).

EBIT of the Bayer Group climbed in the fourth quarter of 2011 to €629 million (Q4 2010: €51 million). Earnings were diminished by special items of minus €215 million (Q4 2010: minus €954 million), mainly comprising €245 million in restructuring expenses, €60 million in provisions for litigations and €99 million in divestiture gains. EBIT before special items fell by 16.0% to €844 million (Q4 2010: €1,005 million).

EBITDA before special items of the Bayer Group declined in the fourth quarter of 2011 by 8.8% to €1,541 million (Q4 2010: €1,689 million) due to a sharp drop in earnings at MaterialScience to €106 million (Q4 2010: €297 million). HealthCare, however, raised EBITDA before special items to €1,180 million (Q4 2010: €1,138 million). EBITDA before special items of CropScience came in at €273 million (Q4 2010: €270 million).

After a non-operating result of minus €178 million (Q4 2010: minus €237 million), income before income taxes was €451 million (Q4 2010: minus €186 million). After taxes and non-controlling interest, net income of the Bayer Group came in at €397 million (Q4 2010: minus €145 million). Earnings per share were €0.48 (Q4 2010: minus €0.18). Core earnings per share rose to €0.97 (Q4 2010: €0.95), calculated as explained in Chapter 4.3 “Core Earnings Per Share.”

Gross cash flow of the Bayer Group was down by 29.0% against the prior-year period at €1,004 million (Q4 2010: €1,414 million), the main reason – apart from the drop in EBITDA – being higher tax payments than in the fourth quarter of 2010. Net cash flow was also impacted by the payments made in connection

with litigations concerning genetically modified rice (LL RICE), receding by 40.6% to €1,152 million (Q4 2010: €1,941 million). The net financial debt at the end of the fourth quarter of 2011 was level with September 30, 2011, at €7.0 billion.

Key Data by Subgroup and Segment, 4th Quarter [Table 3.2]

	Sales		EBIT		EBITDA before special items*	
	4th Quarter 2010	4th Quarter 2011	4th Quarter 2010	4th Quarter 2011	4th Quarter 2010	4th Quarter 2011
	€ million	€ million	€ million	€ million	€ million	€ million
HealthCare	**4,468**	**4,595**	**(129)**	**770**	**1,138**	**1,180**
Pharmaceuticals	2,648	2,680	(219)	471	771	758
Consumer Health	1,820	1,915	90	299	367	422
CropScience	**1,653**	**1,676**	**118**	**47**	**270**	**273**
MaterialScience	**2,584**	**2,596**	**156**	**(4)**	**297**	**106**
Reconciliation	**307**	**324**	**(94)**	**(184)**	**(16)**	**(18)**
Group	**9,012**	**9,191**	**51**	**629**	**1,689**	**1,541**

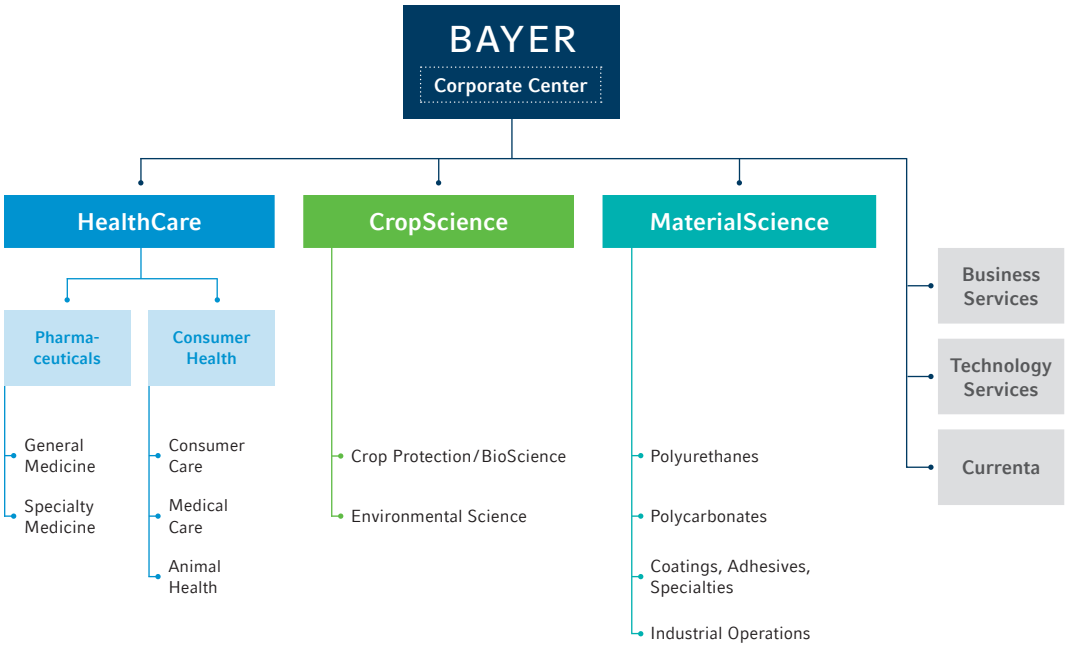
2010 figures restated
* For definition see Chapter 4.2 "Calculation of EBIT(DA) Before Special Items."

2. Business and Operating Environment

2.1 Corporate Structure

Bayer AG, headquartered in Leverkusen, Germany, is the strategic management holding company for the Bayer Group. Business operations are conducted by the HealthCare, CropScience and MaterialScience subgroups, supported by our three service companies.

Bayer Group Structure [Graphic 3.6]

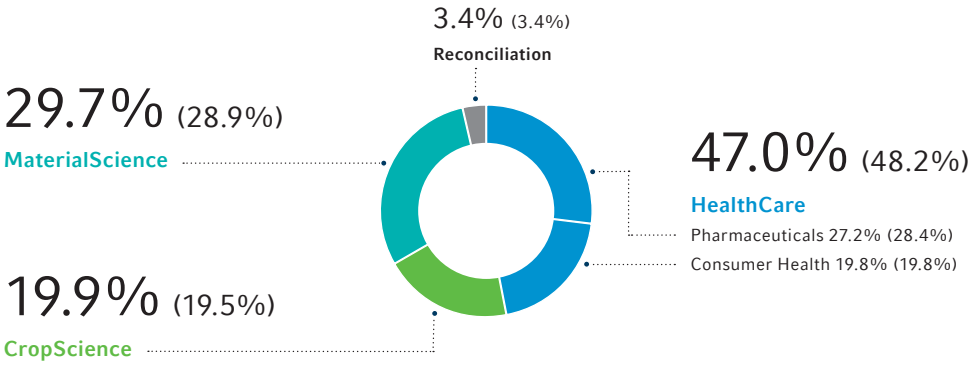


The globally operating **HealthCare** subgroup is divided into two reportable segments: Pharmaceuticals and Consumer Health. The Pharmaceuticals segment consists of two business units focusing on prescription products: General Medicine, primarily comprising women's healthcare and cardiovascular health products; and Specialty Medicine, comprising medicines that are mainly prescribed by specialist physicians. Our Consumer Health segment includes the Consumer Care, Medical Care and Animal Health divisions. The main focus of the Consumer Care Division is on non-prescription medicines, dietary supplements and dermatology products. Medical Care comprises the businesses with blood glucose meters, contrast-enhanced diagnostic imaging equipment together with the necessary contrast agents, and mechanical systems for treating constricted or blocked blood vessels. The products of the Animal Health Division are destined for use in livestock and companion animals.

CropScience has businesses in crop protection, seed breeding and plant trait improvement, and non-agricultural pest and weed control. It is organized into two operating segments: Crop Protection/BioScience and Environmental Science. Crop Protection includes the Herbicides, Fungicides, Insecticides and Seed Treatment units, while BioScience focuses on seeds and plant traits. Environmental Science offers non-agricultural pest and weed control products.

MaterialScience develops, manufactures and markets high-performance products in the areas of polyurethanes, polycarbonates, coating and adhesive raw materials, and functional films. This subgroup also manufactures and markets selected inorganic basic chemicals. MaterialScience is organized into the Polyurethanes, Polycarbonates, and Coatings, Adhesives, Specialties business units, and the Industrial Operations area.

Share of Sales by Segment 2011 (2010 in parentheses) [Graphic 3.7]



2010 figures restated

Our subgroups are supported by the Business Services, Technology Services and Currenta service companies, which are reported in the reconciliation under "All Other Segments." The reconciliation also includes the Corporate Center and consolidation effects.

Key Data by Subgroup and Segment [Table 3.3]

	Sales		EBIT		EBITDA before special items*	
	2010	2011	2010	2011	2010	2011
	€ million	€ million	€ million	€ million	€ million	€ million
HealthCare	**16,913**	**17,169**	**1,861**	**3,191**	**4,405**	**4,702**
Pharmaceuticals	9,954	9,949	872	1,897	2,832	2,972
Consumer Health	6,959	7,220	989	1,294	1,573	1,730
CropScience	**6,830**	**7,255**	**261**	**562**	**1,293**	**1,654**
MaterialScience	**10,154**	**10,832**	**780**	**633**	**1,356**	**1,171**
Reconciliation	**1,191**	**1,272**	**(172)**	**(237)**	**47**	**86**
Group	**35,088**	**36,528**	**2,730**	**4,149**	**7,101**	**7,613**

2010 figures restated
* For definition see Chapter 4.2 "Calculation of EBIT(DA) Before Special Items."

CHANGES IN CORPORATE STRUCTURE

The Women's Healthcare and General Medicine business unit within the Pharmaceuticals segment of the HealthCare subgroup was renamed "General Medicine" effective January 1, 2011. The strategic business entity "Diagnostic Imaging," comprising contrast agents for imaging applications such as X-ray and MRI, was transferred from the Specialty Medicine business unit to the Medical Care Division in the fourth quarter of 2011 for organizational reasons and combined with the corresponding injection systems into a single business unit. The figures for 2011 and 2010 have been restated accordingly to enhance comparability. Since the second quarter of 2011 we have shown the CropScience subgroup as a single reportable segment in view of the organizational and strategic changes undertaken by CropScience to more closely align Crop Protection and BioScience and integrate the steering of these businesses. The prior-year figures have been restated accordingly.

2.2 Economic Environment

GLOBAL ECONOMY

The world economy was held back by a number of factors in 2011. Chief among these factors was the debt crisis in Europe and the United States, which was associated with greatly increased volatility on the financial markets. On top of this, the price of oil rose substantially in the first half of the year. In the industrialized countries there was little public help for the economy once stimulus programs expired, especially as many governments were compelled to rigorously consolidate their budgets. A further factor was the continuing weakness of the real-estate market in the U.S. and some European countries. However, support was provided by the central banks of the industrialized countries, which maintained strongly expansionary monetary policies.

Economic development in 2011 was marked by wide regional variations. Most industrialized countries saw only slow expansion. One exception was Germany, where the economy proved robust and only showed signs of weakening toward year end. The pillars of global economic growth were the emerging markets, led by China and India. They continued to expand strongly despite negative effects from the global economy, with rates of growth that slowed only slightly during the course of the year.

HEALTHCARE

In 2011 the **market for prescription medicines** posted growth in the mid-single digits. Expansion in the United States and the major European countries was below the global average, partly as a result of more restrictive government health policies that forced greater cost control, limited access to certain

treatments and in some cases led to mandatory rebates. Growth continued in the emerging markets, where health services became available to more and more people, boosting the demand for prescription medicines.

The rate of growth in the global **consumer care market** was slightly above the previous year. This was mainly due to a strong first half, with growth weakening in the second half, especially in the United States and Europe. Demand for over-the-counter medicines in emerging markets such as Brazil, China and Russia remained at a high level. The **medical care market** saw moderate expansion, driven by the U.S. diabetes care market and demand for medical equipment. The **animal health market** again saw growth in the mid-single digits in line with the average long-term trend.

CROPSCIENCE

The global **seed and crop protection market** showed dynamic development in 2011. Demand for high-quality seed continued to rise considerably overall, and the global crop protection market also posted significant growth.

Higher prices for agricultural commodities brought a general improvement in farm incomes compared with the previous year. This was reflected in increased investment in seeds and crop protection products.

The main drivers of growth in Europe were Eastern European countries such as Ukraine and Russia. In Western Europe, however, the prolonged drought in the second quarter diminished demand, particularly for fungicides.

The strong overall market growth in the Americas was lessened only by unfavorable weather conditions. In North America, spring sowing was delayed in many areas and the summer was marked by drought, especially in the cotton-growing regions of the southern United States. Latin American agriculture felt the negative effects of local droughts caused by "La Niña," especially in Brazil and Argentina.

The positive overall market trend also continued in the Asia/Pacific region in 2011, with a much stronger stimulus to growth coming from the Indian than from the Chinese market. In Australia, weather conditions increased the demand for fungicides, especially in the second half of the year. The Japanese crop protection market declined in 2011 due to the natural disaster in March and its consequences.

MATERIALSCIENCE

The **main customer industries** for MaterialScience also did not entirely escape the steady weakening of the global economy during the year. Negative factors included the euro crisis, the sluggish recovery of domestic demand and the real-estate market in North America, and the strict measures adopted to tackle inflation and economic overheating in Asia.

The global **automotive industry** performed well in 2011, although growth softened in the second half of the year. The recovery continued in North America and Eastern Europe, while government restrictions in the Asia/Pacific region, particularly in China, restrained the rate of growth, which had been well above average in the two preceding years. In Western Europe, the auto market was hampered by consumer reticence in the Mediterranean countries, but moderate growth in Germany prevented a more pronounced overall decline.

The global **electrical/electronics industry** continued to enjoy robust growth in 2011. Demand for consumer goods remained high in the emerging markets, and demand in the industrialized countries was boosted by a number of renewable energy projects.

The global **construction industry** expanded again in 2011. A somewhat negative trend persisted in Western Europe, and construction output stagnated in the United States, while China and India – and to a lesser degree Eastern Europe – continued to experience robust growth.

The pace of recovery in the **furniture market** in 2011 showed regional variations. While business increased in most of the central European core countries, the industry continued to suffer from weaker domestic demand in the highly indebted countries of southern Europe. The furniture industry in North America experienced a marked revival starting in the middle of the year. Despite the negative effects of monetary restraint in key Asian markets and flattening export revenues, business in the Asia/Pacific region proved to be stable over the course of the year.

2.3 Procurement and Production

Uniform Group directives on procurement are in place, and conditions have been defined. Our social and ecological requirements for suppliers, for example, are stated in the Supplier Code of Conduct. Production-specific procurement activities, like production itself, are organized separately for each subgroup in light of the diverse nature of our business activities. By contrast, the procurement of indirect goods and services that are not relevant to production – such as consultancy services, business travel and fleet management, computer hardware and software, laboratory and workshop equipment, safety devices and office supplies – is centrally organized within our service companies.

HEALTHCARE

Production network creates advantages

The Product Supply unit of HealthCare steers the subgroup's entire supply chain, from raw material procurement to manufacturing to product shipment, utilizing a global production network consisting of its own sites and those of subcontractors. In this way we aim to steadily reduce costs, increase our flexibility and delivery reliability, and meet the globally high demands in terms of quality, safety and environmental protection. The manufacture of pharmaceuticals is subject to the exceptionally stringent quality requirements of good manufacturing practice (GMP). Compliance with these requirements is regularly audited by internal experts, regulatory authorities and external consultants.

The Pharmaceuticals segment generally procures the starting materials for the active ingredients of its prescription pharmaceuticals from external suppliers. To prevent supply bottlenecks and mitigate major price fluctuations, these starting materials and the intermediates we do not produce ourselves are generally purchased under global contracts and/or from a number of suppliers we have audited and approved.

Our active ingredients for prescription medicines are manufactured primarily at the sites in Wuppertal and Bergkamen, Germany, and Berkeley and Emeryville, California, United States. These substances are processed into finished products and packaged worldwide. Our medicines come in a wide range of delivery forms including, for example, solids (coated or uncoated tablets, powders), semi-solids (ointments, creams), and liquid pharmaceuticals used in injections or infusions, for example. Our hormonal contraceptives are supplied as sugar- or film-coated tablets or used in intrauterine systems (coils), for example. These formulating and packaging activities take place in Berlin, Leverkusen and Weimar, Germany; Garbagnate, Italy; Beijing, China; São Paulo, Brazil; Turku, Finland; and various other sites in Europe, Asia and Latin America. The hemophilia drug Kogenate™ is manufactured by a biotechnological process at Berkeley, California, United States. Betaferon™/Betaseron™ for the treatment of multiple sclerosis is produced in Emeryville, California, United States.

For the Consumer Care Division of the Consumer Health segment we produce certain active substances, such as acetylsalicylic acid and clotrimazole, within the Bayer Group in La Felguera, Spain. The principal raw materials we purchase from third parties are naproxen, citric acid, ascorbic acid and other vitamins, and paracetamol. To minimize business risks, we diversify our raw material procurement sources worldwide and conclude long-term supply agreements. Among the division's largest production sites are the facilities in Myerstown, Pennsylvania, United States; Cimanggis, Indonesia; Lerma, Mexico; Bitterfeld-Wolfen and Grenzach-Wyhlen, Germany; and Madrid, Spain.

The Diabetes Care products (such as blood glucose meters) of our Medical Care division are mainly procured from original equipment manufacturers (OEMs). Material prices and availability are covered in most cases by long-term contracts and therefore are not subject to major fluctuations. We hold strategic reserves of certain materials and finished products so that we can supply our customers consistently and reliably. Most of the materials needed for our medical equipment business, too, are procured from external suppliers, their availability, quality and price stability being ensured by way of long-term agreements, careful choice of suppliers and active supplier management. The majority of our medical devices are manufactured at the U.S. sites near Pittsburgh, Pennsylvania, and at Coon Rapids, Minnesota. Our contrast agents are produced mainly in Berlin, Germany.

The Animal Health Division procures the pharmaceutical active ingredients for its veterinary medicines both from within the Bayer Group and from external suppliers throughout the world. Our animal health products are manufactured mainly at the sites in Kiel, Germany, and Shawnee, Kansas, United States, and marketed worldwide.

Global procurement and production network

CROPSCIENCE

CropScience manages procurement and production as a unit, enabling an integrated supply chain from raw material purchase through end-product manufacture to warehousing. Our aim is to steadily improve our cost structures, increase our flexibility and ensure we can react more quickly to market volatility.

Most of the raw materials for the manufacture of our crop protection products are procured externally. These raw materials are mainly basic chemicals such as chlorine, along with intermediates and synthesis components. Important raw materials are usually procured on the basis of long-term supply agreements. We reduce the risk of supply failure by diversifying our raw material sources and holding strategic reserves of important raw materials and intermediates. We also accord preference to certified suppliers that maintain defined quality standards for both manufactured and procured raw materials.

Crop Protection and Environmental Science products are manufactured at production sites and formulating facilities of our own around the world. Among the largest are the facilities in Dormagen, Knapsack and Frankfurt am Main, Germany; Kansas City, Missouri, United States; and Vapi, India. Our network of decentralized formulation and filling sites enables us to respond rapidly to local market needs. At these sites the active ingredients are processed into herbicides, fungicides, insecticides, seed treatment products and Environmental Science products according to local requirements and application areas. Packaging of the products also takes place in these facilities.

To steadily optimize our global production network, we are selectively expanding capacities for important products and introducing new technologies and improved manufacturing processes, especially at our principal sites.

In the BioScience business unit, we produce our seeds at locations close to our customers in Europe, Asia, and North and South America. Our seeds are produced at our own farms or grown under contract on a total area of more than 100,000 hectares.

MATERIALSCIENCE

Procurement in the MaterialScience subgroup is globally controlled by an organizational unit known as “Procurement and Trading.” Worldwide procurement and trading processes are centrally managed to leverage synergies within MaterialScience. The aim is to optimize internal structures and processes to ensure we procure raw materials, energies and services in the market on the best possible terms. Key raw materials for our MaterialScience products are petrochemical feedstocks such as benzene, toluene and phenol. We purchase these materials on the procurement markets, mainly under long-term contracts. The operation of our production facilities also requires large amounts of energy, mostly in the form of electricity or steam. For steam generation, we aim for a balanced diversification of fuels and – as with electricity – a mix of external procurement and captive production to minimize the price fluctuation risk.

The production facilities of MaterialScience at Dormagen, Krefeld and Leverkusen, Germany, along with those in Shanghai, China, and Baytown, Texas, United States, supply all the business units and are centrally managed by the Industrial Operations unit. Further major production sites are located at Antwerp, Belgium; Brunsbüttel, Germany; Map Ta Phut, Thailand; and Tarragona, Spain. Each of these sites is managed by the respective business unit.

In the field of commodities we endeavor to reduce costs by operating high-capacity production facilities that enable us to supply our markets on an international basis. We have a large number of production facilities close to local markets in 19 countries to serve our differentiated businesses. These facilities include the "systems houses," where we formulate and supply customized polyurethane systems, and plants where we compound polycarbonate granules to meet specific customer requirements or manufacture semi-finished products (polycarbonate sheets). We also operate regional production facilities for functional films made of polycarbonate or thermoplastic polyurethane.

World-scale facilities reduce costs for commodities

2.4 Products, Distribution and Markets

Marketing activities within the Bayer Group are decentralized due to the diversified business portfolio.

HEALTHCARE

HealthCare's product portfolio encompasses more than 20,000 articles to meet the needs of patients and consumers in the various markets. This high number is due to the size of the product range and the various delivery forms, dosages, pack sizes, and language versions of individual products and their packaging.

More than **20,000** articles worldwide

The Pharmaceuticals segment supplies prescription products in the fields of General Medicine and Specialty Medicine. In the General Medicine area, we offer cardiovascular medicines such as Adalat™ to treat high blood pressure and coronary heart disease, Aspirin™ Cardio to prevent heart attacks, our anticoagulant Xarelto™, and the antihypertensive Kinzal™/Pritor™. This portfolio also includes women's healthcare products such as our YAZ™/Yasmin™/Yasminelle™ and Mirena™ contraceptives, and hormone replacement therapies such as Angeliq™. Our range of Specialty Medicine products, which are mainly prescribed by specialist physicians, includes the multiple sclerosis drug Betaferon™/Betaseron™, the hemophilia A therapy Kogenate™, and Nexavar™ to treat certain types of cancer. In the pharmaceuticals market we are among the world's top 15 companies in terms of sales.

Our pharmaceutical products are primarily distributed through wholesalers, pharmacies and hospitals. Co-promotion and co-marketing agreements serve to optimize our distribution network. For example, the agreement with Johnson & Johnson subsidiaries Janssen Research & Development L.L.C. and Janssen Pharmaceuticals (formerly Ortho-McNeil) concerning the joint further development and marketing of the anticoagulant Xarelto™ ensures optimum progress in this area, conferring regional marketing rights that enable the partners to share in the product's expected success.

Our Consumer Health segment chiefly markets non-prescription products. The Consumer Care Division specializes in medicines available without a prescription, also known as over-the-counter (OTC) products. We offer products in most OTC categories, such as the pain relievers Aspirin™ and Aleve™ and the dermatology products Canesten™ and Bepanthen™/Bepanthol™. The product range also includes nutritionals such as Supradyn™, One A Day™, Berocca™ and Redoxon™, antacids such as Talcid™, and cough-and-cold products such as Alka-Seltzer Plus™ and White & Black™. Consumer Care is a leading player in the OTC market and also offers prescription dermatology products. The division's sales and distribution channels are generally pharmacies, although supermarket chains and other large retailers are also of significance in certain important markets such as the United States.

Consumer Health segment: focus on non-prescription products

In the Medical Care Division we offer blood glucose monitoring devices such as the single-strip Contour™ system and the multi-strip Breeze™ system. We also market the Contour™ USB meter, which features integrated diabetes management software and direct plug-in to computers, and the A1CNow™ system for determining long-term blood glucose control (A1c). Outside Europe, these products are generally sold to consumers through pharmacies, drugstores, mass merchants, hospitals or wholesalers. In Europe, they are sold mainly through pharmacies. As well as being among the top companies in the market for blood glucose monitoring devices, we are the world's leading supplier of contrast agent injection systems for diagnostic and therapeutic medical procedures in computed tomography, magnetic resonance imaging and molecular imaging, and of mechanical systems for removing thrombi from blood vessels. We also offer service products for these systems. To strengthen our position among the leading companies in the field of innovative, high-quality diagnostic imaging and interventional procedures, we have combined our diagnostic imaging business, formerly part of the Pharmaceuticals segment, and our medical equipment business to form a new Radiology and Interventional business unit. Examples from our portfolio of contrast agents used in diagnostic imaging are Ultravist™, Magnevist™ and Gadovist™/Gadavist™. Our products are marketed to cardiologists, radiologists and vascular surgeons in hospitals and out-patient clinical sites through a global direct sales organization, supplemented in some cases by local distributors.

The Animal Health Division focuses on the health of companion animals and livestock, for which we offer pharmaceuticals and grooming products. The largest product line comprises Advantix™ and Advantage™ for the prevention and treatment of flea infestation in dogs and cats, followed by Baytril™ for the control of infectious diseases, Drontal™ and Drontal™ Plus wormers, and Baycox™ to treat coccidiosis in pigs. We occupy leading positions in individual countries and product segments, and are the world's fourth-largest animal health company in terms of sales. Depending on local regulatory frameworks, animal health products may be available to end users as prescribed by a veterinarian or prescription-free from veterinarians, pharmacies or retail stores.

CROPSCIENCE

Integrated, sustainable product portfolio at CropScience

CropScience offers a comprehensive range of products and services in the areas of crop protection, seed breeding and plant traits, and non-agricultural pest and weed control. These are commercialized according to local market conditions. Our business is subject to the growing seasons for the relevant crops and the resulting sales cycles.

CropScience markets its products in more than 120 countries worldwide. In the coming years we intend to continue expanding our business, particularly in fast-growing markets such as Latin America, India, China, Southeast Asia and Eastern Europe. In these countries there is a major opportunity for the agricultural industry to respond to the increasing global demand for high-quality food and feed by deploying innovative, leading-edge technologies.

The Crop Protection business is based on a broad portfolio of highly effective herbicides, fungicides, insecticides and seed treatment products. Thanks to our innovative capability and many years of experience with pest control products, we are among the world's leading companies in the insecticides market. CropScience holds third place in the global fungicides market. We occupy second position in the world market for weed control products (herbicides), including plant growth regulators. The Seed Treatment business unit focuses on the use of crop protection active ingredients specially developed for the protection of seeds and seedlings. With our insecticides, fungicides and combination products, we are among the leading suppliers of seed treatment products in terms of sales. Our Crop Protection products are marketed by means of a two- or three-step distribution system, either via wholesalers or directly through retailers depending on local market conditions.

In the BioScience business unit, our distribution activities are focused on seed production in the four core crops of oilseed rape/canola, cotton, rice and vegetables, where we offer high-quality seed based on our own research and breeding expertise. In these four crops we have achieved strong market positions and are globally represented. In 2011 we also began marketing soybean seed in the United States. Our most important markets are North America for canola seed; North and Latin America, India and southern Europe for cotton seed; and Asia for hybrid rice seed. Our vegetable seed varieties are sold in more than 100 countries throughout the world to farmers, breeders, specialist retailers and the processing industry. Traits developed using modern breeding methods are either incorporated into our own seed varieties or licensed to other seed companies.

The products of our Environmental Science business unit are based on both proprietary and inlicensed active ingredients and are specially designed for non-agricultural uses. This unit markets plant care products and home and garden brands for consumers along with solutions for professional users in the green industry and the pest and vector control sector. In terms of sales, Bayer is among the world's leading suppliers of non-agricultural pest control products. The Environmental Science products are marketed through various distribution channels. Our home and garden products are sold to consumers via both wholesalers and specialist retailers. Products for professional users are sold via wholesalers. Much of our business in the vector control field is transacted in response to tendering by government agencies and non-governmental organizations.

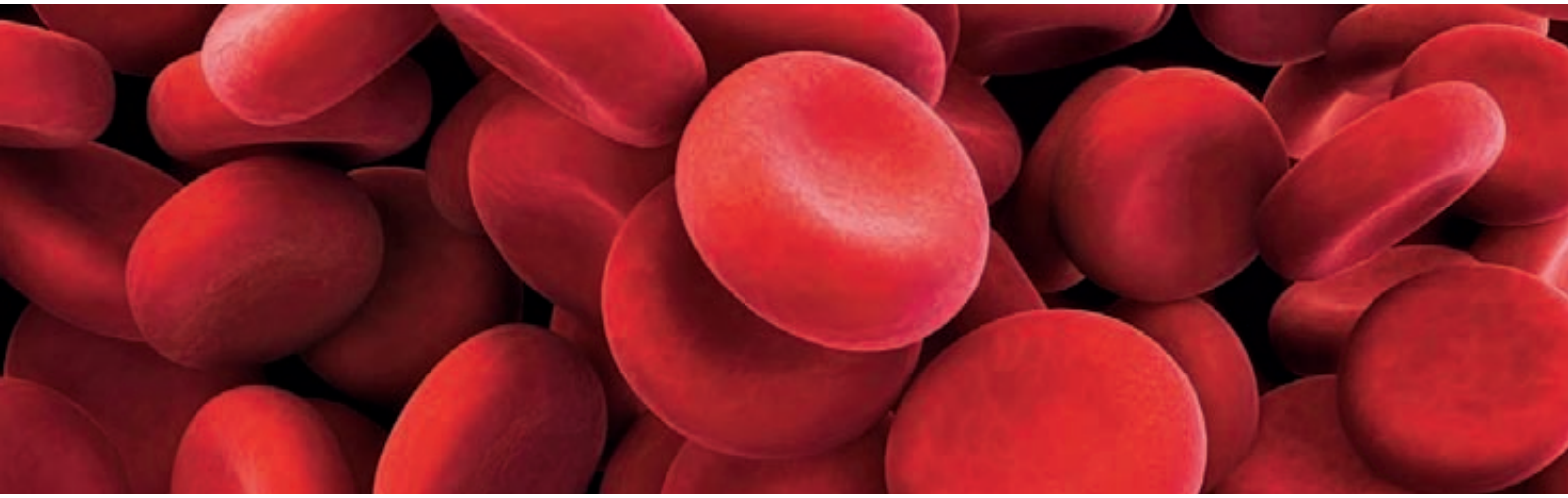
MATERIALSCIENCE

Leading competitive positions in all regions

One of the largest companies in the global chemical industry, MaterialScience is a leading manufacturer and supplier of precursors for rigid and flexible foams, plastic granules, and raw materials for coatings and adhesives. The subgroup holds leading competitive positions in these product groups in all regional markets. We also manufacture and market plastics sheets and functional films as well as selected inorganic basic chemicals such as chlorine, sodium hydroxide solution, hydrogen, hydrochloric acid and nitric acid. These chemicals serve either as raw materials (such as chlorine) for the manufacture of our products or are generated as byproducts (such as sodium hydroxide solution) and sold to external customers.

Our products are used mainly in the construction, furniture, wood, automotive, electrical/electronics, information technology, textile, sports and leisure goods, medical equipment and chemical industries. Rigid or flexible polyurethane foams based on our diphenylmethane diisocyanate (MDI), toluene diisocyanate (TDI) or polyether raw materials have found a broad range of applications in a variety of industries. Examples of their uses include car seats, automotive components such as bumpers or dashboards, insulating materials for the construction and refrigeration sectors, rigid housing components, mattresses, upholstered furniture and shoe soles. Our polycarbonates, which we market under the Makrolon™, Bayblend™, Makroblend™ and other trademarks, are used in housings for electrical appliances, CDs/DVDs and car headlamps, among other applications. The Coatings, Adhesives, Specialties business unit manufactures raw materials for automotive and commercial vehicle coatings or footwear adhesives, for example. This business unit also produces films for applications including vehicle speedometers and computer housings.

We market our products mostly through regional and local distribution channels, making increasing use of e-commerce platforms for order processing. We also work with trading houses and local distributors who are responsible for business with small customers. Major customers with global operations are serviced directly by our key account managers.



3. Business Development by Subgroup, Segment and Region

3.1 HealthCare

Key Data – HealthCare [Table 3.4]

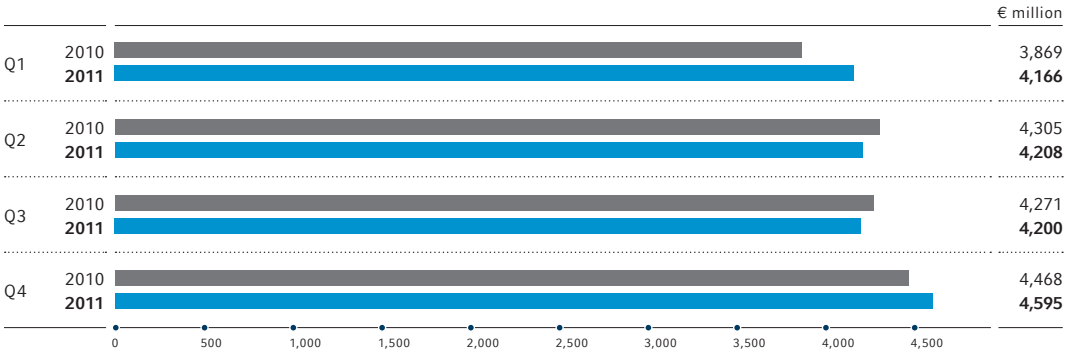
	2010	2011	Change	
	€ million	€ million	%	Fx (& p) adj. %
Sales	**16,913**	**17,169**	**+1.5**	**+2.4**
Change in sales				
Volume	+1.9%	+2.2%		
Price	−0.2%	+0.2%		
Currency	+4.7%	−1.2%		
Portfolio	−0.6%	+0.3%		
Sales by segment				
Pharmaceuticals	9,954	9,949	−0.1	+0.6
Consumer Health	6,959	7,220	+3.8	+5.1
Sales by region				
Europe	6,375	6,376	0.0	−0.1
North America	4,666	4,360	−6.6	−2.4
Asia/Pacific	3,269	3,656	+11.8	+9.4
Latin America/Africa/Middle East	2,603	2,777	+6.7	+10.1
EBIT	**1,861**	**3,191**	**+71.5**	
Special items	*(1,169)*	*(176)*		
EBIT before special items*	***3,030***	***3,367***	***+11.1***	
EBITDA*	**4,116**	**4,502**	**+9.4**	
Special items	*(289)*	*(200)*		
EBITDA before special items*	***4,405***	***4,702***	***+6.7***	
EBITDA margin before special items*	26.0%	27.4%		
Gross cash flow**	**2,948**	**3,254**	**+10.4**	
Net cash flow**	**3,320**	**3,357**	**+1.1**	

2010 figures restated
Fx (& p) adj. = currency- (and portfolio-)adjusted (Fx & p adj.: Sales and Sales by segment; Fx adj.: Sales by region)
* For definition see Chapter 4.2 "Calculation of EBIT(DA) Before Special Items."
** For definition see Chapter 4.5 "Liquidity and Capital Expenditures of the Bayer Group."

Sales of the **HealthCare** subgroup rose by 2.4% (Fx & portfolio adj.) in 2011, to €17,169 million (reported: +1.5%). The Pharmaceuticals business posted an encouraging performance in the emerging markets, while some declines were recorded in Europe and North America. The Consumer Health business developed positively in all regions.

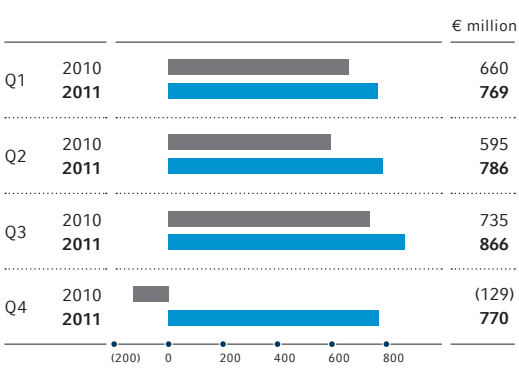
In the fourth quarter of 2011, the Diagnostic Imaging strategic business entity was transferred from the Specialty Medicine business unit (Pharmaceuticals segment) to the Medical Care Division (Consumer Health segment). The figures for 2011 and 2010 have been restated accordingly to enhance comparability.

HealthCare Quarterly Sales [Graphic 3.8]

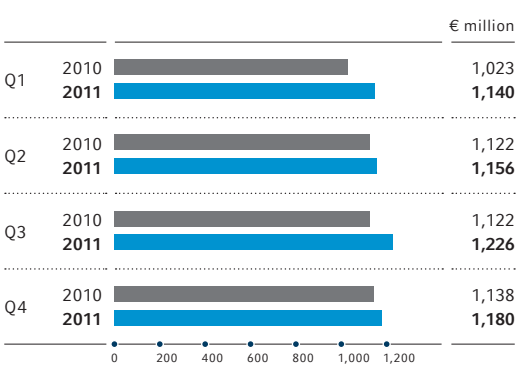


EBIT of the HealthCare subgroup advanced in 2011 by 71.5% to €3,191 million after special items of minus €176 million (2010: minus €1,169 million). EBIT before special items rose by 11.1% to €3,367 million. **EBITDA** before special items increased by 6.7% to €4,702 million, driven by the positive business development in Consumer Health and cost savings in Pharmaceuticals.

HealthCare Quarterly EBIT [Graphic 3.9]



HealthCare Quarterly EBITDA Before Special Items [Graphic 3.10]



Key Data – Pharmaceuticals [Table 3.5]

	2010	2011	Change	
	€ million	€ million	%	Fx (& p) adj. %
Sales	**9,954**	**9,949**	**–0.1**	**+0.6**
General Medicine	6,816	6,875	+0.9	+1.2
Specialty Medicine	3,138	3,074	–2.0	–0.8
Sales by region				
Europe	3,784	3,658	–3.3	–3.5
North America	2,382	2,048	–14.0	–10.5
Asia/Pacific	2,209	2,527	+14.4	+11.8
Latin America/Africa/Middle East	1,579	1,716	+8.7	+11.3
EBIT	**872**	**1,897**	**+117.5**	
Special items	*(1,028)*	*(145)*		
EBIT before special items*	***1,900***	***2,042***	***+7.5***	
EBITDA*	**2,565**	**2,795**	**+9.0**	
Special items	*(267)*	*(177)*		
EBITDA before special items*	***2,832***	***2,972***	***+4.9***	
EBITDA margin before special items*	28.5%	29.9%		
Gross cash flow**	**1,786**	**1,992**	**+11.5**	
Net cash flow**	**2,007**	**2,077**	**+3.5**	

2010 figures restated
Fx (& p) adj. = currency- (and portfolio-)adjusted (Fx & p adj.: Sales; Fx adj.: Sales by region)
* For definition see Chapter 4.2 "Calculation of EBIT(DA) Before Special Items."
** For definition see Chapter 4.5 "Liquidity and Capital Expenditures of the Bayer Group."

Sales of the **Pharmaceuticals** segment in 2011 came in at €9,949 million, up 0.6% from the prior year after adjustment for currency and portfolio effects. Increases were achieved mainly in the Asia/Pacific and Latin America regions. Business in China developed particularly well. Sales in North America and Western Europe declined because of health system reforms and generic competition.

Best-Selling Pharmaceutical Products [Table 3.6]

	2010	2011	Change	
	€ million	€ million	%	Fx adj. %
Betaferon™/Betaseron™ (Specialty Medicine)	1,206	1,117	–7.4	–5.4
Kogenate™ (Specialty Medicine)	1,004	1,075	+7.1	+8.3
YAZ™/Yasmin™/Yasminelle™ (General Medicine)	1,111	1,070	–3.7	–2.9
Nexavar™ (Specialty Medicine)	705	725	+2.8	+3.5
Adalat™ (General Medicine)	664	640	–3.6	–4.8
Mirena™ (General Medicine)	539	581	+7.8	+10.7
Avalox™/Avelox™ (General Medicine)	497	486	–2.2	–1.8
Aspirin™ Cardio (General Medicine)	358	404	+12.8	+12.6
Glucobay™ (General Medicine)	347	362	+4.3	+4.2
Levitra™ (General Medicine)	429	332	–22.6	–22.2
Cipro™/Ciprobay™ (General Medicine)	262	232	–11.5	–11.4
Diane™ (General Medicine)	171	182	+6.4	+7.0
Zetia™ (General Medicine)	138	179	+29.7	+23.5
Kinzal™/Pritor™ (General Medicine)	178	172	–3.4	–3.4
Fosrenol™ (General Medicine)	99	147	+48.5	+42.0
Total	**7,708**	**7,704**	**–0.1**	**+0.5**
Proportion of Pharmaceuticals sales	77%	77%		

2010 figures restated
Fx adj. = currency-adjusted

Sales in the **General Medicine** business unit climbed by 1.2% (Fx & portfolio adj.) to €6,875 million. Business with our hormone-releasing intrauterine device Mirena™ increased in all regions, especially in North America due to higher volumes in the United States. By expanding our marketing activities in China, we substantially increased sales of products such as Aspirin™ Cardio for prevention of myocardial infarction. Two products recently launched in Japan – Fosrenol™ to treat kidney disease and Zetia™ to reduce blood cholesterol – saw positive development. Sales of our oral diabetes medicine Glucobay™ rose, thanks to steady growth in China. In Europe and Japan, however, sales declined in the face of generic competition.

Sales of our erectile dysfunction treatment Levitra™ and our antibiotic Avalox™/Avelox™ were markedly lower due to the partial restructuring of our distribution activities for general medicine products in the United States. In addition, Levitra™ had benefited in the preceding year from a contract signed with a major customer. On the other hand, the decline for Avalox™/Avelox™ in the United States was largely offset by increases in the other regions, especially in China. Sales of our YAZ™/Yasmin™/Yasminelle™ oral contraceptives receded, mainly because of generic competition for YAZ™ in the United States. However, business with this product line developed positively in Asia/Pacific, particularly Japan, and in Latin America/Africa/Middle East. Generic competition, especially in Canada and Japan, hampered business with Adalat™, our product to treat high blood pressure and coronary heart disease, while sales rose in China. The drop in sales of the antibiotic Cipro™/Ciprobay™ in the United States was mainly due to the termination of a U.S. government contract in the previous year. We also registered lower sales in Japan and Europe due to generic competition.

Our innovative anticoagulant Xarelto™ registered sales of €86 million. Indication expansions toward the end of the year did not yet have a significant effect.

In the **Specialty Medicine** business unit, sales edged down by 0.8% on a currency- and portfolio-adjusted basis, to €3,074 million. Sales of our multiple sclerosis drug Betaferon™/Betaseron™ declined due to heightened competition and to price reductions occasioned by health system reforms, primarily in Europe.

Our blood-clotting factor Kogenate™ recorded higher sales in all regions, especially on account of volume growth in Europe. The cancer drug Nexavar™ developed positively, chiefly as a result of higher volumes in the Asia/Pacific region for the treatment of liver cancer, which more than offset lower sales in Europe.

EBIT of the **Pharmaceuticals** segment jumped by 117.5% in 2011 to €1,897 million after special items of minus €145 million (2010: minus €1,028 million). Special charges of €193 million attributable to restructuring were partially offset by income from the remeasurement of intangible assets and pensions. EBIT before special items rose by 7.5% to €2,042 million. **EBITDA** before special items increased by 4.9% to €2,972 million. Earnings growth was the result of lower costs and the slight increase in sales. Development expenses decreased following the successful completion of most Phase III studies for our anticoagulant Xarelto™. Our successful cost management kept other functional costs virtually steady. Higher expenses for marketing new products and developing the business in the emerging markets were nearly compensated by restructuring and cost-saving measures.

Key Data – Consumer Health [Table 3.7]

	2010	2011	Change	
	€ million	€ million	%	Fx (& p) adj. %
Sales	**6,959**	**7,220**	**+3.8**	**+5.1**
Consumer Care	3,371	3,534	+4.8	+7.1
Medical Care	2,468	2,500	+1.3	+2.4
Animal Health	1,120	1,186	+5.9	+5.1
Sales by region				
Europe	2,591	2,718	+4.9	+4.8
North America	2,284	2,312	+1.2	+6.0
Asia/Pacific	1,060	1,129	+6.5	+4.4
Latin America/Africa/Middle East	1,024	1,061	+3.6	+8.3
EBIT	**989**	**1,294**	**+30.8**	
Special items	*(141)*	*(31)*		
EBIT before special items*	***1,130***	***1,325***	***+17.3***	
EBITDA*	**1,551**	**1,707**	**+10.1**	
Special items	*(22)*	*(23)*		
EBITDA before special items*	***1,573***	***1,730***	***+10.0***	
EBITDA margin before special items*	22.6%	24.0%		
Gross cash flow**	**1,162**	**1,262**	**+8.6**	
Net cash flow**	**1,313**	**1,280**	**–2.5**	

2010 figures restated
Fx (& p) adj. = currency- (and portfolio-)adjusted (Fx & p adj.: Sales; Fx adj.: Sales by region)
* For definition see Chapter 4.2 "Calculation of EBIT(DA) Before Special Items."
** For definition see Chapter 4.5 "Liquidity and Capital Expenditures of the Bayer Group."

Sales of the **Consumer Health** segment in 2011 advanced by 5.1% (Fx & portfolio adj.) to €7,220 million, with all divisions and regions contributing to growth.

Best-Selling Consumer Health Products [Table 3.8]

	2010	2011	Change	
	€ million	€ million	%	Fx adj. %
Contour™ (Medical Care)	602	640	+6.3	+7.7
Aspirin™* (Consumer Care)	418	440	+5.3	+8.6
Advantage™ product line (Animal Health)	408	420	+2.9	+6.2
Ultravist™ (Medical Care)	313	316	+1.0	+2.0
Aleve™/naproxen (Consumer Care)	273	285	+4.4	+9.1
Bepanthen™/Bepanthol™ (Consumer Care)	212	235	+10.8	+10.6
Canesten™ (Consumer Care)	210	224	+6.7	+6.9
Magnevist™ (Medical Care)	215	187	–13.0	–11.8
Iopamiron™ (Medical Care)	185	185	0.0	–4.7
One A Day™ (Consumer Care)	178	174	–2.2	+2.3
Total	**3,014**	**3,106**	**+3.1**	**+4.8**
Proportion of Consumer Health sales	43%	43%		

2010 figures restated
Fx adj.= currency-adjusted
* Sales of Aspirin™ – including Aspirin™ Cardio, which is reflected in the sales of the Pharmaceuticals segment – increased by 8.8% (Fx adj. +10.4%) in 2011 to €844 million (2010: €776 million).

Sales in the **Consumer Care** Division advanced by 7.1% on a currency- and portfolio-adjusted basis, to €3,534 million. Business with our analgesics Aspirin™ and Aleve™/naproxen gained strongly, especially in the United States, benefiting from higher demand and the launch of the new, particularly fast-acting formulation Bayer™ Advanced Aspirin. Sales of our skincare product Bepanthen™/Bepanthol™ moved higher, largely as a result of a positive performance in Europe. Our antifungal Canesten™ also showed encouraging growth in all regions.

Sales of the **Medical Care** Division rose by a currency- and portfolio-adjusted 2.4% to €2,500 million. Our Diabetes Care business expanded, driven by the Contour™ line of blood glucose meters. Sales of these systems rose in all regions, especially Europe. Here we benefited from higher demand and new product introductions, particularly in Germany and the United Kingdom. Business with the X-ray contrast agent Ultravist™ developed favorably, especially in emerging markets such as China and Russia. Among our contrast agents for magnetic resonance imaging (MRI), sales of Magnevist™ receded, the decline in Europe being partly the result of the switch to Gadovist™.

Sales in our **Animal Health** Division rose by 5.1% on a currency- and portfolio-adjusted basis, to €1,186 million, with all regions contributing to growth. Business with our Advantage™ line of flea, tick and worm control products developed well in all regions, particularly Europe. Sales in the United States showed a further slight improvement following a strong year in 2010. Here we continued to benefit from the establishment of an additional distribution channel through pet-product retailers.

EBIT of the **Consumer Health** segment climbed in 2011 by 30.8% to €1,294 million after special items of minus €31 million that mainly comprised restructuring charges. EBIT before special items rose by 17.3% to €1,325 million. **EBITDA** before special items grew by 10.0% to €1,730 million. The distinct improvement in earnings was largely the result of the price- and volume-related sales growth. At the same time there was only a slight increase in the principal functional costs thanks to successful cost management.

3.2 CropScience

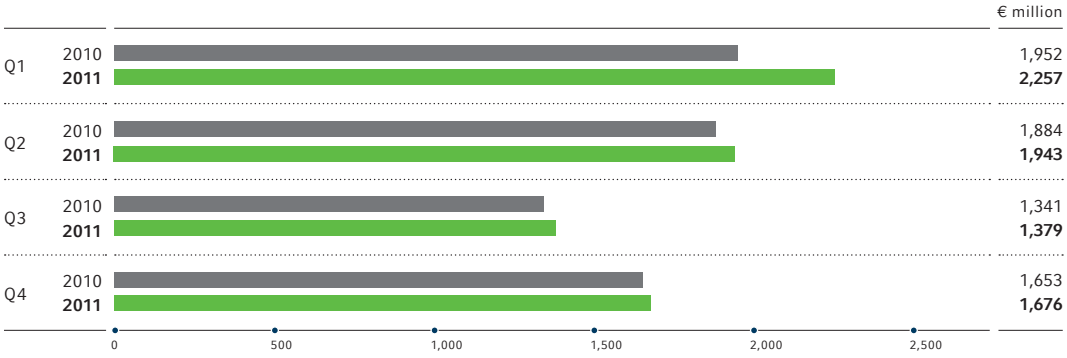
Key Data – CropScience [Table 3.9]

	2010	2011	Change	
	€ million	€ million	%	Fx (&p) adj. %
Sales	**6,830**	**7,255**	**+6.2**	**+8.9**
Change in sales				
Volume	−0.7%	+9.7%		
Price	−0.6%	−0.8%		
Currency	+6.0%	−2.3%		
Portfolio	+0.2%	−0.4%		
Sales by business group				
Crop Protection/BioScience	6,180	6,629	+7.3	+10.0
Environmental Science	650	626	−3.7	−1.5
Sales by region				
Europe	2,381	2,505	+5.2	+5.7
North America	1,535	1,703	+10.9	+14.3
Asia/Pacific	1,229	1,244	+1.2	+2.5
Latin America/Africa/Middle East	1,685	1,803	+7.0	+11.4
EBIT	**261**	**562**	**+115.3**	
Special items	*(526)*	*(606)*		
EBIT before special items*	***787***	***1,168***	***+48.4***	
EBITDA*	**767**	**1,215**	**+58.4**	
Special items	*(526)*	*(439)*		
EBITDA before special items*	***1,293***	***1,654***	***+27.9***	
EBITDA margin before special items*	19.0%	22.8%		
Gross cash flow**	**546**	**900**	**+64.8**	
Net cash flow**	**1,399**	**691**	**−50.6**	

2010 figures restated
Fx (& p) adj. = currency- (and portfolio-)adjusted (Fx& p adj.: Sales and Sales by business group; Fx adj.: Sales by region)
* For definition see Chapter 4.2 "Calculation of EBIT(DA) Before Special Items."
** For definition see Chapter 4.5 "Liquidity and Capital Expenditures of the Bayer Group."

Sales of **CropScience** increased by 8.9% (Fx & portfolio adj.) in 2011 to €7,255 million (reported: +6.2%). Growth was driven mainly by new products at Crop Protection and the positive trend at BioScience, while sales of Environmental Science moved slightly lower. Agricultural commodity prices remained at an attractive level, contributing to a favorable market environment.

CropScience Quarterly Sales [Graphic 3.11]



Sales of **Crop Protection/BioScience** climbed by 10.0% (Fx & portfolio adj.) in 2011, to €6,629 million. Crop Protection benefited from increased business with new fungicides, seed treatment products and herbicides. Sales of insecticides held steady year on year despite the cessation of marketing for older products, which diminished sales by about €100 million. BioScience continued the rapid expansion of its business, posting a high rate of growth.

Sales – Crop Protection/BioScience [Table 3.10]

	2010	2011	Change	
	€ million	€ million	%	Fx & p adj. %
Sales				
Herbicides	1,944	2,079	+6.9	+9.0
Fungicides	1,570	1,709	+8.9	+12.0
Insecticides	1,370	1,290	–5.8	0.0
Seed Treatment	609	731	+20.0	+23.6
Crop Protection	5,493	5,809	+5.8	+8.9
BioScience	687	820	+19.4	+19.1
Crop Protection/BioScience	**6,180**	**6,629**	**+7.3**	**+10.0**

Fx & p adj. = currency- and portfolio-adjusted

Sales of **Crop Protection** increased in all regions.

Sales in **Europe** rose by 6.9% (Fx adj.) to €2,159 million, mainly due to strong growth in Eastern Europe. Our herbicides posted particularly good gains in Western Europe, led by our wheat and corn herbicides in Germany. New products such as the Xpro™ family of fungicides, launched in 2011 in Germany and the United Kingdom, also contributed to the positive development. On the other hand, the prolonged drought in the spring held back sales, particularly in Italy and France. Throughout the Europe region, we registered strong growth in sales of our seed treatment products, especially the Poncho™ product family.

Sales in **North America** advanced by 13.3% (Fx adj.) to €1,036 million. This was mainly the result of business development in the United States, with sales also gaining in Canada. Sales of our fungicides rose sharply, due primarily to the successful commercialization of Stratego™ YLD in the United States to treat corn at an early stage of plant growth. Sales of seed treatment products benefited particularly from the expansion of business with Poncho™/Votivo™ in the United States, where it recently became available for use in soybeans and cotton. Corvus™ and Capreno™ for corn contributed substantially to the gain in sales of herbicides. Business with insecticides was impacted by the cessation of marketing for older products, especially Temik™.

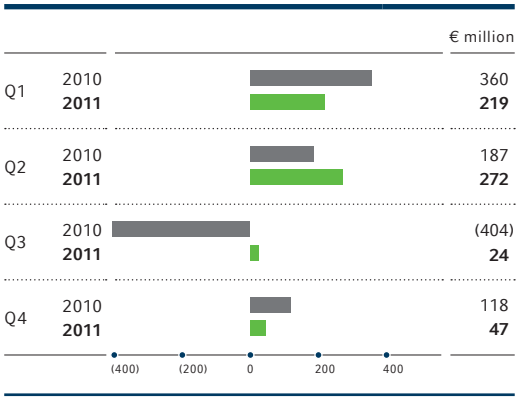
Sales in **Asia/Pacific** increased by 1.8% to €1,029 million, partly as a result of encouraging growth rates in Thailand, Vietnam and Indonesia, and partly due to a marked improvement in the fungicides business. Our Nativo™ product family posted good growth rates in nearly all Asian countries for use in rice and vegetables. Business with seed treatment products expanded steadily, while herbicide sales were down. Sales of insecticides were affected by the streamlining of our portfolio to eliminate older products. This led to a sharp drop in sales, particularly in India, China and Australia. Business in Japan stagnated, partly as a result of the natural disaster.

Sales in the **Latin America/Africa/Middle East** region moved ahead by 11.1% (Fx adj.) to €1,585 million. In Latin America sales developed well for all indications. Business with insecticides continued to expand thanks to the positive development for Belt™ in Brazil and recent product introductions in Argentina. Herbicide sales rose again, driven by good volume growth for cotton and corn herbicides in Brazil. Sales of seed treatment products improved compared with the weak prior year. In the fungicides business, growth was mainly driven by our new product Fox™ in Brazil. We registered moderate sales gains in the Middle East and Africa regions as a whole.

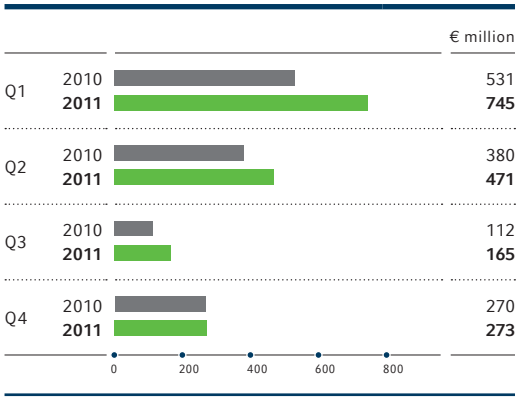
Sales in the **BioScience** business unit climbed by 19.1% (Fx & portfolio adj.) to €820 million, with all regions contributing to growth. We achieved double-digit sales advances in each of our core crops: oilseed rape/canola, cotton, rice and vegetables. The largest increase was for InVigor™ (canola seed) in Canada. Sales of FiberMax™ cotton seed moved ahead strongly, especially in Brazil. Our Arize™ rice seed was successful in Asia, while the Nunhems™ vegetable seed business posted significant growth in the United States, China and Brazil.

Sales in the **Environmental Science** business unit posted a slight 1.5% (Fx adj.) decline to €626 million. Growth in sales of our products for professional users in the United States only partially offset the sharp decline in the specialty active ingredients business in Germany. Sales of consumer products were level with the preceding year in a difficult economic environment.

CropScience
Quarterly EBIT [Graphic 3.12]



CropScience
Quarterly EBITDA Before Special Items [Graphic 3.13]



EBIT of **CropScience** climbed sharply from €261 million in 2010 to €562 million in 2011. The special charges of €606 million (2010: €526 million) mainly comprised provisions established in connection with litigations concerning genetically modified rice (LL RICE) in the United States and restructuring at Crop Protection. EBIT before special items advanced by 48.4% to €1,168 million, while **EBITDA** before special items increased by 27.9% to €1,654 million. Earnings growth was driven by the significant volume increases and the resulting marked improvement in capacity utilization. Our efficiency improvement measures also contributed to the rise in earnings, and successful cost management enabled us to hold the cost of goods sold and research and development expenses virtually steady. Selling expenses rose at a slower rate than sales. In addition, we incurred one-time gains of €38 million (2010: €58 million) on the divestiture of active ingredients at Crop Protection.

3.3 MaterialScience

Key Data – MaterialScience [Table 3.11]

	2010	2011	Change	
	€ million	€ million	%	Fx (& p) adj. %
Sales	**10,154**	**10,832**	**+6.7**	**+8.2**
Change in sales				
Volume	+23.8%	+1.0%		
Price	+6.3%	+7.2%		
Currency	+4.9%	−1.7%		
Portfolio	0.0%	+0.2%		
Sales by business unit				
Polyurethanes	5,024	5,435	+8.2	+9.5
Polycarbonates	2,791	2,893	+3.7	+5.6
Coatings, Adhesives, Specialties	1,791	1,845	+3.0	+4.5
Industrial Operations	548	659	+20.3	+21.9
Sales by region				
Europe	3,950	4,413	+11.7	+11.8
North America	2,022	2,109	+4.3	+9.6
Asia/Pacific	2,907	2,894	−0.4	+1.2
Latin America/Africa/Middle East	1,275	1,416	+11.1	+12.5
EBIT	**780**	**633**	**−18.8**	
Special items	-	*44*		
EBIT before special items*	***780***	***589***	***−24.5***	
EBITDA*	**1,356**	**1,215**	**−10.4**	
Special items	-	*44*		
EBITDA before special items*	***1,356***	***1,171***	***−13.6***	
EBITDA margin before special items*	13.4%	10.8%		
Gross cash flow**	**1,058**	**939**	**−11.2**	
Net cash flow**	**763**	**775**	**+1.6**	

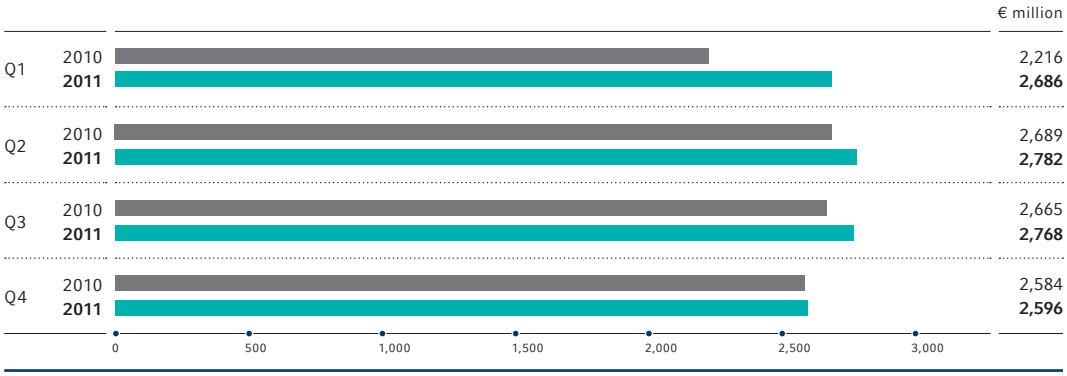
Fx (& p) adj. = currency- (and portfolio-)adjusted (Fx& p adj.: Sales and Sales by business unit; Fx adj.: Sales by region)

* For definition see Chapter 4.2 "Calculation of EBIT(DA) Before Special Items."

** For definition see Chapter 4.5 "Liquidity and Capital Expenditures of the Bayer Group."

Sales of the **MaterialScience** subgroup rose in 2011 by 8.2% (Fx & portfolio adj.) to €10,832 million (reported: +6.7%). This growth was driven by the selling price increases achieved in all business units and regions, particularly Europe. We also saw a moderate improvement in product sales volumes, with increases in Latin America/Africa/Middle East, Europe and North America offsetting declines in the Asia/Pacific region.

MaterialScience Quarterly Sales [Graphic 3.14]



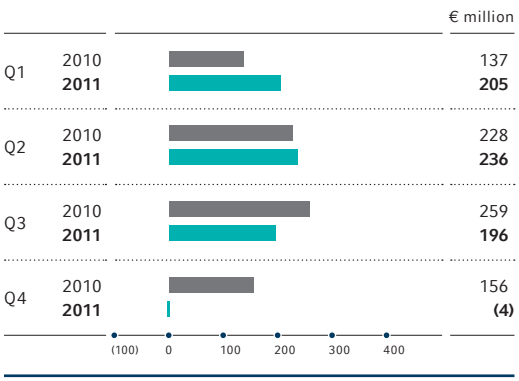
The **Polyurethanes** business unit raised sales by 9.5% (Fx & portfolio adj.) to €5,435 million. Significant sales gains for polyether (PET) and diphenylmethane diisocyanate (MDI) more than offset the year-on-year decline in sales of our toluene diisocyanate (TDI) product group. Volumes grew in the Latin America/Africa/Middle East, Europe and North America regions but were below the prior year in Asia/Pacific. MDI sales advanced in light of higher selling prices worldwide, while volumes were flat with the previous year. For PET we achieved significant price increases and a small rise in volumes. Although TDI sales were down overall due to lower prices, volumes were above the previous year.

The **Polycarbonates** business unit posted sales of €2,893 million, up 5.6% (Fx & portfolio adj.) year on year. This increase was mainly attributable to higher selling prices worldwide in our granules product group, where we also saw a small improvement in volumes. Sales of polycarbonate sheet/semi-finished products receded due to a drop in volumes, especially in Asia/Pacific and Latin America/Africa/Middle East, although we succeeded in slightly raising selling prices.

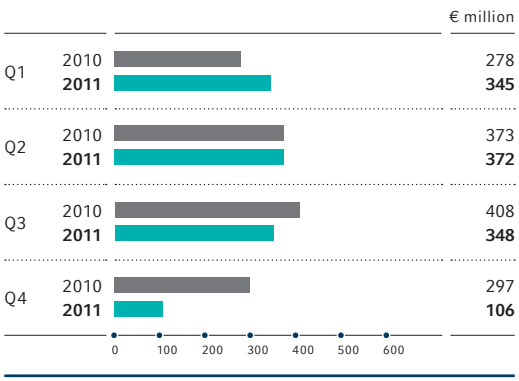
In the **Coatings, Adhesives, Specialties** business unit, sales moved forward by 4.5% (Fx & portfolio adj.) to €1,845 million, with all product groups contributing to the growth in business. We achieved selling price increases for basic and modified isocyanates and resins throughout the world. Higher volumes in North and Latin America did not fully offset the declines in the other regions. Business in the functional films product group benefited from overall increases in both selling prices and volumes.

Industrial Operations had sales of €659 million (Fx & portfolio adj. + 21.9%) thanks to strong gains in volumes and higher product prices at the global level.

MaterialScience
Quarterly EBIT [Graphic 3.15]



MaterialScience
Quarterly EBITDA Before Special Items [Graphic 3.16]



EBIT of **MaterialScience** receded by 18.8% in 2011 to €633 million. It included a special gain of €44 million (2010: €0 million) from the sale of the business with certain conventional coatings resins. EBIT before special items fell by 24.5% to €589 million. **EBITDA** before special items receded by 13.6% to €1,171 million. This decline resulted from higher raw material and energy costs, which were not entirely offset by selling price increases. Earnings were also diminished by higher operating costs, partly arising from the commissioning of our TDI facility in China. These cost increases were limited by savings from efficiency improvement measures. Slight volume increases contributed positively to earnings.

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3.4 Business Development by Region

Sales by Region and Segment (by Market) [Table 3.12]

	Europe				North America				Asia/Pacific				Latin America/Africa/Middle East				Total			
	2010	2011			2010	2011			2010	2011			2010	2011			2010	2011		
	€ million	€ million	% yoy	Fx adj. % yoy	€ million	€ million	% yoy	Fx adj. % yoy	€ million	€ million	% yoy	Fx adj. % yoy	€ million	€ million	% yoy	Fx adj. % yoy	€ million	€ million	% yoy	Fx adj. % yoy
HealthCare	**6,375**	**6,376**	**0.0**	**−0.1**	**4,666**	**4,360**	**−6.6**	**−2.4**	**3,269**	**3,656**	**+11.8**	**+9.4**	**2,603**	**2,777**	**+6.7**	**+10.1**	**16,913**	**17,169**	**+1.5**	**+2.7**
Pharmaceuticals	3,784	3,658	−3.3	−3.5	2,382	2,048	−14.0	−10.5	2,209	2,527	+14.4	+11.8	1,579	1,716	+8.7	+11.3	9,954	9,949	−0.1	+0.6
Consumer Health	2,591	2,718	+4.9	+4.8	2,284	2,312	+1.2	+6.0	1,060	1,129	+6.5	+4.4	1,024	1,061	+3.6	+8.3	6,959	7,220	+3.8	+5.7
CropScience	**2,381**	**2,505**	**+5.2**	**+5.7**	**1,535**	**1,703**	**+10.9**	**+14.3**	**1,229**	**1,244**	**+1.2**	**+2.5**	**1,685**	**1,803**	**+7.0**	**+11.4**	**6,830**	**7,255**	**+6.2**	**+8.5**
MaterialScience	**3,950**	**4,413**	**+11.7**	**+11.8**	**2,022**	**2,109**	**+4.3**	**+9.6**	**2,907**	**2,894**	**−0.4**	**+1.2**	**1,275**	**1,416**	**+11.1**	**+12.5**	**10,154**	**10,832**	**+6.7**	**+8.4**
Group (incl. reconciliation)	**13,751**	**14,441**	**+5.0**	**+5.0**	**8,228**	**8,177**	**−0.6**	**+3.6**	**7,481**	**7,842**	**+4.8**	**+4.6**	**5,628**	**6,068**	**+7.8**	**+11.1**	**35,088**	**36,528**	**+4.1**	**+5.6**

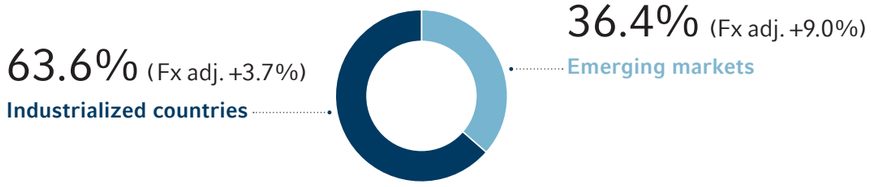
2010 figures restated
yoy = year on year; Fx. adj. = currency-adjusted

3.5 Business Development in the Emerging Markets

The emerging markets contributed significantly to sales growth in 2011. For reporting purposes we have defined these markets as Asia (excluding Japan), Latin America, Eastern Europe, Africa and the Middle East.

Sales in these emerging markets rose by 9.0% (Fx adj.) in 2011 to €13,290 million (2010: €12,493 million), with all regions contributing to the increase. The emerging markets accounted for 36.4% of sales (2010: 35.6%).

Percentage Sales Breakdown by Industrialized Countries and Emerging Markets 2011
(currency-adjusted changes in parentheses) [Graphic 3.17]



HEALTHCARE

In the emerging markets, HealthCare raised sales by 10.1% (Fx adj.) in 2011 to €5,510 million (2010: €5,110 million), recording its strongest gain in China. The 19.2% (Fx adj.) increase in China was achieved by stepping up our marketing activities, especially the expansion of our distribution network, in line with our growth strategy. Business in the Latin America region also developed well, with particularly good growth in Brazil, Mexico, Venezuela and Argentina, especially for our pharmaceutical products. Sales also gained significantly in Russia. The emerging markets accounted for 32.1% (2010: 30.2%) of total HealthCare sales.

CROPSCIENCE

CropScience improved sales in the emerging markets by 11.0% (Fx adj.) in 2011 to €3,095 million (2010: €2,897 million), posting particularly strong growth in Eastern Europe. We also registered good growth rates in Latin America, especially Brazil and Argentina. In Asia and in the Africa and Middle East region we raised currency- and portfolio-adjusted sales by a mid-single-digit percentage. The emerging markets accounted for 42.7% (2010: 42.4%) of total CropScience sales.

MATERIALSCIENCE

At MaterialScience, sales in the emerging markets advanced by 7.0% (Fx adj.) in 2011 to €4,574 million (2010: €4,353 million).

We achieved the largest sales gains in Eastern Europe, especially in the Czech Republic, Poland and Russia. MaterialScience also saw pleasing rates of growth in the Latin America and Africa/Middle East regions, particularly Mexico, Brazil and Turkey. Sales development in the emerging markets of Asia/Pacific varied by country. Business was down in China, partly due to a decline in demand from the second quarter onward and to customers' inventory optimization measures at year end. We nevertheless remain convinced of the long-term growth prospects for the Chinese market. Overall sales development in the other Asian countries was positive, with the strongest growth registered in India, Malaysia, Indonesia and Thailand.

The emerging markets accounted for 42.2% (2010: 42.9%) of total sales at MaterialScience.

4. Earnings; Asset and Financial Position of the Bayer Group

4.1 Earnings Performance of the Bayer Group

Bayer Group Summary Income Statement [Table 3.13]

	2010	2011	Change
	€ million	€ million	%
Net sales	**35,088**	**36,528**	**+4.1**
Cost of goods sold	17,103	17,975	+5.1
Selling expenses	8,803	8,958	+1.8
Research and development expenses	3,053	2,932	−4.0
General administration expenses	1,647	1,713	+4.0
Other operating expenses	(1,752)	(801)	+54.3
Operating result [EBIT]	**2,730**	**4,149**	**+52.0**
Non-operating result	**(1,009)**	**(786)**	**+22.1**
Income before income taxes	**1,721**	**3,363**	**+95.4**
Income taxes	(411)	(891)	−116.8
Income after taxes	**1,310**	**2,472**	**+88.7**
of which attributable to non-controlling interest	9	2	−77.8
of which attributable to Bayer AG stockholders (net income)	**1,301**	**2,470**	**+89.9**

Sales of the Bayer Group grew by 4.1% year on year to €36,528 million, mainly because of the increases at CropScience and MaterialScience. Adjusted for currency and portfolio effects, sales rose by 5.5%.

The cost of goods sold rose by 5.1% to €17,975 million. This was largely due to the increase at MaterialScience, which was driven by higher raw material and energy prices. The ratio of the cost of goods sold to total sales was 49.2% (2010: 48.7%). Selling expenses edged forward by 1.8% to €8,958 million, and were thus equivalent to 24.5% (2010: 25.1%) of sales. Research and development expenses fell by 4.0% in 2011 to €2,932 million. The ratio of R&D expenses to sales was 8.0% (2010: 8.7%). General administration expenses were 4.0% higher at €1,713 million. The ratio of general administration expenses to total sales was thus 4.7% (2010: 4.7%). The negative balance of other operating income and expenses, at €801 million, resulted mainly from special charges related to restructuring measures and litigations (see also Chapter 4.2 "Calculation of EBIT(DA) Before Special Items").

EBIT advanced by 52.0% in 2011 to €4,149 million, mainly because special charges were lower than in the prior year.

The non-operating result improved by €223 million to minus €786 million. It included interest cost of €336 million (2010: €372 million) for pension and other provisions, lower net interest expense of €335 million (2010: €499 million), a net exchange loss of €53 million (2010: €70 million) and a net loss of €45 million (2010: €59 million) from investments in affiliated companies. The improvement in the net interest position was mainly due to the reduction in financial debt and to tax-related interest effects. The decrease in interest expense for pension and other provisions resulted partly from the effect of lower interest rates on the interest cost for defined benefit plans, which is reported net of the expected return on plan assets.

Tax expense in 2011 amounted to €891 million. Income after taxes came in at €2,472 million. Income attributable to non-controlling interest amounted to €2 million. Bayer Group net income for 2011 was €2,470 million.

4.2 Calculation of EBIT(DA) Before Special Items

Key performance indicators for the Bayer Group are EBIT before special items and EBITDA before special items. These indicators are reported in order to allow a more accurate assessment of business operations. The special items – comprising effects that are non-recurring or do not regularly recur or attain similar magnitudes – are detailed in the following table. "EBITDA," "EBITDA before special items" and "EBIT before special items" are not defined in the International Financial Reporting Standards and should therefore be regarded only as supplementary information. The company considers EBITDA before special items to be a more suitable indicator of operating performance since it is not affected by depreciation, amortization, impairments or special items. By reporting this indicator, the company aims to give readers a clearer picture of the results of operations and ensure greater comparability of data over time. 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.

Depreciation, amortization and impairments fell by 22.1% in 2011 to €2,769 million (2010: €3,556 million), comprising €1,425 million (2010: €2,308 million) in amortization and impairments of intangible assets and €1,344 million (2010: €1,248 million) in depreciation and impairments of property, plant and equipment. Included here were net impairment losses of €248 million (2010: €985 million) after impairment loss reversals of €37 million (2010: €4 million). Of the impairment losses, €67 million (2010: €78 million) did not constitute special items.

Special Items Reconciliation*

[Table 3.14]

	EBIT** 2010	EBIT** 2011	EBITDA*** 2010	EBITDA*** 2011
	€ million	€ million	€ million	€ million
After special items	**2,730**	**4,149**	**6,286**	**6,918**
HealthCare	**1,169**	**176**	**289**	**200**
Impairment losses and write-downs	930	-	56	-
Restructuring	62	230	56	219
Litigations	177	-	177	-
Remeasurement of pension provisions	-	(19)	-	(19)
Impairment loss reversals	-	(35)	-	-
CropScience	**526**	**606**	**526**	**439**
Restructuring	-	441	-	274
Litigations	526	229	526	229
Remeasurement of pension provisions	-	(14)	-	(14)
Portfolio changes	-	(50)	-	(50)
MaterialScience	**-**	**(44)**	**-**	**(44)**
Portfolio changes	-	(44)	-	(44)
Reconciliation	**27**	**138**	**-**	**100**
Impairment losses and write-downs	27	38	-	-
Restructuring	-	70	-	70
Litigations	-	31	-	31
Remeasurement of pension provisions	-	(2)	-	(2)
Portfolio changes	-	1	-	1
Total special items	**1,722**	**876**	**815**	**695**
Before special items	**4,452**	**5,025**	**7,101**	**7,613**

* Special gains are shown as negative amounts.
** EBIT = operating result as per income statements
*** EBITDA = EBIT plus amortization and impairment losses on intangible assets and depreciation and impairment losses on property, plant and equipment, minus impairment loss reversals

4.3 Core Earnings Per Share

Earnings per share according to IFRS are affected by the purchase price allocation for acquisitions and other special factors. To enhance comparability, we also determine core net income after eliminating amortization and impairments of intangible assets, impairments of property, plant and equipment, and special items in EBITDA including the related tax effects.

From this core net income we calculate core earnings per share in the same way as earnings per share. Core earnings per share form the basis for our dividend policy. Core earnings per share in 2011 amounted to €4.83 (2010: €4.19).

Core Earnings per Share [Table 3.15]

	2010	2011
	€ million	€ million
EBIT (as per income statements)	**2,730**	**4,149**
Amortization and impairment losses on intangible assets	2,308	1,425
Impairment losses on property, plant and equipment	53	134
Special items (other than amortization and impairments)	815	695
Core EBIT	**5,906**	**6,403**
Non-operating result (as per income statements)	(1,009)	(786)
Income taxes (as per income statements)	(411)	(891)
Tax effects related to amortization, impairments and special items	(1,012)	(727)
Income after taxes attributable to non-controlling interest (as per income statements)	(9)	(2)
Core net income	**3,465**	**3,997**
	Shares	Shares
Weighted average number of issued ordinary shares	**826,947,808**	**826,947,808**
Core earnings per share (€)	**4.19**	**4.83**

The calculation of earnings per share in accordance with IFRS is explained in Note [16] to the consolidated financial statements. Core net income, core earnings per share and core EBIT are not defined in IFRS.

4.4 Value Management

CASH VALUE ADDED-BASED SYSTEM

One of the prime objectives of the Bayer Group is to sustainably increase enterprise value. We use a Group-wide value management system to plan, control and monitor our businesses. An important value-based indicator is the cash value added (CVA), which shows the degree to which the cash flows needed to cover the costs of equity and debt and of reproducing depletable assets have been generated. If the CVA is positive, the respective company or business entity has exceeded the minimum requirements. If it is negative, the anticipated capital and asset reproduction costs have not been earned. The CVA is an indicator for a single reporting period. For a year-on-year comparison we therefore use our second central steering parameter for value management, the delta CVA, which is the difference between the CVAs of two consecutive periods. A positive delta CVA denotes an increase in the company's value.

The value-based indicators aid management's decision-making, especially regarding strategic portfolio optimization and the allocation of resources for acquisitions and capital expenditures. The focus at the operational level is on the key drivers of enterprise value: growth (sales), cost efficiency (EBITDA) and capital efficiency (working capital, capital expenditures), since these directly affect value creation.

CALCULATING THE COST OF CAPITAL

Bayer calculates the cost of capital according to the debt/equity ratio at the beginning of the year using the weighted average cost of capital (WACC) formula. The cost of equity capital is the return expected by stockholders, computed from capital market information. The cost of debt used in calculating WACC is based on the terms for ten-year Eurobonds issued by industrial companies with an "A-"rating.

To take into account the different risk and return profiles of our principal businesses, we calculate individual capital cost factors after income taxes for each of our subgroups. In 2011 these were unchanged from 2010 at 8.1% for HealthCare, 7.5% for CropScience and 7.1% for MaterialScience. The minimum return required for the Group in 2011, as in 2010, was 7.8%.

Weighted average cost of capital for the Bayer Group
7.8%

GROSS CASH FLOW, CASH VALUE ADDED AND CASH FLOW RETURN ON INVESTMENT AS PERFORMANCE YARDSTICKS

The gross cash flow as published in our statement of cash flows is the measure of our internal financing capability. Bayer has chosen this parameter because it is relatively free of accounting influences and is therefore a more meaningful performance indicator.

Taking into account the costs of capital and of reproducing depletable assets, we determine the gross cash flow hurdle. If the gross cash flow hurdle is equaled or exceeded, the CVA is positive and thus the required return on equity and debt plus the cost of asset reproduction has been earned.

The profitability of the Group and of its individual business entities is measured by the cash flow return on investment (CFROI). This is the ratio of the gross cash flow to the capital invested, which is derived from the statement of financial position and basically comprises the property, plant and equipment and intangible assets required for operations – stated at cost of acquisition or construction – plus working capital, less interest-free liabilities (such as current provisions). To reduce fluctuations in the capital invested, the CFROI is computed on the basis of the average figure for the respective year.

The CFROI hurdle for 2011 was 10.0% (2010: 10.0%), while the corresponding gross cash flow hurdle was €4,339 million (2010: 4,384 million).

Actual gross cash flow came in at €5,172 million, exceeding the hurdle by 19.2%. Thus in 2011 we earned our entire capital and asset reproduction costs, and the positive CVA of €833 million shows that Bayer exceeded the minimum return and reproduction requirements and earned a premium on the capital invested. Since the CVA in 2010 was €387 million, the Bayer Group therefore posted a positive delta CVA of €446 million in 2011, showing that it created considerably more value than in the previous year. The CFROI for 2011 amounted to 11.9% (2010: 10.9%).

Positive delta CVA
=
value created

HealthCare and CropScience exceeded their target returns including asset reproduction, while MaterialScience was €94 million below the gross cash flow hurdle. The CFROI for HealthCare was 14.3% (2010: 12.8%). CropScience achieved a CFROI of 10.3% (2010: 5.9%). MaterialScience was below the prior year with a CFROI of 9.2% (2010: 11.0%).

Value Management Indicators by Subgroup [Table 3.16]

	HealthCare		CropScience		MaterialScience		Bayer Group	
	2010	2011	2010	2011	2010	2011	2010	2011
	€ million	€ million	€ million	€ million	€ million	€ million	€ million	€ million
Gross cash flow* (GCF)	2,948	3,254	546	900	1,058	939	4,771	5,172
Gross cash flow hurdle (GCF hurdle)	2,291	2,205	881	857	973	1,033	4,384	4,339
Cash value added (CVA)	657	1,049	(335)	43	85	(94)	387	833
Delta cash value added (delta CVA)	(238)	392	(556)	378	726	(179)	9	446
Cash flow return on investment (CFROI)	12.8%	14.3%	5.9%	10.3%	11.0%	9.2%	10.9%	11.9%
CFROI hurdle	9.9%	9.7%	9.4%	9.5%	10.6%	10.4%	10.0%	10.0%
Average capital invested	23,022	22,757	9,189	8,772	9,589	10,157	43,622	43,348

* For definition see Chapter 4.5 "Liquidity and Capital Expenditures of the Bayer Group."

4.5 Liquidity and Capital Expenditures of the Bayer Group

Bayer Group Summary Statements of Cash Flows [Table 3.17]

	2010	2011
	€ million	€ million
Gross cash flow*	**4,771**	**5,172**
Changes in working capital/other non-cash items	1,002	(112)
Net cash provided by (used in) operating activities (net cash flow)	**5,773**	**5,060**
Net cash provided by (used in) investing activities	**(2,414)**	**(3,890)**
Net cash provided by (used in) financing activities	**(3,230)**	**(2,213)**
Change in cash and cash equivalents due to business activities	**129**	**(1,043)**
Cash and cash equivalents at beginning of period	**2,725**	**2,840**
Change due to exchange rate movements and to changes in scope of consolidation	(14)	(27)
Cash and cash equivalents at end of period	**2,840**	**1,770**

* Gross cash flow = income after taxes, plus income taxes, plus non-operating result, minus income taxes paid or accrued, plus depreciation, amortization and impairment losses, minus impairment loss reversals, plus/minus changes in pension provisions, minus gains/plus losses on retirements of noncurrent assets, minus gains from the remeasurement of already held assets in step acquisitions. The change in pension provisions includes the elimination of non-cash components of the operating result (EBIT). It also contains benefit payments during the year.

OPERATING CASH FLOW

Gross cash flow rose by 8.4% in 2011 to €5,172 million, with HealthCare and CropScience posting earnings-related improvements and MaterialScience a considerable earnings-related decline. Cash tied up in trade working capital, which was significantly reduced in the previous year, increased in 2011 due to the growth in business. In the preceding year, the change in other working capital contained additions to the provisions for the LL RICE litigation; in 2011 it was reduced by corresponding payments. Net cash flow of the Group receded by 12.4% to €5,060 million. Net cash flow reflected income tax payments of €932 million (2010: €838 million).

INVESTING CASH FLOW

Net cash outflow for investing activities in 2011 totaled €3,890 million. Cash outflows for property, plant and equipment and intangible assets were 6.7% higher at €1,615 million. Of this amount, HealthCare accounted for €608 million (2010: €573 million), CropScience for €280 million (2010: €302 million) and MaterialScience for €565 million (2010: €498 million). These outflows included expenditures for the expansion of our MaterialScience site in Shanghai, China, as well as expenses related to a licensing agreement in the HealthCare subgroup. The €261 million (2010: €31 million) in disbursements for acquisitions

related mainly to the purchase of the animal health company Bomac, New Zealand; Hornbeck Seed Company, Inc., United States; and Pathway Medical Technologies, Inc., United States. Among the cash inflows in 2011 were €173 million (2010: €101 million) from divestitures and €75 million (2010: €53 million) in interest and dividends received. Cash outflows for noncurrent and current financial assets rose to €2,537 million (2010: €1,084 million), with bank deposits accounting for the greater part of the increase.

The principal strategically relevant capital expenditures for property, plant and equipment in the operating segments of the Bayer Group in 2011 and 2010 are listed in the following table:

Capital Expenditures for Property, Plant and Equipment [Table 3.18]

Segment	Description
CAPITAL EXPENDITURES 2011	
Pharmaceuticals	Installation of a pilot facility for the production of biomolecules for clinical trials in Wuppertal, Germany
	Installation of packaging capacities for the YAZ™ product family in Berlin, Germany
	Production facilities for the formulation and packaging of hormonal solids in Weimar, Germany
	Capacity expansion for contrast agents in Bergkamen, Germany
	Expansion of production capacities for new Kogenate™ formulations in Berkeley, California, U.S.A.
Consumer Health	Expansion of production and packaging capacities for effervescents in Cimanggis, Jakarta, Indonesia
CropScience	Capacity expansions and process modifications for the production of fungicides in Dormagen, Germany, and Muttenz, Switzerland
	Extension of research facilities in Haelen, Netherlands
	Construction of a greenhouse in Research Triangle Park, North Carolina, U.S.A.
MaterialScience	Completion of a "world-scale" TDI production complex in Shanghai, China
	Commissioning of an NaCl electrolyzer with an oxygen-depolarized cathode for demonstration purposes in Krefeld, Germany
	Conversion of NaCl electrolysis to the membrane process in Krefeld, Germany
CAPITAL EXPENDITURES 2010	
Pharmaceuticals	Expansion of production capacities for new Kogenate™ formulations in Berkeley, California, U.S.A.
	Installation of packaging capacities for the YAZ™ product family in Berlin, Germany
	Capacity expansion for contrast agents in Bergkamen, Germany
Consumer Health	Expansion of production and packaging capacities for vitamin tablets, in Myerstown, Pennsylvania, U.S.A.
CropScience	Expansion of production capacity for fungicides in Kansas City, Missouri, U.S.A., and Dormagen, Germany
	Capacity expansion for insecticidal active ingredients in Dormagen, Germany
	Extension of research facilities in Haelen, Netherlands
	Extension to a research laboratory in Ghent, Belgium
	Capacity expansion for the production of vegetable seeds in Parma, Idaho, U.S.A.
MaterialScience	Construction of a "world-scale" TDI production complex in Shanghai, China
	MakroColor production plant in Noida, India
	Construction of a polyurethanes systems house in Moscow, Russia
	Installation of an NaCl electrolyzer with an oxygen-depolarized cathode for demonstration purposes in Krefeld, Germany

FINANCING CASH FLOW

Net cash outflow for financing activities in 2011 amounted to €2,213 million, including net loan repayments of €397 million (2010: €1,544 million). Net interest payments were 10.3% higher at €570 million (2010: €517 million). There was a €1,242 million outflow for "dividend payments and withholding tax on dividends" (2010: €1,160 million).

LIQUID ASSETS AND NET FINANCIAL DEBT

Net Financial Debt [Table 3.19]

	Dec. 31, 2010	Dec. 31, 2011
	€ million	€ million
Bonds and notes/promissory notes	8,209	7,710
of which hybrid bond	1,303	1,344
Liabilities to banks	2,271	2,657
Liabilities under finance leases	562	554
Liabilities from derivatives	529	513
Other financial liabilities	196	228
Positive fair values of hedges of recorded transactions	(331)	(395)
Financial debt	**11,436**	**11,267**
Cash and cash equivalents	(2,840)	(1,770)
Current financial assets	(679)	(2,484)
Net financial debt	**7,917**	**7,013**

Net financial debt of the Bayer Group declined substantially in 2011, from €7.9 billion to €7.0 billion (-11.4%), with the increase in cash inflows from operating activities partially offset by negative currency effects of €0.2 billion. As of December 31, 2011 the Group had cash and cash equivalents of €1.8 billion (2010: €2.8 billion). Financial liabilities amounted to €11.3 billion (2010: €11.4 billion), including the €1.3 billion subordinated hybrid bond issued in July 2005. Net financial debt should be viewed against the fact that Moody's and Standard & Poor's treat 75% and 50%, respectively, of the hybrid bond as equity. Unlike conventional borrowings, the hybrid bond thus only has a limited effect on the Group's rating-specific debt indicators. Our noncurrent financial liabilities declined in 2011 from €9.9 billion to €8.0 billion, while current financial liabilities rose from €1.9 billion to €3.7 billion.

4.6 Asset and Capital Structure of the Bayer Group

Bayer Group Summary Statements of Financial Position [Table 3.20]

	Dec. 31, 2010	Dec. 31, 2011	Change
	€ million	€ million	%
Noncurrent assets	**33,188**	**32,697**	**–1.5**
Current assets	**18,318**	**19,984**	**+9.1**
Assets held for sale	-	84	-
Total current assets	**18,318**	**20,068**	**+9.6**
Total assets	**51,506**	**52,765**	**+2.4**
Equity	**18,896**	**19,271**	**+2.0**
Noncurrent liabilities	**21,775**	**20,104**	**–7.7**
Current liabilities	**10,835**	**13,387**	**+23.6**
Provisions directly related to assets held for sale	-	3	-
Total current liabilities	**10,835**	**13,390**	**+23.6**
Liabilities	**32,610**	**33,494**	**+2.7**
Total equity and liabilities	**51,506**	**52,765**	**+2.4**

Total assets increased in 2011 by 2.4% to €52.8 billion. Noncurrent assets declined by €0.5 billion to €32.7 billion, mainly due to amortization and impairments of intangible assets. Noncurrent assets included goodwill of €9.2 billion (2010: €9.0 billion), the increase being mainly due to acquisitions and shifts in exchange rates. Current assets rose by €1.8 billion compared with the previous year, to €20.1 billion.

Equity increased by €0.4 billion to €19.3 billion, bolstered by the €2.5 billion net income. The €1.2 billion dividend payment made in 2011 and the €0.8 billion increase in post-employment benefit obligations – recognized outside profit or loss – had the opposite effect. Our equity ratio (equity coverage of total assets) was 36.5% as of December 31, 2011 (2010: 36.7%).

Liabilities increased by €0.9 billion compared with December 31, 2010, to €33.5 billion, largely because of the increase in the net amount recognized for post-employment benefits and the allocations to provisions for restructuring. The maturity of several bonds in 2012 led to an increase in current financial liabilities and a decline in noncurrent financial liabilities. Total financial liabilities declined by €0.2 billion to €11.7 billion.

Net Amount Recognized [Table 3.21]

	Dec. 31, 2010	Dec. 31, 2011
	€ million	€ million
Provisions for pensions and other post-employment benefits	7,305	7,870
Benefit plan assets in excess of obligation	(76)	(72)
Net amount recognized	**7,229**	**7,798**

The net amount recognized for post-employment benefits increased from €7.2 billion to €7.8 billion in 2011, due especially to lower long-term capital market interest rates.

Ratios [Table 3.22]

		2010	2011
Cost of sales ratio (%)	Cost of goods sold / Sales	48.7	49.2
R&D expense ratio (%)	Research and development expenses / Sales	8.7	8.0
Return on sales in (%)	Income after taxes / Sales	3.7	6.8
EBIT margin (%)	EBIT / Sales	7.8	11.4
EBITDA margin before special items (%)	EBITDA before special items / Sales	20.2	20.8
Asset intensity (%)	Property, plant and equipment + intangible assets / Total assets	58.2	55.5
D&A/capex ratio (%)	Depreciation and amortization* / Capital expenditures*	156.8	151.3
Liability structure (%)	Current liabilities / Liabilities	33.2	40.0
Gearing	Net debt + pension provisions / Equity	0.8	0.8
Free operating cash flow (€ million)	Net operating cash flow less cash outflows for property, plant and equipment and intangible assets	4,259	3,445
Inventory turnover	Cost of goods sold / Inventories	2.8	2.8
Receivables turnover	Sales / Trade accounts receivable	5.3	5.2
Payables turnover	Cost of goods sold / Trade accounts payable	4.9	4.8
Equity ratio (%)	Equity / Total assets	36.7	36.5
Return on equity (%)	Income after taxes / Average equity	6.9	13.0
Return on assets (%)	Income before taxes and interest expense / Average total assets for the year	5.1	8.2

* property, plant and equipment + intangible assets

5. Earnings; Asset and Financial Position of Bayer AG

Bayer AG is the parent corporation of the Bayer Group and functions as a management holding company. The principal management functions for the entire Group are performed by the Board of Management of Bayer AG. These include strategic planning, resource allocation, executive management and financial management. The performance of Bayer AG is largely determined by the business performance of the Bayer Group.

The financial statements of Bayer AG were prepared in accordance with the German Commercial Code (HGB) and Stock Corporation Act (AktG).

5.1 Earnings Performance of Bayer AG

Bayer AG Summary Income Statements according to the German Commercial Code [Table 3.23]

	2010	2011
	€ million	€ million
Income from investments in affiliated companies – net	2,045	2,138
Interest expense – net	(516)	(589)
Other non-operating income – net	128	116
Other operating income	165	101
General administration expenses	200	195
Other operating expenses	173	111
Income before income taxes	**1,449**	**1,460**
Income taxes	(204)	(335)
Net income	**1,245**	**1,125**
(Allocation to) Withdrawal from retained earnings	(5)	239
Distributable profit	**1,240**	**1,364**

The earnings performance of Bayer AG essentially depends on the earnings of its subsidiaries and on the income and expenses relating to corporate financing activities.

In fiscal 2011, income from investments in affiliated companies was €2,138 million (2010: €2,045 million). Bayer Pharma AG, with income of €1,170 million (2010: €1,163 million), once again accounted for the largest share. A €268 million charge to the operating result due to the transfer of pension obligations to a subsidiary was partially offset by a €98 million reversal of an impairment loss recognized on an investment in an affiliate in 2010. Moreover, an amount of €106 million recognized outside profit or loss in retained earnings when the provisions of the German Accounting Law Modernization Act (BilMoG) were first applied in 2009 was derecognized and transferred to Bayer AG. The income from Bayer CropScience was also virtually flat with the previous year at €551 million (2010: €569 million). A decrease of €431 million in income from investments in affiliated companies was largely offset by the sharp rise of €187 million in the operating result and a decline of €124 million in impairments of investments in affiliated companies. A further €50 million increase resulted from the reversal of the allocation made to retained earnings upon the first-time application of BilMoG. Income transferred from Bayer MaterialScience AG increased by €65 million to €95 million, including a €32 million reversal of the allocation made to retained earnings upon the first-time application of BilMoG. Further significant earnings components were €202 million (2010: €266 million) from Bayer Gesellschaft für Beteiligungen mbH, our holding company for foreign subsidiaries; and €185 million (2010: €177 million) from Bayer Animal Health GmbH. On the other hand, a loss of €157 million (2010: €135 million) was transferred from Bayer HealthCare AG, the holding company for the global HealthCare business.

Net interest expense was €589 million (2010: €516 million), exceeding the prior-year figure by €73 million. This was due to intra-Group financial transactions, for which net interest expense of €231 million was recorded (2010: €134 million), the increase being mainly due to higher interest rates. Net interest expense attributable to transactions with third parties decreased from €382 million to €358 million, partly because of the reduction in external financial debt.

Other non-operating income and expenses yielded a positive balance of €116 million (2010: €128 million). This mainly comprised income of €121 million (2010: €144 million) from the subgroups and service companies to cover pension expenses for retirees remaining with Bayer AG following the hive-down of the operating business. This item also contains a net exchange loss from the translation of foreign currency receivables and payables and currency derivatives, which was reduced from €15 million to €4 million.

The balance of miscellaneous operating income and expenses relating to Bayer AG's performance of its functions as a holding company was minus €10 million (2010: minus €8 million), while general administration expenses amounted to €195 million (2010: €200 million).

Pre-tax income rose by €11 million to €1,460 million. Tax expense showed a much larger increase, from €204 million to €335 million, mainly because most taxable income had to be fully taxed once the loss carryforwards remaining at the start of the year had been used. After deduction of taxes, net income came in at €1,125 million (2010: €1,245 million). The addition of a €239 million withdrawal from retained earnings gave a distributable profit of €1,364 million.

The Board of Management and Supervisory Board will propose to the Annual Stockholders' Meeting on April 27, 2012 that the distributable profit be used to pay a dividend of €1.65 per share (826,947,808 shares) on the capital stock of €2,117 million entitled to the dividend for 2011.

5.2 Asset and Financial Position of Bayer AG

Bayer AG Summary Statements of Financial Position according to the German Commercial Code [Table 3.24]

	Dec. 31, 2010	Dec. 31, 2011
	€ million	€ million
ASSETS		
Noncurrent assets		
Intangible assets, property, plant and equipment	347	25
Financial assets	34,267	35,006
	34,614	**35,031**
Current assets		
Receivables from subsidiaries	2,040	462
Remaining receivables, other assets	464	1,678
Cash and cash equivalents, marketable securities	2,131	1,199
	4,635	**3,339**
Total assets	**39,249**	**38,370**
EQUITY AND LIABILITIES		
Equity	**14,478**	**14,363**
Provisions	**3,328**	**3,418**
Other liabilities		
Bonds and notes, liabilities to banks	5,842	5,190
Payables to subsidiaries	15,149	15,043
Remaining liabilities	452	356
	21,443	**20,589**
Total equity and liabilities	**39,249**	**38,370**

The asset and liability structure of Bayer AG is dominated by its role as a holding company in managing the subsidiaries and financing corporate activities. This is primarily reflected in the high level of investments in affiliated companies and of receivables from, and payables to, Group companies.

Total assets of Bayer AG were €38.4 billion (2010: €39.2 billion), which was €0.9 billion less than at the start of the year. While current assets declined by €1.3 billion to €3.3 billion (2010: €4.6 billion), noncurrent assets increased by €0.4 billion to €35.0 billion (2010: €34.6 billion).

Following the hive-down of nearly the entire real estate assets of €318 million to the wholly owned subsidiary Bayer Real Estate GmbH, the property, plant and equipment and intangible assets of Bayer AG now total only €25 million and therefore are of secondary importance in relation to total assets. Financial assets, however, further increased to €35.0 billion, up by €0.7 billion from 2010. This includes investments in subsidiaries amounting to €34.3 billion (2010: €33.7 billion), or 89.3% (2010: 85.9%) of total assets.

Receivables from subsidiaries amounted to €0.5 billion (2010: €2.0 billion) while payables to subsidiaries totaled €15.0 billion (2010: €15.1 billion). These amounts accounted for 1.2% of total assets and 39.2% of total equity and liabilities, respectively.

Equity showed a slight decline of €115 million, because the dividend payment of €1,240 million for 2010 was not fully covered by the net income of €1,125 million in 2011. Overall, equity amounted to €14.4 billion at the end of 2011 (2010: €14.5 billion). Despite the decline, the equity ratio rose slightly from 36.9% to 37.4% in view of the drop in total assets.

Provisions rose to €3.4 billion (2010: €3.3 billion), mainly because of a €192 million increase in provisions for taxes.

Other liabilities decreased by €0.9 billion, mainly due to a reduction in financial debt, and amounted to €20.6 billion (net of deductible receivables; 2010: €21.4 billion). The €0.7 billion reduction in financial debt to €22.3 billion (2010: €23.0 billion) was largely attributable to scheduled repayments of promissory notes totaling €650 million. Since there was a slightly greater decrease in bank balances and current securities, net debt was somewhat higher than in the previous year at €21.1 billion (2010: €20.9 billion).

6. Takeover-Relevant Information

EXPLANATORY REPORT PURSUANT TO SECTIONS 289 PARAGRAPH 4 AND 315 PARAGRAPH 4 OF THE GERMAN COMMERCIAL CODE (HGB)

The capital stock of Bayer AG amounted as of December 31, 2011 to €2,117 million, divided into 826,947,808 no-par bearer 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.

INTERNET

We publish voting rights announcements at WWW.INVESTOR.BAYER.COM/STOCK/OWNERSHIP-STRUCTURE

We received no notifications in 2011 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.

Pursuant to Section 84, Paragraph 1 of the German Stock Corporation Act (AktG), 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. If no such majority is achieved, the appointment may be approved 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 majority 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 Board of Management must comprise at least two members. The Supervisory Board may appoint one member to be Chairman of the Board of Management pursuant to Section 84, Paragraph 2 of the German Stock Corporation Act or Section 6, Paragraph 1 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 or, where a capital majority is required, by a simple majority of the capital.

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 29, 2015, 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 shares issued out of the Authorized Capital I that do not represent more than 20% of the existing capital stock. Absent a further resolution on the exclusion of stockholders' subscription rights, the Board of Management also may only exclude stockholders' subscription rights to shares issued under other authorizations regarding capital measures (Authorized Capital II, bonds with warrants or convertible bonds, purchase and sale of own shares) provided that such shares do not in total represent more than 20% of the existing capital stock.

With the approval of the Supervisory Board and until April 29, 2015, the Board of Management is also authorized to increase the capital by up to €212 million in one or more installments by issuing shares out of the Authorized Capital II in exchange for 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 capital increase out of the Authorized Capital II does not exceed 10% of the capital stock existing at the time this authorization becomes effective or the time this authorization is exercised 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 29, 2015 – to issue bonds with warrants or convertible bonds, profit-sharing rights or profit participation bonds (collectively referred to as "bonds") with a total face value of €6 billion. 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 amount of the shares required to service the bonds does not exceed 10% of the capital stock. 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, the 2010 Annual Stockholders' Meeting authorized the Board of Management to purchase and sell company shares representing up to 10% of the capital stock. This authorization also expires on April 29, 2015.

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 effective March 31, 2011 to replace a similar credit facility. The new facility is initially available until 2016. 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.

In addition, the terms of the €3.5 billion (as of December 31, 2011) in notes issued by Bayer in the years 2006 to 2011 under its multi-currency Euro Medium Term Notes program 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.

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.

7. Corporate Governance Report

THIS CORPORATE GOVERNANCE REPORT ALSO CONSTITUTES THE REPORT PURSUANT TO SECTION 3.10 OF THE GERMAN CORPORATE GOVERNANCE CODE.

7.1 Declaration on Corporate Governance*

* not part of the audited management report

DECLARATION BY THE BOARD OF MANAGEMENT AND SUPERVISORY BOARD

concerning the German Corporate Governance Code (May 26, 2010 version) pursuant to Section 161 of the German Stock Corporation Act**

Under Section 161 of the German Stock Corporation Act, the Board of Management and the Supervisory Board of Bayer AG are required to issue an annual declaration that the company has been, and is, in compliance with the recommendations of the "Government Commission on the German Corporate Governance Code" as published by the Federal Ministry of Justice in the official section of the electronic Federal Gazette (Bundesanzeiger), or to advise of any recommendations that have not been, or are not being, applied and the reasons for this. An annual declaration was last issued in December 2010.

The following declaration refers to the May 26, 2010 version of the Code.

Pursuant to Section 161 of the German Stock Corporation Act, the Board of Management and Supervisory Board of Bayer AG hereby declare as follows:

1. The company has been in compliance with the recommendations of the Code since issuance of the last annual compliance declaration in December 2010 with the temporary exception stated therein: The recommendation given in Section 5.4.5 was temporarily not complied with in full.

   The deviation from the recommendation given in Section 5.4.5 of the Code resulted from the fact that the Supervisory Board member Dr.-Ing. Ekkehard D. Schulz, at that time Chairman of the Executive Board of ThyssenKrupp AG, was a member of the supervisory boards of more than three listed companies or companies with similar requirements (Bayer AG, MAN SE, RWE AG and AXA Konzern AG). Dr. Schulz retired from the Executive Board of ThyssenKrupp AG at the end of the General Stockholders' Meeting of ThyssenKrupp AG on January 21, 2011. All the members of the Board of Management and the Supervisory Board were in compliance with the recommendation given in Section 5.4.5 of the Code from that date. Since Dr. Schulz had been a member of the three other supervisory boards mentioned above for many years and remained a member of the Executive Board of the above listed company for only a brief period, the temporary deviation from the recommendation given in Section 5.4.5 of the Code was considered acceptable.

2. All the recommendations of the Code are now being complied with in full.

Leverkusen, December 2011

For the Board of Management:

DR. DEKKERS BAUMANN

For the Supervisory Board:

DR. SCHNEIDER

** This is an English translation of a German document. The German document is the official and controlling version, and this English translation in no event modifies, interprets or limits the official German version.

BAYER IN COMPLIANCE WITH RECOMMENDATIONS OF THE CORPORATE GOVERNANCE CODE

Bayer has always placed great importance on responsible corporate governance and will continue to do so. In 2011 the company was able to issue a declaration that it had complied with the recommendations of the German Corporate Governance Code in the past with one temporary exception and was now fully compliant again.

The Board of Management and Supervisory Board last year again addressed the question of compliance with the Corporate Governance Code. The resulting declaration of compliance, reproduced above, was issued in December 2011 and posted on Bayer's website along with previous declarations.

INTERNET

WWW.INVESTOR.BAYER.COM/EN/KONZERN/CORPORATE-GOVERNANCE

It is intended to propose to the 2012 Annual Stockholders' Meeting that a new system of Supervisory Board compensation be introduced, comprising fixed compensation only. This would cause a future deviation from Section 5.4.6 Paragraph 2 Sentence 1 of the German Corporate Governance Code.

DUTIES AND ACTIVITIES OF THE BOARD OF MANAGEMENT

Bayer AG is a strategic management holding company, run by its Board of Management on the Board's 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.

Board of Management directs the Group's operations

The Board of Management defines the long-term goals and the strategies for the Group, its subgroups and its service companies, 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 entire Board. The allocation of duties among the members of the Board of Management is defined in a written schedule.

The entire Board of Management makes decisions on all matters of fundamental importance and in cases where a decision of the entire 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 entire 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 held. 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 schedule of duties, 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 departments of the Corporate Center and their fields of activity.

The schedule of duties also assigns particular areas of specialist responsibility to the other three members who served on the Board of Management in 2011 with respective responsibility for Finance; Innovation, Technology and Sustainability; and Strategy and Human Resources. Each of these members also represents certain geographical regions.

No committees of the Board of Management have been set up in view of the small number of members and the role of Bayer AG as a strategic management holding company.

Supervisory Board oversees corporate 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 members of the Supervisory Board 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 currently 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.

Audit Committee: The Audit Committee comprises three stockholder representatives and three employee representatives. The Chairman of the Audit Committee in 2011, Dr. Klaus Sturany, satisfies the statutory requirements concerning the independence and 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 examining the company's financial reporting along with the financial statements of Bayer AG, the consolidated financial statements of the Bayer Group, the combined management report, the proposal for the use of the distributable profit of Bayer AG, and the interim financial statements and management reports of the Bayer Group, all of which are prepared by the Board of Management. On the basis of the auditor's report on the audit of the financial statements of Bayer AG, the consolidated financial statements of the Bayer Group and the combined management report, the Audit Committee develops proposals concerning the approval of the statements by the full Supervisory Board. The Audit Committee is also responsible for the company's relationship with the external auditor. The Audit Committee submits a proposal to the full Supervisory Board concerning the auditor's appointment, prepares the awarding of the audit contract to the audit firm appointed by the Annual Stockholders' Meeting, suggests areas of focus for the audit and determines the auditor's remuneration. It also monitors the independence, qualifications, rotation and efficiency of the auditor.

In addition, the Audit Committee oversees the company's internal control system – along with the procedures used to identify, track and manage risk – and the internal audit system. It also deals with corporate compliance issues and discusses developments in this area at each of its meetings.

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 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.

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.

Detailed information on the work of the Supervisory Board and its committees is provided in the Report of the Supervisory Board on page 42ff. of this Annual Report.

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 endeavors at all times to have several members who have international business experience or an international background. A further objective concerning the composition of the Supervisory Board is that, absent special circumstances, its members should not hold office beyond the end of the next Annual Stockholders' Meeting following their 72nd birthday, and that at least 75% of the Supervisory Board members must be independent. The Supervisory Board assesses the independence of its members according to the recommendation contained in Section 5.4.2 of the German Corporate Governance Code. In assessing independence, the Supervisory Board also considers the criteria given in the recommendation of the European Commission of February 15, 2005.[1]

Another goal for the composition of the Supervisory Board is to gradually increase the proportion of women on the Supervisory Board to at least 20% in the medium term. The aim is to have at least 15% female members following the elections to the Supervisory Board in 2012. It is intended to achieve the medium-term goal at the subsequent Supervisory Board election due to take place in 2017. These targets refer to the Supervisory Board as a whole, and are designed to be achieved evenly among the stockholder and employee representatives. However, since the Supervisory Board can only nominate candidates for election as stockholder representatives, it can only take the targets into account in these nominations. This assumes that suitable female candidates can be found for election as stockholder representatives.

IMPLEMENTATION STATUS OF THE OBJECTIVES

The Supervisory Board has several members with international business experience and other international connections. The target maximum age of 72 for members of the Supervisory Board is exceeded by one member, Dr. Manfred Schneider. He has remained in office as a member and Chairman of the Supervisory Board beyond the Annual Stockholders' Meeting that followed his 72nd birthday (Annual Stockholders' Meeting 2011) in order to avoid a change of chairmanship shortly before the regular Supervisory Board elections. One member, Hubertus Schmoldt, has been a member of the Supervisory Board since 1995, and thus has served more than three terms of office. However, Mr. Schmoldt has no business ties to the company or its Board of Management that in the opinion of the Supervisory Board could result in a conflict of interest. Currently, 10% of the Supervisory Board members are women. An increase in the proportion of women on the Supervisory Board is targeted for the next regular elections to be held at the Annual Stockholders' Meeting in 2012. This objective is taken into account in the nominations submitted by the Supervisory Board to this Annual Stockholders' Meeting.

DISCLOSURE OF SECURITIES TRANSACTIONS BY MEMBERS OF THE BOARD OF MANAGEMENT OR SUPERVISORY BOARD

Members of the Board of Management and Supervisory Board and their close relatives are legally required to disclose all transactions involving the purchase or sale of Bayer stock where such transactions total €5,000 or more in a calendar year. Bayer publishes details of such transactions immediately on its website and also notifies the German Financial Supervisory Authority accordingly. This information is provided to the company register for archiving. No such transactions were reported to Bayer AG in 2011.

[1] Annex 2 to the recommendation of the European Commission of February 15, 2005, on the role of non-executive or supervisory directors of listed companies and on the committees of the (supervisory) board (2005/162/EC)

Information filed with the company by members of the Board of Management and Supervisory Board shows that, on the closing date for the financial statements, their total holdings of Bayer AG stock or related financial instruments were equivalent to less than 1% of the issued stock.

COMMON VALUES AND LEADERSHIP PRINCIPLES

Bayer has committed itself to the values of Leadership, Integrity, Flexibility and Efficiency, or "LIFE" for short. These values provide guidance to all Bayer employees, both in business dealings and in working together within the company. All employees are obligated to align their work to the LIFE values. This is taken into account in human resources development and the regular performance evaluations.

SYSTEMATIC RISK MANAGEMENT

The established control system enables the company to identify any business or financial risks at an early stage and take appropriate action to manage them. This control system is designed to ensure that risks are monitored in a timely manner, all business transactions are properly accounted for, and reliable data on the company's financial position is always available.

When acquisitions are made, we aim to bring the acquired units' internal control systems into line with those of the Bayer Group as quickly as possible.

However, the control and risk management system cannot provide absolute protection against losses arising from business risks or fraudulent actions.

CORPORATE COMPLIANCE

Our corporate activity is governed by national and local laws and statutes that place a range of obligations on the Bayer Group and its employees throughout the world. Bayer manages its business responsibly and in compliance with the statutory and regulatory requirements of the countries in which it operates.

Bayer expects legally and ethically impeccable conduct from all of its employees in daily business operations, as the way they carry out their duties affects the company's reputation. By ensuring regular dialogue between employees and their supervisors and providing training courses involving the responsible Compliance Officers, the company endeavors to acquaint its employees with internal codes of behavior and with the numerous statutory and regulatory requirements of the countries where they work that are of relevance to them. This lays the foundation for managing the business responsibly and in compliance with the respective applicable laws.

The Board of Management states in the Corporate Compliance Policy that Bayer is unreservedly committed to corporate compliance and will forgo any business transactions that would violate compliance principles. The Policy also details the organizational framework for corporate compliance and specifies areas in which violations of applicable law can have particularly serious adverse consequences, both for the entire enterprise and for individual employees. The principles set forth in the Corporate Compliance Policy are designed to guide employees in their business-related actions and protect them from potential misconduct. Its core requirements are:

- adherence to antitrust regulations,
- integrity in business transactions and the ban on exerting any kind of improper influence,
- the observance of product stewardship and the commitment to the principle of sustainability,
- the strict separation of business and personal interests, and
- the commitment to ensure fair and respectful working conditions across the enterprise.

Employees may contact their respective supervisors or Compliance Officers for support and advice on ensuring legally compliant conduct in specific business situations.

Each Group company with business operations has at least one Compliance Officer. Some foreign companies have several local compliance functions with clearly defined responsibilities for the different business units within the respective companies. The main responsibilities of each local compliance function include:

- providing advice to the operational business units,
- monitoring and assessing risks,
- running or arranging compliance training programs,
- investigating any reports of possible compliance violations and initiating appropriate corrective action, and
- meeting Group-level reporting obligations toward the Compliance Officers of the companies in each country.

These Compliance Officers in turn report to the Chief Subgroup Compliance Officers at the Group management companies or to the Group Compliance Officer appointed by the Group Management Board. At least once a year, the Group Compliance Officer and the Head of Corporate Auditing report to the Audit Committee of the Supervisory Board on any compliance violations that have been identified.

The issue of corporate compliance is a permanent part of the performance targets agreed with the members of the Group Leadership Circle (GLC). By virtue of their positions, these executives have a special obligation to set an example for their employees, spread the compliance message increasingly within their companies and take organizational measures to implement it.

DETAILED REPORTING

To maximize transparency, we provide regular and timely information on the Group's position and significant changes in business activities to stockholders, financial analysts, stockholders' associations, the media and the general public. Bayer complies with the recommendations of the Corporate Governance Code by publishing reports on business trends, financial position, results of operations and related risks four times a year.

In line with statutory requirements, the members of the Group Management Board provide an assurance that, to the best of their knowledge, the financial statements of Bayer AG, the consolidated financial statements of the Bayer Group and the combined management report provide a true and fair view.

The financial statements of Bayer AG, the consolidated financial statements of the Bayer Group and the combined management report are published within 90 days following the end of each fiscal year. During the fiscal year, stockholders and other interested parties are kept informed of developments by means of the half-year financial report and additional interim reports as of the end of the first and third quarters. The half-year financial report is voluntarily subjected to an audit review by the auditor, whose appointment by the Annual Stockholders' Meeting also relates specifically to this audit review.

Bayer also provides information at news conferences and analysts' meetings. In addition, the company uses the internet as a platform for timely disclosure of information, including details of the dates of major publications and events, such as the annual and interim reports or the Annual Stockholders' Meeting.

INTERNET

For comprehensive information on Bayer, go to WWW.BAYER.COM

In line with the principle of fair disclosure, all stockholders and other principal target groups are treated equally as regards the communication of valuation-relevant information. All significant new facts are disclosed immediately to the general public. Stockholders also have immediate access to the information that Bayer publishes locally in compliance with the stock market regulations of various countries.

In addition to our regular reporting, we issue ad-hoc statements on developments that otherwise might not become publicly known but have the potential to materially affect the price of Bayer stock.

7.2 Compensation Report

COMPENSATION OF THE BOARD OF MANAGEMENT

In 2011 the compensation of the Board of Management basically comprised five components: a fixed annual salary, a short-term incentive award on a yearly basis in relation to a target amount, a long-term incentive award for a four-year period in relation to a target amount, a further long-term compensation component introduced in 2010 involving a grant of virtual Bayer shares subject to a three-year retention period, and a company pension plan conferring pension entitlements that increase with years of service. Compensation in kind and other benefits are also provided, such as the use of a company car for private purposes or reimbursement of the cost of health screening examinations.

The short-term incentive (STI) award for 2011 is calculated according to the Group's core earnings per share and the weighted average target attainment of the HealthCare, CropScience and MaterialScience subgroups. The Supervisory Board can adjust this award according to individual performance. The target attainment of the subgroups is measured chiefly in terms of the EBITDA margin before special items and the growth in sales. A qualitative appraisal in relation to the market and competitors is also taken into account. The members of the Board of Management receive 50% of the STI as direct compensation and 50% in the form of the long-term compensation component introduced in 2010.

The directly effected compensation for the service of the members of the Board of Management in 2011 totaled €6,775 thousand (2010: €10,019 thousand). Of this amount, fixed salaries accounted for €3,139 thousand (2010: €3,936 thousand), the part of the STI awards to be paid out in 2012 for €3,379 thousand (2010: €4,928 thousand), and compensation in kind and other benefits for €257 thousand (2010: €1,155 thousand), the latter item consisting mainly of amounts assigned to compensation in kind and other benefits in accordance with German taxation guidelines.

Under the system introduced in 2010, the long-term compensation of the members of the Board of Management holding office on December 31, 2011 consists of two components: a grant of virtual Bayer shares for which parts of the STI award – which in the past was paid out in full – are used, and the long-term stock-based compensation program Aspire.

According to the changes resolved by the Supervisory Board in December 2009, 50% of the STI was granted in the form of virtual Bayer shares subject to a three-year retention period, thereby creating a new long-term compensation component. The value of these shares depends on the trend in the price of Bayer stock during the retention period. The basis for the conversion of this former part of the STI payment into virtual shares was the average official closing price of Bayer shares over the last 30 trading days of 2011 (November 18 – December 30, 2011) in the Xetra system of the Frankfurt Stock Exchange; this average price was €46.32. Wolfgang Plischke and Richard Pott receive one additional virtual Bayer share for every 20 virtual shares granted under the new system to compensate them for the conversion of part of the former STI into a long-term compensation component. The additional virtual shares are subject to the same retention period and value development.

In addition, the members of the Board of Management participate in the long-term stock-based compensation program Aspire I (annual tranches 2009 through 2011). Under this program, awards are paid out provided that the performance of Bayer stock (both in absolute terms and relative to the EURO STOXX 50 benchmark index) meets defined criteria over a period of three years (four years starting with the 2010 tranche). Further details of this program are provided in Note [26.6] to the consolidated financial statements. The fair value of the stock-based compensation newly granted in 2011 as of its grant date is included in the calculation of total compensation (see following table), although the award entitlement was only partially earned as of the closing date.

The following table shows the compensation components of the individual members of the Board of Management in 2011:

Board of Management Compensation – Aggregate Compensation [Table 3.25]

		Serving members of the Board of Management				Former members		
		Marijn Dekkers (Chairman)	Werner Baumann	Wolfgang Plischke	Richard Pott	Werner Wenning	Klaus Kühn	Total
		€ thousand	€ thousand	€ thousand	€ thousand	€ thousand	€ thousand	€ thousand
Fixed salary	**2011**	**1,216**	**641**	**641**	**641**	**-**	**-**	**3,139**
	2010	900	633	633	633	873	264	3,936
Compensation in kind and other benefits	**2011**	**69**	**119**	**37**	**32**	**-**	**-**	**257**
	2010	1,010*	42	35	30	27	11	1,155
Total non-performance-related compensation	**2011**	**1,285**	**760**	**678**	**673**	**-**	**-**	**3,396**
	2010	1,910	675	668	663	900	275	5,091
Short-term incentive	**2011**	**1,420**	**653**	**653**	**653**	**-**	**-**	**3,379**
	2010	903	554	554	554	1,863	500	4,928
Total directly effected compensation	**2011**	**2,705**	**1,413**	**1,331**	**1,326**	**-**	**-**	**6,775**
	2010	2,813	1,229	1,222	1,217	2,763	775	10,019
Fair value of stock-price-indexed compensation based on the short-term incentive	**2011**	**1,420**	**653**	**686**	**686**	**-**	**-**	**3,445**
	2010	903	554	582	582	-	-	2,621
Fair value of newly granted stock-based compensation as of grant date	**2011**	**362**	**191**	**191**	**191**	**-**	**-**	**935**
	2010	261	206	291	291	184	33	1,266
Aggregate compensation (according to the German Commercial Code)	**2011**	**4,487**	**2,257**	**2,208**	**2,203**	**-**	**-**	**11,155**
	2010	3,977	1,989	2,095	2,090	2,947	808	13,906

In some cases, the sum of the figures given in this table may not precisely equal the stated totals due to rounding.
* including one-time relocation expenses

The award entitlements earned in 2011 – both from the 2011 tranche and from previous years' tranches on which the entitlements were only partially earned – are shown separately in the following table along with the changes in the value of entitlements from previous years' tranches based mainly on the performance of Bayer stock. The fair value of the award entitlement already earned in 2011 from the 2011 tranche is shown as "Long-term incentive." Since certain components of the award entitlements are included in both tables, the figures in the following and the preceding table should not be added together.

An amount of €5,718 thousand is recognized in the statement of financial position for future payments of stock-price-indexed compensation based on the short-term incentive to the currently active members of the Board of Management.

Board of Management Compensation – Stock-Based Compensation [Table 3.26]

		Serving members of the Board of Management				Former members		
		Marijn Dekkers (Chairman)	Werner Baumann	Wolfgang Plischke	Richard Pott	Werner Wenning	Klaus Kühn	Total
		€ thousand	€ thousand	€ thousand	€ thousand	€ thousand	€ thousand	€ thousand
Long-term incentive (stock-based compensation entitlements earned in the respective year)	**2011**	**114**	**140**	**239**	**239**	**-**	**-**	**732**
	2010	67	124	234	234	322	98	1,079
Change in value of existing entitlements	**2011**	**(138)**	**(59)**	**(39)**	**(39)**	**-**	**-**	**(275)**
	2010	-	(21)	(44)	(44)	(61)	(56)	(226)

The current members of the Board of Management are generally entitled to receive a pension upon leaving the Bayer Group, though not before the age of 60, in an annual amount equal to at least 15% of the last yearly fixed salary. This percentage increases depending on years of service as a member of the Board of Management and is capped at 60% except in the case of the member appointed prior to 2006, whose pension entitlement can rise to a maximum of 80% of his last yearly fixed salary. The respective surviving dependents' benefit is set at 60% of this pension level.

The current service cost for the pension entitlements of the members of the Board of Management is shown in the following table. The current service cost for pension entitlements according to the German Commercial Code (HGB) also includes any past service cost resulting from new entitlements or variations in existing entitlements. The change in the present value of pension entitlements also reflects the interest cost for entitlements earned in prior years, along with actuarial gains and losses. Expenses for the pension entitlements of the members of the Board of Management who retired during the year are included up to the respective retirement dates. Since HGB and IFRS prescribe different methods for calculating pension provisions, the table contains both the amounts disclosed in the financial statements of Bayer AG prepared according to HGB and those published in the consolidated financial statements of the Bayer Group prepared according to IFRS. The figures in each case represent divergent disclosures of one and the same pension entitlement.

Pension Entitlements [Table 3.27]

		Serving members of the Board of Management				Former members		
		Marijn Dekkers (Chairman)	Werner Baumann	Wolfgang Plischke	Richard Pott	Werner Wenning	Klaus Kühn	Total
		€ thousand	€ thousand	€ thousand	€ thousand	€ thousand	€ thousand	€ thousand
Change in the present value of pension entitlements (IFRS)	**2011**	**1,052**	**616**	**980**	**1,065**	**-**	**-**	**3,713**
	2010	2,612	621	1,017	1,074	823	426	6,573
Current service cost for pension entitlements earned in the respective year (IFRS)	***2011***	***550***	***128***	***220***	***236***	**-**	**-**	***1,134***
	2010	*2,175*	*111*	*203*	*217*	-	*141*	*2,847*
Present value of pension entitlements at the closing date (IFRS)*	**2011**	**3,664**	**3,484**	**7,574**	**7,617**	**-**	**-**	**22,339**
	2010	2,612	2,868	6,594	6,552	-	-	18,626
Change in the present value of pension entitlements (German Commercial Code)**	**2011**	**744**	**287**	**611**	**605**	**-**	**-**	**2,247**
	2010	2,481	298	602	577	187	255	4,400
*Current service cost for pension entitlements earned in the respective year (German Commercial Code)**	***2011***	***522***	***119***	***211***	***226***	**-**	**-**	***1,078***
	2010	*2,292*	*117*	*209*	*225*	*3*	*148*	*2,994*
Present value of pension entitlements at the closing date (German Commercial Code)	**2011**	**3,225**	**2,973**	**6,999**	**6,902**	**-**	**-**	**20,099**
	2010	2,481	2,690	6,392	6,301	-	-	17,864

* after deducting plan assets
** incl. employer contribution to Bayer-Pensionskasse

Unlike the aggregate compensation according to the German Commercial Code, the aggregate compensation according to IFRS does not include the fair value of newly granted stock-based compensation, but rather the stock-based compensation entitlements earned in the respective year plus the change in the value of stock-based compensation entitlements from previous years that have not yet been paid out. It also contains the current service cost for pension entitlements.

The components of the Board of Management's compensation are summarized in the following table:

Board of Management Compensation according to IFRS [Table 3.28]

	2010	2011
	€ thousand	€ thousand
Directly effected compensation	10,019	6,775
Fair value of stock-price-indexed compensation based on the short-term incentive	2,621	3,445
Long-term incentive (stock-based compensation entitlements earned in the respective year)	1,079	732
Change in value of existing entitlements	(226)	(275)
Current service cost for pension entitlements earned in the respective year	2,847	1,134
Aggregate compensation (IFRS)	**16,340**	**11,811**

For the only Board of Management member whose (recently renewed) service contract was concluded prior to the entry into force of the amendments to the German Corporate Governance Code in June 2008, a general severance indemnity clause applies if the service contract is terminated at the company's instigation prior to his 60th birthday. The basic principles according to this clause are as follows:

If a member of the Board of Management is not offered a new service contract upon expiration of his existing service contract because he is not reappointed to the Board of Management, or if the member is removed from the Board of Management prematurely during the term of his contract in the absence of grounds for termination without notice, he will receive a monthly bridging allowance amounting to 80% of his last monthly fixed salary for a maximum period of 60 months from the date of expiration of his service contract less the period for which he was released from his duties on full pay or otherwise compensated. (If he were removed during the term of his contract, he would also receive the payment due for the rest of the term, though this would be reduced to the amount of his annual fixed salary plus the target amount for the STI payment for at least twelve months.) His earnings from any new employment elsewhere would be offset against the bridging allowance. In the case of premature termination at the instigation of the company, further years of service might be credited under certain circumstances for the purpose of computing his Board of Management pension entitlement, though not beyond his 60th birthday.

This clause in the service contract referred to above is only applicable until April 30, 2012. For the remaining contracts – and, effective May 1, 2012, for the contract referred to above – it has been agreed, in line with the recommendation of the German Corporate Governance Code, that payment claims of members of the Board of Management can only arise in the event of premature contract termination by the company without cause. Such claims, including ancillary benefits, are then limited to the value of two years' compensation (severance payment cap) and may not compensate more than the remaining term of the contract. The severance payment cap is to be calculated on the basis of the total compensation (fixed salary plus the target value of the STI) for the previous year and, if appropriate, also the expected total compensation for the current year.

Post-contractual non-compete agreements have been concluded with the members of the Board of Management, providing for compensatory payments to be made by the company for the two-year duration of the post-contractual non-compete clause. For members appointed prior to 2010, this payment amounts to 50% of the average contractually agreed salary for the preceding three years. For the members newly appointed to the Board of Management as of January 1, 2010, the compensatory payment is 100% of the average fixed salary for the twelve months preceding their departure. It is offset against any severance promise payments. In the case of Mr. Pott, this assurance is valid only until April 30, 2012, the original expiration date of his service contract.

Special supplementary arrangements apply in the event of a change of control, see Chapter 6 "Takeover-Relevant Information."

There were no loans to members of the Board of Management outstanding as of December 31, 2011, nor any repayments of such loans during the year.

We currently pay retired members of the Board of Management a monthly pension equal to 80% of the last monthly base salary received while in service. The pensions paid to former members of the Board of Management or their surviving dependents have been reassessed annually since January 1, 2009 and adjusted taking into account the development of consumer prices. These benefits are in addition to any amounts they receive under previous employee pension arrangements. The pensions paid to former members of the Board of Management and their surviving dependents amounted to €13,069 thousand (2010: €14,116 thousand). Pension provisions for former members of the Board of Management and their surviving dependents at the closing date amounted to €134,179 thousand (2010: €131,599 thousand) according to IFRS and €127,078 thousand (2010: €129,121 thousand) according to HGB.

COMPENSATION OF THE SUPERVISORY BOARD

The Supervisory Board is compensated according to the relevant provisions of the Articles of Incorporation, which provisions have not been altered since the resolution of the Annual Stockholders' Meeting on April 29, 2005. This provides that, in addition to reimbursement of their expenses, each member of the Supervisory Board receives fixed annual compensation of €60,000 and a variable annual compensation component. The variable compensation component is based on corporate performance in terms of the gross cash flow reported in the consolidated financial statements of the Bayer Group for the respective fiscal year. The members of the Supervisory Board receive €2,000 for every €50 million or part thereof by which the gross cash flow exceeds €3.1 billion, but the variable component for each member may not exceed €30,000.

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 three times the basic compensation, while the Vice Chairman receives one-and-a-half times the basic compensation. Members of the Supervisory Board who are also members of a committee receive an additional one quarter of the amount, with those chairing a committee receiving a further quarter. However, no member of the Supervisory Board may receive total compensation exceeding three times the basic compensation. It has been agreed that no additional compensation shall be paid for membership of the Nominations Committee. If changes are made to the Supervisory Board and its committees during the fiscal year, members receive compensation on a pro-rated basis. No member of the Supervisory Board received compensation or any other benefits 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.

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 was €645 thousand (2010: €603 thousand).

There were no loans to members of the Supervisory Board outstanding as of December 31, 2011, nor any repayments of such loans during the year.

Compensation of the Members of the Supervisory Board of Bayer AG in 2011 [Table 3.29]

	Fixed Compensation	Variable Compensation	Total
	€ thousand	€ thousand	€ thousand
Dr. Paul Achleitner	75	38	113
André Aich	60	30	90
Willy Beumann	75	38	113
Dr. Clemens Börsig	60	30	90
Dr.-Ing. Thomas Fischer	75	38	113
Peter Hausmann	75	38	113
Prof. Dr.-Ing. e.h. Hans-Olaf Henkel	75	38	113
Reiner Hoffmann	60	30	90
Dr. rer. pol. Klaus Kleinfeld	60	30	90
Petra Kronen	75	38	113
Dr. rer. nat. Helmut Panke	60	30	90
Hubertus Schmoldt	75	38	113
Dr. Manfred Schneider (Chairman)	180	90	270
Dr.-Ing. Ekkehard D. Schulz	60	30	90
Roswitha Süsselbeck	60	30	90
Dr. Klaus Sturany	90	45	135
Dipl.-Ing. Dr.-Ing. e.h. Jürgen Weber	75	38	113
Thomas de Win	120	60	180
Prof. Dr. Dr. h.c. Ernst-Ludwig Winnacker	60	30	90
Oliver Zühlke	60	30	90

8. Research and Development

€2.9 billion Research and development expenses

- **€2.0 billion** at HealthCare
- **€0.7 billion** at CropScience
- **€0.2 billion** at MaterialScience

Innovation is the key driver of Bayer's future growth. Challenges such as providing health care and nutrition for a growing world population and using natural resources efficiently can only be overcome with innovative solutions.

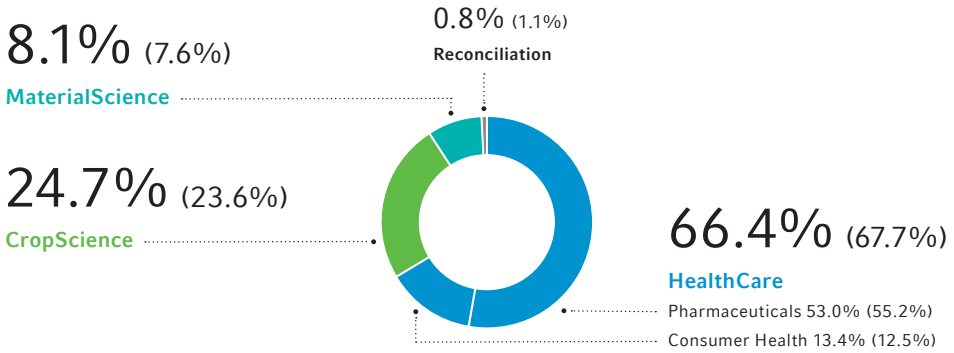
That is why the inventor company Bayer focuses on research and development. In 2011 a total of €2,932 million (2010: €3,053 million) was spent on research and development. This was equivalent to 8.0% (2010: 8.7%) of sales. The number of employees working in research and development worldwide was 13,300.

We supplement our internal research and development activities with an international network of collaborations and alliances with leading universities, public-sector research institutes and partner companies. The creation of science hubs in growth regions such as Asia is one of the ways this innovation network is being expanded.

To strengthen our position in the global competitive arena, we are deploying our resources selectively and narrowing our focus – even within individual business units – to areas where there is an urgent need for innovation and significant growth opportunities therefore exist. This pooling of expertise enables us to rapidly translate new business ideas into successful products.

With a strong, efficient research and development organization, an international network of partners and a focus on growth areas and markets, we are laying the foundations for Bayer's future success. Our activities remain centered on our customers' needs – true to our mission "Bayer: Science For A Better Life."

Share of Research and Development Expenses by Segment (2010 in parentheses) [Graphic 3.18]



2010 figures restated

HEALTHCARE

In 2011 we invested €1,948 million (2010: €2,066 million) in research and development in the Pharmaceuticals and Consumer Health segments. This represented 66.4% of the Bayer Group's entire research and development spending and was equivalent to 11.3% (2010: 12.2%) of HealthCare sales. At the end of 2011, some 7,700 employees of the HealthCare subgroup were working in research and development.

Research and development expenses in the **Pharmaceuticals** segment amounted to €1,556 million (2010: €1,684 million), or 15.6% (2010: 16.9%) of segment sales. The decline was mainly due to lower development costs following the successful completion of the majority of Phase III studies for our anticoagulant Xarelto™. Our research and development outlay underscores our focus on growth through innovation. Drug discovery in the Pharmaceuticals segment is concentrated in the areas of cardiology and oncology, along with gynecological treatments and hematology. Other areas of focus are inflammatory processes and ophthalmology. In addition, we are strengthening our established products through lifecycle management, an example being the development of innovative administration forms for contraceptives. Research activities and capacities are concentrated at three sites in Berlin and Wuppertal, Germany, and Berkeley, California, United States. Work in Berlin and Wuppertal mainly focuses on the discovery, optimization and development of new active substances. Research is also carried out at these sites in the fields of drug metabolism, pharmacokinetics, toxicology and clinical pharmacology. Berkeley is a major research and development center focused on biologicals for hematology, such as Kogenate™. We also operate further research centers, such as those in Beijing, China.

In 2011 we extended our strategic alliance with the German Cancer Research Center in Heidelberg, Germany, by a further three years. This partnership is aimed at jointly developing new approaches for anticancer drugs. In June 2011 we also formed an alliance with the Ludwig Boltzmann Institute (LBI) for Lung Vascular Research. This alliance was expanded in November 2011 to include a collaboration with the newly founded LBI for Translational Heart Failure Research. Both institutes are based at the Medical University of Graz, Austria. In 2011 we continued our research activities in Singapore, where – through our contractual partner Economic Development Board (EDB) Singapore – we are working with various institutions such as the National University of Singapore and the university hospital to adapt drug candidates to the specific needs of Asian (cancer) patients.

We conducted clinical studies with several drug candidates from our research and development pipeline during 2011 to drive the development of new substances to treat diseases with a high unmet medical need. Following the completion of the required studies with some of these drug candidates, we submitted applications to one or more agencies for approvals or approval extensions.

The most important drug candidates currently in the registration process are:

Products in Registration [Table 3.30]

	Indication
EYLEA™ (VEGF Trap-Eye)	Wet age-related macular degeneration
LCS-12 (ULD LNG Contraceptive System)	E.U., U.S.A.; contraception, duration of use: up to 3 years
Natazia™ (E2V/DNG)	U.S.A., treatment of heavy menstrual bleeding in women without organic pathology who desire oral contraception
Xarelto™	Secondary prophylaxis of acute coronary syndrome
YAZ™ Flex	E.U., oral contraception, flexible dosage regimen

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

Research and Development Projects (Phases III and II)* [Table 3.31]

	Indication	Status
Alemtuzumab**	Multiple sclerosis	Phase III
Alpharadin	Treatment of bone metastases in hormone-refractory/ castration-resistant prostate cancer	Phase III
ATX-101	Reduction of submental fat	Phase III
FC Patch low	Contraception	Phase III
Florbetaben	PET imaging in diagnosis of Alzheimer's disease	Phase III
Gadovist™	Magnetic resonance imaging	Phase III
LCS-16 (ULD LNG Contraceptive System)	Contraception, duration of use: 5 years	Phase III
Nexavar™	Breast cancer	Phase III
Nexavar™	Adjuvant therapy of liver cancer	Phase III
Nexavar™	Non-small-cell lung cancer	Phase III
Nexavar™	Adjuvant therapy of kidney cancer	Phase III
Nexavar™	Thyroid cancer	Phase III
Regorafenib (DAST inhibitor)	Colorectal cancer	Phase III
Regorafenib (DAST inhibitor)	Treatment of metastatic or inoperable gastrointestinal stromal tumors	Phase III
Riociguat (sGC stimulator)	Pulmonary hypertension (CTEPH)	Phase III
Riociguat (sGC stimulator)	Pulmonary hypertension (PAH)	Phase III
Tedizolid	Complicated skin infections and pneumonia	Phase III
Vaginorm™	Vulvovaginal atrophy	Phase III
VEGF Trap-Eye	Diabetic macular edema	Phase III
VEGF Trap-Eye	Abnormal retinal angiogenesis following pathological myopia	Phase III
VEGF Trap-Eye	Central retinal vein occlusion	Phase III
Xarelto™	Treatment and secondary prevention of venous thromboembolism	Phase III
Alpharadin	Treatment of bone metastases in cancer	Phase II
Amikacin Inhale	Pulmonary infection	Phase II
Ciprofloxacin Inhale	Pulmonary infection	Phase II
MEK inhibitor	Cancer	Phase II
MR antagonist (BAY94-8862)	Chronic heart failure	Phase II
Nexavar™	Additional indications	Phase II
Regorafenib (DAST inhibitor)	Cancer	Phase II
Riociguat (sGC stimulator)	Pulmonary hypertension	Phase II

* as of February 14, 2012

** co-promotion

PET = positron emission tomography; CTEPH = chronic thromboembolic pulmonary hypertension; PAH = pulmonary arterial hypertension

The nature of drug discovery and development is such that not all compounds can be expected to meet the pre-defined 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 FDA, European Medicines Agency (EMA) or other regulatory approval will not be granted for these compounds.

We regularly evaluate our research and development pipeline in order to prioritize the most promising pharmaceutical projects.

Xarelto™ (active ingredient: rivaroxaban) has been on the market since 2008 for prophylaxis of venous thromboembolism in adult patients following elective hip or knee replacement surgery. Xarelto™ is registered in more than 110 countries around the world and marketed in this indication by Bayer HealthCare outside the United States. On December 19, 2011, Xarelto™ was also approved in the European Union for stroke prevention in patients with atrial fibrillation as well as for the treatment of deep vein thrombosis (DVT) and the prevention of recurring DVT and pulmonary embolism following acute DVT in adult patients.

Xarelto™ approved in further indications

In the United States, where Xarelto™ was approved in July 2011 for DVT prophylaxis in adult patients following elective hip or knee joint replacement surgery, Janssen Pharmaceuticals, Inc. – a subsidiary of Johnson & Johnson – holds the commercialization rights for Xarelto™. Bayer HealthCare supports the sales team of Janssen Pharmaceuticals, Inc. in selected hospitals and specialty markets in the United States. In addition, on November 4, 2011, Xarelto™ was approved in the United States to reduce the risk of stroke in patients with atrial fibrillation.

The following study results for rivaroxaban were presented in 2011. In a Phase III study (MAGELLAN study) on the prevention of venous thromboembolism in hospitalized patients with acute medical illness, presented in April 2011, rivaroxaban achieved the primary efficacy endpoints. In the first evaluation, however, a consistently positive benefit-risk balance was not seen across the heterogeneous patient population studied. In May 2011, a subgroup analysis of the ROCKET AF Phase III clinical study confirmed that rivaroxaban is highly effective in preventing recurrent strokes in patients with atrial fibrillation who have experienced a prior stroke or transient ischemic attack. In November 2011 the Phase III ATLAS ACS 2-TIMI 51 study on secondary prevention of acute coronary syndrome reached the primary efficacy endpoint of reduced cardiovascular death, myocardial infarction and stroke compared with patients receiving antiplatelet therapy alone.

In December 2011 we submitted an application to the European Medicines Agency (EMA) for marketing authorization for Xarelto™ in secondary prevention following acute coronary syndrome (ACS). The application to the U.S. Food and Drug Administration (FDA) was submitted by our cooperation partner Janssen Research & Development, L.L.C. Given the seriousness of ACS and the potential clinical benefit, the FDA has granted rivaroxaban fast-track designation.

Riociguat is the first member of a new class of vasodilating agents known as soluble guanylate cyclase (sGC) stimulators. Administered in tablet form, riociguat is currently being investigated as a new approach for the treatment of various forms of pulmonary hypertension. In May 2011 we presented promising results from a Phase II study with riociguat in pulmonary hypertension owing to chronic obstructive pulmonary disease (COPD).

In April 2010 we launched a Phase III program with regorafenib for the treatment of advanced colorectal cancer. Regorafenib is a novel, oral multi-kinase inhibitor that inhibits various signaling pathways responsible for tumor growth. We enrolled patients with metastatic colorectal carcinoma whose disease was progressing despite previous standard treatments. The study achieved positive results and met the primary endpoint – a statistically significant improvement of overall survival. This was confirmed by a pre-planned interim analysis of the available trial data by an independent Data Monitoring Committee (DMC). Based on the recommendation of the DMC, the so-called CORRECT trial (patients with metastatic colorectal cancer treated with regorafenib or placebo after failure of standard therapy) was concluded ahead of schedule to prepare the data for submission. In May 2011, the U.S. Food and Drug Administration (FDA) granted fast-track designation to regorafenib for the treatment of metastatic and/or inoperable gastrointestinal stromal tumors. This developmental product also received orphan drug status, which includes U.S. market exclusivity for a seven-year period if the sponsor complies with certain FDA requirements. In 2011 we restructured our partnership with Onyx Pharmaceuticals, Inc., United States, extending it to include the joint development of regorafenib. Under the terms of the agreement, Bayer will have final decision-making authority for global development and commercialization, and Onyx will receive a royalty on future sales. In addition, Bayer will contract the Onyx sales force to promote regorafenib, along with Bayer sales representatives, in the United States.

In the area of women's healthcare, we are conducting research into gynecological therapies and additional contraception options. Our contraceptive patch (FC Patch low) is currently in Phase III clinical trials. It is intended to become the only transparent product of its kind and the smallest, lowest-dosed contraceptive patch on the market. In December the new hormone-releasing intrauterine device LCS-12 was submitted for approval in the United States and Europe. This lower-dose device is smaller than Mirena™ and remains effective for up to three years. A further hormone-releasing device (LCS-16), with a duration of use of up to five years, is currently undergoing Phase III clinical development.

We are adding to the portfolio of development products from our own research and development activities through selective inlicensing.

Research alliances complement our development portfolio

In 2011 we continued the strategic alliance begun in 2010 with OncoMed Pharmaceuticals, Inc., United States, to research, develop and market novel therapeutics against cancer stem cells.

The collaboration formed in 2010 with Prometheus Laboratories Inc., United States, to develop new personalized medicine options was also continued.

In a Phase III study, Alpharadin – the cancer drug we are jointly developing with Algeta ASA, Norway – demonstrated a significant improvement in overall survival in patients with hormone-refractory/castration-resistant prostate cancer and bone metastases. With the positive efficacy data, the study met its primary endpoint and was concluded ahead of schedule in June 2011. The application for regulatory approval of Alpharadin is in preparation. Alpharadin was granted fast-track designation by the U.S. Food and Drug Administration in August 2011.

In collaboration with Genzyme Corp., United States, we are developing the humanized monoclonal antibody alemtuzumab. In 2011 two Phase III studies investigating alemtuzumab in multiple sclerosis (MS) were completed with positive results. Genzyme intends to submit applications for marketing approval of alemtuzumab in the United States and the European Union under the trade name LEMTRADA™ in the second quarter of 2012. The U.S. Food and Drug Administration has already granted fast-track designation to alemtuzumab (LEMTRADA™).

VEGF Trap-Eye is our joint developmental project with Regeneron Pharmaceuticals, Inc., United States. VEGF (vascular endothelial growth factor) is a natural growth factor that stimulates the formation of new blood vessels (angiogenesis). VEGF Trap-Eye blocks this growth factor specifically and very effectively, thus preventing the abnormal formation of new blood vessels that tend to leak blood. The medication is administered directly into the eye. In November 2011, our cooperation partner Regeneron Pharmaceuticals received approval from the U.S. Food and Drug Administration for VEGF Trap-Eye under the trade name EYLEA™ for the treatment of wet age-related macular degeneration (AMD). In addition, the product was submitted for marketing authorization to the European Medicines Agency and the Japanese Ministry of Health, Labor and Welfare in June 2011. Once the product has been approved, Bayer will market it outside the United States. Regeneron Pharmaceuticals, Inc., United States, retains exclusive commercialization rights to VEGF Trap-Eye in the U.S. This product has also achieved positive Phase III clinical development results for the treatment of central retinal vein occlusion (CRVO), another frequent cause of blindness. In addition, two Phase III studies are ongoing for the treatment of diabetic macular edema (DME).

In July 2011 we signed an agreement with Trius Therapeutics, Inc., United States, to jointly develop and commercialize Trius' antibiotic tedizolid phosphate (tedizolid). This agreement gives us exclusive rights for the markets of Asia – excluding North and South Korea – and all countries of Africa, Latin America and the Middle East. Under the agreement, we will develop tedizolid, which is already in Phase III clinical development in the United States and Europe, for the treatment of various infectious diseases such as acute bacterial skin and skin structure infections and Gram-positive pneumonia. Trius retains full development and commercialization rights for the United States, Canada and the European Union.

We also invest in continuous life-cycle management to identify possible additional indications and improved delivery forms for products already on the market. For example, the additional indication for our oral contraceptive Qlaira™ – treatment of heavy and/or prolonged menstrual bleeding – was approved in Europe in 2010. The approval process in the United States (trade name: Natazia™) remained ongoing in the reporting period. Qlaira™/Natazia™ is the first product in a new class of oral

Life-cycle management for products already on the market

contraceptives whose estrogen component acts like the endogenous substance estradiol. Another example is our cancer drug Nexavar™, which we are continuing to develop jointly with Onyx Pharmaceuticals, Inc., United States. The promising active substance sorafenib, which attacks both cancer cells and the vascular system of the tumor, has been registered for the treatment of advanced renal cell carcinoma since 2005 and for liver cell carcinoma since 2007. To further develop this drug beyond these two therapeutic areas, we have put in place a broadly based life-cycle management program in which we are currently conducting Phase III registration studies with sorafenib as an adjuvant after curative tumor resection in renal cell carcinoma and – also as an adjuvant – after curative tumor removal in liver cell carcinoma, as well as in combination with other systemically effective cancer drugs. In addition, we are conducting Phase III registration studies in non-small-cell lung cancer, thyroid cancer and breast cancer. Further tumor indications are under investigation.

In the **Consumer Health** segment, we raised our research and development expenditures to €392 million (2010: €382 million), or 5.4% (2010: 5.5%) of segment sales.

In our Consumer Care Division, research and development activities at the product development centers in Morristown, New Jersey, United States, and Gaillard, France, focus on the development and commercialization of non-prescription (over-the-counter = OTC) products. These activities center on supporting both existing and new brands by implementing product-specific and clinical development strategies that enable the successful exploitation of new technologies, the extension of indications for existing products or the reclassification of current prescription medicines as OTC products. We introduced a number of new product line extensions to various markets in 2011. They included Bayer™ Advanced Aspirin in the United States with a patent-pending technology that relieves pain twice as fast as our classic Aspirin™ tablet, and Citracal™ Slow Release 1200, which continuously releases calcium and vitamin D3. This innovative once-daily formulation enables the steady and therefore efficient absorption of the ingredients. Other new launches included Alka-Seltzer Plus™ Allergy and Severe Sinus Congestion Allergy and Cough in the United States.

The research and development activities of our Medical Care Division focus on blood glucose monitoring and the continuing development of medical equipment used in the diagnosis or treatment of various diseases. At the four U.S. research and development locations for our diabetes care business, the largest of which is in Tarrytown, New York, we are working to strengthen our product lines and continue expanding into attractive segments of the diabetes market. In 2011 we progressed with the launch of several innovative products in key markets to meet the specific needs of people with diabetes. Examples include Contour™ USB with integrated diabetes management software and the option of direct computer connection (plug & play), the diabetes management software Glucofacts™ Deluxe, and A1CNow™ SelfCheck, which is used to determine long-term blood glucose values (A1c).

To strengthen our position among the leading companies in the field of innovative, high-quality diagnostic imaging and interventional processes, we merged the Diagnostic Imaging unit, previously part of the Pharmaceuticals segment, with our medical equipment business to create the new Radiology and Interventional unit. The aim of our research and development activities for the medical equipment business is to steadily improve our contrast injection, thrombus removal and other vascular intervention systems in order to build on our leadership position, especially in the United States. We also intend to enter additional attractive segments such as medical data management tools for contrast injection systems, and drug-coated balloon catheters to treat vascular disease. The respective research and development centers are located near Pittsburgh, Pennsylvania, and Minneapolis, Minnesota, in the United States and in Sydney, Australia. The research center for diagnostic imaging is located in Berlin, Germany. The U.S. Food and Drug Administration (FDA) granted marketing authorization in March 2011 for Gadavist™ as a contrast agent for magnetic resonance imaging of the central nervous system. Gadavist™ is known under the brand name Gadovist™ outside the United States and is marketed in more than 60 countries worldwide.

In September 2011 we acquired Pathway Medical Technologies, Inc., United States, to strengthen our medical equipment business in the field of interventional cardiology. This company is a leading supplier of products for the mechanical removal of arterial plaque. Pathway's JETSTREAM™ systems achieve this using a minimally invasive technology without damaging healthy tissue.

The Animal Health Division focuses its research and development activities at the Monheim site in Germany on antibiotics and antiparasitics as well as active substances to treat non-infectious disorders in animals. The research activities of Animal Health were integrated into the Global Drug Discovery unit of BHC effective March 1, 2011. The advantage of the new organizational structure lies in the joint use of technology platforms and the pooling of know-how and experience in drug discovery. At the same time, Animal Health continues to collaborate with the CropScience units, especially in the area of parasitology, to leverage our status as a company with multiple life science businesses. In addition to developing new products to combat bacterial infections and parasites in companion animals and livestock, we are continuing to expand the product portfolio for the treatment of chronic kidney diseases in cats. A number of further product line extensions were registered in different markets, including products such as Veraflox™ (active ingredient: pradofloxacin) and Procox™ (active ingredients: emodepside and toltrazuril) in Europe. Veraflox™ is the first of a new generation of fluoroquinolone antibiotics for the treatment of bacterial infections in dogs and cats. Procox™ is the first combination treatment for worms and coccidia in dogs. In addition, Baytril™ 1 Inject was registered for antibiotic treatment of pigs and other livestock.

CROPSCIENCE

In 2011, €723 million (2010: €722 million) in research and development expenditures, or 24.7% of the Bayer Group total, were made in the CropScience subgroup. This was equivalent to 10.0% of subgroup sales.

Global network of R&D facilities

CropScience maintains a global network of research and development facilities employing some 4,300 people. Our largest R&D sites for crop protection products are located in Monheim and Frankfurt am Main, Germany, and in Lyon, France. The major research centers of the BioScience unit, which focuses on seed technology and breeding, are located in Ghent, Belgium; Haelen, Netherlands; and Morrisville, North Carolina, United States.

While research is carried out centrally at a small number of sites, our development and seed breeding activities take place both at these sites and at field testing stations across the globe. This ensures that future active substances and crop varieties can be tested according to specific regional requirements.

CropScience is refocusing its research and development (R&D) activities so that it can better respond to the future development of global markets. We are placing increasing emphasis on the BioScience business unit, with its seeds and traits, and on new growth areas in agrochemical research, such as plant health and stress tolerance. We plan to double our annual R&D spending in BioScience between 2010 and 2015 (2010: about €200 million) and gradually raise the annual R&D budget of CropScience as a whole by about 20 percent over the same period, to more than €850 million.

We aim to offer tailored solutions for the benefit of our customers across the entire value chain. Therefore, as part of our integrated research approach, scientists in the fields of agricultural chemistry and seed technology are increasingly collaborating to pool the knowledge acquired through chemical, biological and genetic research and field development, aligning this expertise to our long-term research objectives and business strategies for the various crops.

In the **Crop Protection** unit, we identify and develop innovative, safe and sustainable products for use in agriculture as insecticides, fungicides, herbicides or seed treatment products, and carry out research projects across all indications in new areas of future importance, such as plant health and stress tolerance. In addition to conventional chemistry, biology and biochemistry, modern technologies such as genetic analysis, high-throughput screening and bioinformatics play an important role in identifying new chemical lead structures. Collaborations with external partners complement our own activities.

We broaden the range of uses for our products by developing new mixtures or innovative formulations of products already on the market so that they can be applied in additional crops or be made easier to handle.

The active ingredient pipeline of Crop Protection currently comprises seven developmental projects, five of which are in late-stage and two in early-stage development. Some 30 additional projects are in the research phase.

In 2011 we successfully launched the new Xpro™ (bixafen) family of cereal fungicides, which also boost crop yields thanks to their positive effect on plant physiology. The Xpro™ technology was developed specifically for foliar application to combat speckled leaf blotch (Septoria tritici) and brown rust (Puccinia recondita). Representing a new group of active ingredients, Xpro™ is well suited as a component of resistance management.

We also commercialized Alion™ (indaziflam), a new alkylazine herbicide, for the first time in 2011. The product is characterized by a long duration of action and is effective against a broad spectrum of difficult-to-control broad-leaf weeds and grasses. Alion™ is intended for use in agricultural specialty crops, such as fruits and grapes.

We plan to launch four more promising new products during the period 2012–2015, subject to their successful registration:

Planned Product Launches [Table 3.32]

Product (active ingredient)	Use	Planned launch
Luna™ (fluopyram)	Fungicide	2012
Emesto™, Evergol™ (penflufen)	Seed treatment fungicide	2012/2013
Sivanto™ (flupyradifurone)	Insecticide	2014/2015
N.N. (triafamone)	Herbicide	2015

Luna™ (fluopyram) has been developed to combat problematic plant diseases caused by fungal pathogens. It is planned to market Luna™ worldwide for foliar application and seed treatment in more than 70 crops. Key benefits are better storability and longer shelf life of harvested produce.

Emesto™ and Evergol™ (penflufen) are new seed treatment fungicides for use in a wide variety of crops. The Emesto™ product family has outstanding efficacy against the fungus genus Rhizoctonia and improves potato quality and yield. The use of Evergol™ in oilseed rape/canola, soybeans, wheat, rice, corn and cotton helps build vitality in young plants and thus improves yield potential.

Sivanto™ (flupyradifurone) is effective against sucking pests such as aphids, cicadas and whiteflies in fruits, vegetables and broad acre crops.

The new rice herbicide triafamone controls a variety of weeds, including millet and grass species, and is also suitable for pre-emergence application.

In **BioScience** we are conducting research to improve plant traits and are developing new seed varieties in our established core crops – cotton, canola, rice and vegetables. We have now extended our research activities to include two new core crops – cereals and soybeans. Our research and development work focuses on improving the agronomic and quality traits of these crops, such as yield potential and post-harvest quality. Examples include improving the profile of rapeseed (canola) oil or enhancing the properties of cotton fibers. We are also targeting the development of plants with high tolerance against stress factors such as extreme temperatures and drought. Further areas of focus include developing new herbicide tolerance technologies based on alternative mechanisms of action, and improving the resistance of plants to damage from insects and disease. To do this we employ modern breeding methods including plant biotechnology. Our research and development pipeline for broad acre crops presently contains more than 60 lead projects and is complemented by around 90 research agreements with public- and private-sector partners.

In 2011 we acquired Hornbeck Seed Company, Inc., United States, and the oilseed rape seed business of Raps GbR, Germany. We have also entered into important partnerships, including a global licensing agreement with DuPont, United States, for a canola herbicide tolerance trait and a license and cooperation agreement with RAGT Semences S.A.S., France, giving us access to winter wheat germplasm.

Business growth in BioScience is supported by the introduction of new varieties and traits. The following developments are of particular significance:

In 2011 we launched our proprietary glyphosate herbicide tolerance technology GlyTol™ in FiberMax™ cotton seed varieties in the United States. We also commercialized the industry's first two combined herbicide tolerant varieties featuring both GlyTol™ and LibertyLink™ technologies.

In 2012 we plan to launch new conventional oilseed rape seeds in Europe. We will also launch new soybean seed varieties in the U.S. and Brazil in 2012 to further expand our offering in this core crop.

In 2013 we plan to offer a new combined insect-resistance and herbicide-tolerance solution for cotton, featuring both TwinLink™ and GlyTol™ technologies for the first time, and also expect to launch a new hybrid canola seed line in Australia.

Starting in 2014, we plan to commercialize a number of new hybrid rice varieties with improved stress and insect resistance under the Arize™ brand.

And by 2015 we intend to offer soybean farmers in North America a groundbreaking herbicide-tolerant trait stack with a new mode of action. This product will be tolerant to both isoxaflutole and glyphosate herbicides and will provide an important resistance management tool.

We are steadily bringing new Nunhems™ vegetable seeds to market, with more than 70 varieties introduced in 2011 and a comparable number of innovations anticipated for 2012.

The **Environmental Science** unit tests compounds developed by Crop Protection or with external partners and evaluates them for possible non-agricultural uses. Current development projects include gels and baits to combat insect pests, herbicides, fungicides, biological solutions, and products for the control of disease-transmitting insects.

Further milestones achieved in 2011 included the market introduction of LifeNet™ mosquito nets in selected countries. New product introductions in the garden and green industry, and vegetation management segments strengthened our portfolio in the United States. June 2011 saw the introduction of Nortica™, a product with a biologically derived mechanism of action that enhances root growth and lawn resistance. Also in the U.S., we launched a number of herbicides based on the newly registered active ingredient indaziflam for weed control on golf courses, sports grounds, railroad tracks and roadways. We plan to introduce more new herbicides for professional users in 2012. In the consumer business (Bayer Garden™/Bayer Advanced™), we continued to expand the Natria™ product line, which is based on natural or nature-derived ingredients, and launched it in further European markets.

MATERIALSCIENCE

In 2011, MaterialScience spent €237 million (2010: €231 million) on research and development (not including the costs of joint development activities with customers) – equivalent to 2.2% of subgroup sales. The subgroup thus accounted for roughly 8.1% of the Bayer Group's total research and development expenses.

A total of about 1,000 people were employed in research and development – some of them at the Polymer Research & Development Center in Shanghai, China, for example, which was expanded in 2011 and plays a key role in developing new products for the Asian market and enhancing Bayer's technical expertise in the region. At the same time, this local presence is aimed at more closely linking the company's research activities with customers in the emerging markets.

Expansion of the Polymer R&D Center in Shanghai, China

In the Polyurethanes business unit, the application areas for our products are being systematically broadened and their properties further improved. A key area in this respect is the construction industry, where rigid polyurethane foams serve as highly efficient heat and cold insulation materials, helping to reduce energy consumption and thereby protect the climate. Ongoing development work with our materials is aimed mainly at improving insulating properties and optimizing flame retardancy.

Polyurethanes are also used in the field of alternative energy generation, and we are working on potential applications in wind, solar and wave energy technology. Thanks to their versatility, polyurethanes help to boost the potential of renewable energies and reduce the cost of their production. Newly developed polyurethane systems offer potential advantages over existing materials in terms of mechanical strength and productivity improvements.

Another area of focus is the use of polyurethanes in light-weight construction. For many years Bayer has offered solutions based on conventional composite materials such as glass fibers, minerals and natural fibers. We are also working on particularly high-performance composites for the automotive industry based on other materials – such as carbon fibers – that help to significantly reduce vehicle weight and therefore fuel consumption. These materials are also suited for use in other sectors, such as construction and transport.

Pilot plant for plastics production using CO_2

Our process development is aimed at achieving further efficiency improvements to safeguard our long-term cost leadership. The focus is on manufacturing polyurethane raw materials with minimum energy consumption and greenhouse gas emissions. We are also increasingly working on the use of renewable raw materials – and also of carbon dioxide – as feedstocks for polymers. In early 2011, for example, we started up a globally unique pilot plant in Leverkusen for producing polyether polycarbonate polyols (PPP) – a feedstock for polyurethane – with the aid of CO_2.

In the Polycarbonates business unit, the main emphasis is on developing specialty products with benefits such as lower weight, increased safety or wide design freedom for new applications.

Our research activities are based on three core elements:

"Focused Innovation" means we are concentrating our resources on core fields of application such as automotive engineering and the IT sector and continuing to improve our materials for use in these areas. We are also focusing on rapidly expanding applications such as solar energy production. Our "Open Innovation" activities are aimed at developing new solutions in collaboration with external partners. The "Global Innovation" aspect ensures that strong support for our worldwide development activities is provided by our product research and development centers in Leverkusen, Germany, and Shanghai, China.

Our strategy focuses on selected development areas such as polycarbonate glazing and other lightweight solutions for the transportation sector, LED illumination management (for use in street lighting, for example), safety applications (such as safety glazing), and improvements in the cost efficiency of manufacturing processes. We also place importance on the continued development of particularly eco-friendly product grades, such as flame-retardant plastics bearing the Ecolabel of the European Union or polycarbonate blends containing recycled or bio-based materials.

In the Coatings, Adhesives, Specialties business unit, we are driving the development of raw materials for high-performance polyurethane coatings, adhesives and sealants. For example, our polyaspartic systems form the basis for sustainable and efficient coating systems for floors, wind rotor blades and large vehicles – markets that are showing strong, steady growth. We are also progressively developing eco-friendly systems based on water instead of solvents or capable of efficient radiation curing. An example of our entry into new market segments is an innovative technique for on-site coating of parquet flooring. Radiation curing enables the floor to be walked on again very soon afterwards.

In collaboration with our industrial partner KAST, Germany, and the Institute of Concrete Structures and Building Materials at Karlsruhe Institute of Technology (KIT), Bayer has developed the earthquake protection material EQ-Top™ for residential and office buildings. This system, combining glass fiber fabric with a waterborne specialty adhesive from Bayer, greatly strengthens masonry and is as easy to apply as wallpaper.

In the field of cosmetics – where we develop precursors for facial and body care, hair styling and sun protection products – the new Baycusan™ product line satisfies important demands such as the use of "green" raw materials (solvent-free formulations).

Our activities in functional films are centered partly around films based on polycarbonates or thermoplastic polyurethanes. Combining these films with additional surface technologies and modifying their properties gives rise to multifunctional or holographic films with attractive applications such as 3D flat screens or flexible displays. Another area of focus is on electroactive polymers (EAP) as a platform technology. Our research activities relate mainly to polymer films as a basis for developing alternative engine and generator concepts with partners in the industry. The acquisition of the U.S. company Artificial Muscle, Inc. in 2010 further strengthened our activities in this field. In 2011 we launched our first EAP film product under the brand name ViviTouch™ for a new application in video games. The material provides a special tactile feedback.

BAYER TECHNOLOGY SERVICES

Technology Services supports all Bayer subgroups with technology platforms

All Bayer subgroups work closely with our service company Bayer Technology Services worldwide on technology solutions, particularly in the fields of process technology, plant engineering, automation and product development. For example, this service company cooperates with MaterialScience in the development of new production processes that make efficient use of energy and raw materials, helping the subgroup to safeguard its technological and cost leadership. Examples include the new TDI production process being used for the first time at the MaterialScience site in Shanghai and the catalytic conversion of carbon dioxide to polymers. Centralized development work on technologies relevant to more than one subgroup, such as nanotechnology and biotechnology, along with expertise in mathematical simulation and statistical data analysis, helps HealthCare and CropScience to accelerate the development of new products. This also includes the development of entirely new production concepts, for example at the INVITE research center, a collaborative venture between Bayer Technology Services and Dortmund Technical University.

9. Sustainability

- Sustainability forms an integral part of our corporate strategy
- We have set ourselves new sustainability goals along the value chain to be achieved by 2015
- First global Safety Day underscored our commitment to safety
- We cut greenhouse gas emissions by 4.2% in 2011 despite an increase in production

9.1 Sustainability Strategy

Sustainability – which essentially means future viability – forms an integral part of our business strategy (see Chapter 11.2). We are convinced that we can only be commercially successful in the long run if we balance economic growth with ecological and social responsibility. In this we are guided by long-term values. Our commitment to sustainability is underlined by clear references to the topic in our mission statement "Bayer: Science For A Better Life," our pledge to the ten principles of the United Nations Global Compact, and our participation in the Global Compact's new "Corporate Sustainability Leadership – LEAD" initiative launched in 2011 and the chemical industry's Responsible Care™ initiative.

The clear goal of our sustainability strategy is to create business opportunities for our company and generate economic, ecological and social benefits. We will realize our goal of balancing ecological and social responsibility with corporate interests at four levels:

1. **Dialogue and commitment:** Bayer takes into account the expectations of all stakeholders. This applies also to our employee relations and discourse between industry, academia and politicians, and takes in our social commitment.
2. **Responsible business practices:** Bayer attaches great importance to responsible practices in the areas of compliance, human resources, product stewardship, health, safety and supplier management.
3. **Integration into business activities:** The sustainability strategy is accepted by all areas of the company and integrated into their business activities. Innovations and products that directly contribute to sustainable development make it a core element of our business activity.
4. **Relevant sustainability issues:** Bayer's Sustainability Program comprises solutions to major social challenges. It places special importance on alliances for sustainable health care, innovative partnerships to improve the supply of high-quality food, and new solutions for climate and resource protection.

Targets and indicators serve to operationalize our sustainability strategy. We aim to integrate sustainability even more into our business activities along the entire value chain. In 2011 we defined new and ambitious targets for 2015 that also include stricter long-term goals for greenhouse gas reduction.

INTERNET

The Sustainable Development Report can be found at: WWW.BAYER.COM/EN/SUSTAINABLE-DEVELOPMENT-REPORT.ASPX

A detailed overview on the achievement of our previous "2006+" objectives is available online.

Sustainability Targets [Graphic 3.19]

Targets 2015 *

MANAGEMENT & CORPORATE GOVERNANCE

Supplier management
- Inform all suppliers with purchase-order-relevant volumes about the Bayer Supplier Code of Conduct
- Assess the sustainability performance of suppliers that represent 75% or more of the total procurement volume and 75% or more of the procurement volume from risk areas
- Annually audit the sustainability performance of at least 10% of the suppliers from risk areas or at least 15 suppliers

Compliance
- Extend compliance training to 100% of all Bayer managers

EMPLOYEES

Diversity
- Increase the proportion of female managerial staff toward 30%

Occupational safety
- Reduce the number of occupational injuries with lost days by 25% to 0.3 LTRIR** ≙ 1.5 injuries per milion hours worked

SOCIAL COMMITMENT

- Focus our global commitment further on scientific education, fostering talent, cutting-edge research, health care and, in Germany, additionally on recreational, youth and disabled sports

INNOVATION & PRODUCTS

Research & Development
- Maintain or increase R&D spending in relation to sales

Product stewardship
- Roll out Global Product Strategy in another 10 countries with different languages

ECOLOGY

Climate protection
- Reduce specific greenhouse gas emissions in the Group by 35% (direct and indirect emissions in relation to manufactured sales volume in tons) between 2005 and 2020

Process and plant safety
- Implement the Bayer-wide initiative to increase process and plant safety; dedicated process and plant safety training for 40,000 employees worldwide by the end of 2012

Emissions
- Reduce other relevant emissions (ozone-depleting substances -70%, volatile organic compounds -50%)

Waste
- Reduce specific hazardous waste from production to 2.5% in relation to manufactured sales volume

* unless indicated otherwise
** Lost Time Reportable Incident Rate = number of reported occupational injuries and work-related illnesses per 200,000 hours worked resulting in one or more lost workdays

Responsibility for steering and aligning our Group-wide sustainability strategy lies with the Group Management Board member for Innovation, Technology and Sustainability and a Group Committee chaired by the Head of Environment & Sustainability in the Corporate Center. This committee defines targets and initiatives, resolves on the relevant Group regulations and monitors their implementation.

To sharpen the focus of our safety commitment, the Group Management Board has established the Bayer Safety Council, which addresses the areas of occupational, process, plant and transport safety. The Bayer Safety Council's activities in 2011 centered on the Group-wide process and plant safety initiative that was launched in 2010 and on the first global Bayer Safety Day. The measures are designed to expedite the development of our safety culture and standards and improve safety technology.

Safety commitment strengthened: Bayer Safety Council established

Sustainability is also something we expect from our suppliers. In 2009 we adopted the Bayer Supplier Code of Conduct to make clear to our suppliers what we mean by sustainability. Our choice of suppliers is made through an evaluation using the fundamental sustainability standards and requirements set forth in the code. We select suppliers for this evaluation according to a country-based strategic risk model. In 2011 we evaluated 361 suppliers on the basis of self-assessment questionnaires and, for the first time, reviewed 15 suppliers using external audits. The results are analyzed in detail and documented. In the event of any shortcomings, action plans are developed in conjunction with the suppliers concerned to improve their social and/or environmental standards.

In the context of our sustainability strategy, we set forth our position on water at the end of 2011. We plan to implement a range of specific, continuous improvements in our own operating procedures with a view to protecting water resources, using water more efficiently and setting water reduction targets for sites particularly affected by water shortage or water quality risks. We also aim to develop innovative products and technologies for the market to improve water efficiency and quality in areas such as agriculture. Another element of the program involves support for projects that ensure our employees and the communities near our sites have access to clean drinking water and basic sanitation.

Bayer's position on water published

Details of our achievements in the area of sustainability are published in our annual Sustainable Development Report. The data collection process and the statements made throughout the Sustainable Development Report are subjected to an audit review by an independent auditor and checked for consistency, appropriateness and credibility. The latest edition meets the highest standard (Level A+) under the internationally recognized G3 guidelines of the Global Reporting Initiative (GRI). The Sustainable Development Report also outlines the measures and management systems we have in place to implement the ten principles of the U.N. Global Compact and our accomplishments in this area.

INTERNET

The Sustainable Development Report can be found at: WWW.BAYER.COM/EN/SUSTAINABLE-DEVELOPMENT-REPORT.ASPX

9.2 Employees

Employee Data [Table 3.33]

	Dec. 31, 2010	Dec. 31, 2011
	FTE	FTE
Employees by region		
Europe	54,300	53,600
North America	16,400	15,800
Asia/Pacific	24,600	26,000
Latin America/Middle East/Africa	16,100	16,400
Employees by corporate function		
Production	47,200	47,600
Marketing and distribution	41,100	41,800
Research and development	13,200	13,300
General administration	9,900	9,100
Total	**111,400**	**111,800**
Trainees	2,600	2,500
	%	%
Proportion of women in senior management	21	22
Number of nationalities in the Group Leadership Circle	21	22
Proportion of full-time employees with contractually agreed working time not exceeding 48 hours per week	100	100
Proportion of employees with health insurance	94	94
Proportion of employees eligible for a company pension plan or company-financed retirement benefits	67	69
Proportion of employees covered by collective agreements on pay and conditions	55	54

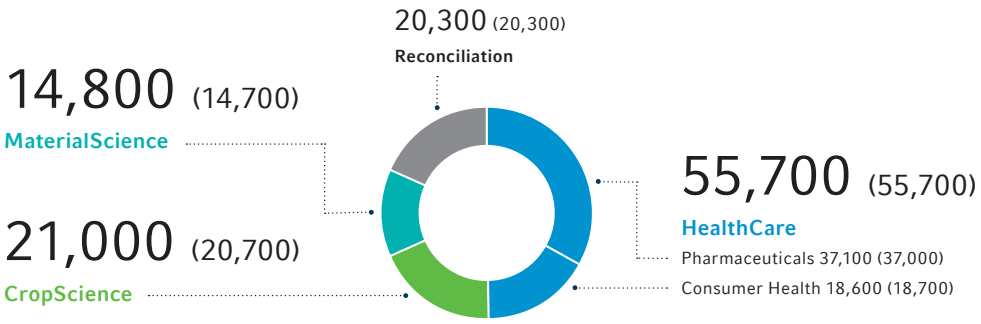
2010 figures restated
The number of employees on either permanent or fixed-term contracts is stated in full-time equivalents, with part-time employees included on a pro-rated basis in line with their contractual working hours.

EMPLOYEE DATA

On December 31, 2011, the Bayer Group had 111,800 employees worldwide (2010: 111,400). Thus headcount remained virtually steady in 2011 (+0.4%). In Germany we had 35,800 employees (2010: 36,200), who made up 32.0% of the Group workforce. HealthCare had 55,700 employees (2010: 55,700), CropScience 21,000 (2010: 20,700), and MaterialScience 14,800 (2010: 14,700). The remaining 20,300 (2010: 20,300) employees worked mainly for the service companies. This figure also includes the 700 (2010: 700) employees of Bayer AG. There were an additional 2,500 (2010: 2,600) trainees on the closing date who are not included in the Group total.

Personnel expenses rose in 2011 by 7.7% to €8,726 million (2010: €8,099 million), chiefly as a result of increased restructuring expenses, regular salary increases and higher employee bonuses.

Employees by Segment (2010 in parentheses) [Graphic 3.20]



2010 figures restated

SUSTAINABLE HUMAN RESOURCES POLICY

Bayer pursues a value-based and sustainable human resources policy that combines social responsibility with a performance-oriented corporate culture. This human resources strategy is based on the Bayer Group's new values and leadership principles, which were introduced and implemented in 2010 under the acronym "LIFE" – which stands for Leadership, Integrity, Flexibility and Efficiency.

Our common values: LIFE

Among the measures adopted to strengthen the Leadership component of LIFE and promote performance orientation is an innovative training program we developed in 2011 to support our managers in regularly giving their employees frank, constructive feedback on their work and conduct. The goal is to establish a true feedback culture throughout the enterprise that promotes individual strengths, addresses existing deficits and thus enhances employees' personal and professional development over the long term. All members of the Group Leadership Circle – the company's top management level – took part in the training program last year, and it is currently being provided to the other management levels as well.

EMPLOYEE COMPENSATION AND BENEFITS

An important principle of our human resources policy is to link employees' compensation to their performance and enable them to share in the company's success. Regular benchmarking against competitors and a globally standardized system help us to set base salaries in line with the demands and responsibilities of each position. These salaries are supplemented by performance-related compensation components and extensive ancillary benefits.

For example, more than €600 million is earmarked for variable bonus awards to employees for the year 2011 under the Group-wide short-term incentive (STI) program alone. Included in our extensive range of ancillary benefits in many countries are various stock participation programs that enable employees to purchase Bayer stock at a discount, giving them an additional opportunity to share in the company's economic success. We also offer senior and middle managers throughout the Group uniform stock-based compensation programs known as "Aspire" (see Note [26.6] to the consolidated financial statements) that are based on ambitious earnings targets and – in the case of Group Leadership Circle members – require an appropriate personal investment in Bayer stock.

Employee bonuses total more than €600 million

SOCIAL PROTECTION AND RESPONSIBILITY

Sustainability and social responsibility are also reflected in our approach to necessary changes and restructuring measures. In Germany, which remains the company's largest operational base with 35,800 employees, business-related dismissals are excluded through the end of 2015 for a large proportion of employees under an agreement with the employee representatives that was again renewed in 2011. The workforce reduction initiated in November 2010 will be implemented there and in the other affected countries with the maximum degree of social responsibility.

This aspect of our human resources policy includes ensuring a high level of social protection. For example, nearly all Group employees either have statutory health insurance or can obtain health insurance through the company, and 69.4% have access to a company pension plan. Bayer's roughly 600 employees in Poland, for example, also can join a modern company pension plan as of 2012. The working conditions for 54% (2010: 55%) of our employees are governed by collective or company agreements. In the People's Republic of China, the establishment of unionized employee councils, begun in 1997, continued in 2011 with the inclusion of two more Group companies. This means nine companies there now have elected councils representing a total of some 3,000 employees.

Our mission as a responsible employer also includes safeguarding and promoting our employees' health. In all the countries in which we operate, we offer our employees numerous health-promoting benefits. These range from medical checkups and on-site medical services to sports opportunities inside and outside the company and the provision of advice and reintegration assistance after recovery from an illness. In this way we also contribute significantly to maintaining long-term employability, which is of growing importance in view of the lengthening of people's working lives in many countries on account of demographic change.

DIVERSITY AND INTERNATIONALITY

The growing number of people we employ in the emerging markets, especially China, is spurring our efforts to make our global workforce more diverse and international. Among the paramount aims of our diversity strategy is to considerably increase the proportion of local managers, particularly in the emerging markets, over the medium term. Among the members of our Group Leadership Circle, in which 22 nationalities are currently represented, some 70% are native to the country in which they work. The Bayer Group currently employs people of 127 nationalities overall. In light of this we are taking measures to further promote collaboration among employees, and between employees and customers, from different cultural backgrounds. In 2011, for example, we introduced the innovative online tool "GlobeSmart," through which employees can obtain information about etiquette and communication behaviors in more than 60 countries.

The second major focus of our diversity strategy is to significantly increase the number of women in management positions. Last year we therefore set ourselves the voluntary target of raising the proportion of women in senior management (the five highest management grade levels) throughout the Group toward 30% by 2015. Women accounted for 22% of employees in this management segment in 2011 – over 1% more than in the previous year – and 35% of Bayer Group employees overall. To continue driving activities aimed at increasing employee diversity, we created the position of "Global Head of Diversity & Inclusion" in 2011. The task of this new function is to develop Group-wide strategies and structures for promoting diversity and effective ways to include all employee groups in the company's activities.

Bayer Group Workforce Structure 2011 [Table 3.34]

	Women	Men	Total
Senior management	1,800	6,400	8,200
Junior management	8,700	15,400	24,100
Skilled employees	28,500	51,000	79,500
Total	**39,000**	**72,800**	**111,800**
Trainees	800	1,700	2,500

VOCATIONAL TRAINING AND RECRUITING

As an employer, Bayer endeavors to appeal to the best and most talented people worldwide and to retain employees for long periods by providing good development opportunities, a modern working environment and competitive compensation. In 2011 we again succeeded in attracting a total of more than 5,300 new academically qualified specialists and managers worldwide. In China alone we recruited nearly 1,900 university graduates, in India about 750, in Germany roughly 400 and in the United States more than 250. In 2011 we hired nearly 12,000 new people across all occupations. In addition, more than 3,000 challenging internships were awarded to talented young students worldwide to give them pre-graduation insight into the variety of career opportunities at Bayer. Such young people often return to us as employees at a later date.

Apart from the hiring of university graduates, our own training programs for young people are among the most important steps we take to guard against a possible shortage of specialists due to demographic change. Once again in 2011, more than 900 young people began training courses in a total of some 50 occupations at our German sites.

Employees by Age Group in % [Graphic 3.21]

Age in years	%
< 20	0.1
20–29	15.5
30–39	29.5
40–49	30.7
50–59	21.8
> 60	2.4

ADVANCING KNOWLEDGE AND LEADERSHIP SKILLS

Providing continuing education for our employees is central both to talent management and to addressing the consequences of demographic change. In 2011 we maintained our offering of advanced training courses for employees at a high level worldwide, supplementing it with numerous innovations. For example, we again provided training for nearly 50,000 employees throughout the Group in the areas of occupational safety and health protection via our successful "Pegasus" online training program, and about another 10,000 employees completed our online course on corporate compliance.

Apart from the acquisition, expansion and retention of specialist knowledge, a further focus of our training programs is on improving leadership skills. In 2011 we introduced our standardized Group-wide management seminar "Bayer Leadership Excellence," already offered in Europe and the United States, to Brazil and the countries of the Asia/Pacific region. This extension of our program is supported by last year's launch of the global Bayer Training Community, an exchange forum for Bayer's management coaches to help ensure globally identical course content and quality standards.

9.3 Environment, Climate Protection and Safety

Bayer places great importance on protecting the environment and using natural resources responsibly. We use our expertise and experience both to develop innovative products that help protect the environment, nature and the climate, and to improve our technologies and processes.

We develop new solutions for optimizing the use of resources, reducing emissions and avoiding waste. Bayer has designed a method – called the resource efficiency check – to help us deploy resources more efficiently. Piloted in the CropScience and MaterialScience subgroups in 2011, this method has already enabled us to identify savings potentials in all the major categories (raw materials, energy, water and waste). In November 2011, the Group management's sustainability committee decided that the subgroups will use this tool systematically in the future.

Key Performance Indicators [Table 3.35]

Category	Key Performance Indicators for Health, Safety and Environment	2010	2011
Health and Safety	Industrial injuries to Bayer employees resulting in at least one day's absence (number of injuries per million hours worked)	1.7	1.5
	Reportable industrial injuries to Bayer employees (number of injuries per million hours worked)	3.1	2.8
	Environmental incidents	7	3
	Transportation incidents	8	7
Emissions	Direct greenhouse gas emissions (CO_2 equivalents in million metric tons)*	4.80	4.23
	Indirect greenhouse gas emissions (CO_2 equivalents in million metric tons)*	3.70	3.92
	Volatile organic compounds (VOC) (thousand metric tons/year)	2.54	2.69
	Total phosphorus in waste water (thousand metric tons/year)	0.09	0.08
	Total nitrogen in waste water (thousand metric tons/year)	0.49	0.53
	Total organic carbon (TOC) (thousand metric tons/year)	1.42	1.50
Waste	Hazardous waste generated (million metric tons/year)	0.35	0.47
	Hazardous waste landfilled (million metric tons/year)	0.06	0.12
Use of resources	Water use (million m^3/year)	474	437
	Primary energy use for generating steam and electricity (petajoules [10^{15} joules]/year)**	51.63	50.10
	Secondary energy use for generating steam, electricity and refrigeration (petajoules [10^{15} joules]/year)**	34.08	34.85

2010 figures restated
* as per Greenhouse Gas Protocol
** Starting in 2011, we are reporting our energy use according to source category.

Further reduction in industrial injury rate

We regularly review our performance in the areas of health, safety and environment on the basis of key performance indicators – many of which we further improved in 2011, despite a roughly 5% increase in manufactured sales volume. The occupational injury rate again declined, both in terms of lost workdays and as regards reportable injuries requiring medical treatment. Thus in 2011 we already achieved the target we had set for 2015 of 1.5 injuries per million hours worked resulting in at least one day's absence. In line with internationally accepted standards, we adjusted our reporting of occupational injuries in 2011, replacing the former parameter – the number of injuries per million hours worked – by the Lost Time Reportable Incident Rate (LTRIR). We will report occupational injuries in terms of this new parameter starting with the Annual Report 2012.

Due to the higher production volume, not only secondary energy consumption but also emissions of volatile organic compounds (VOC), nitrogen and organic carbon in waste water increased in 2011. The volume of hazardous waste considerably exceeded the previous year's figure due to a groundwater and soil remediation project at one of our sites in India. These measures are expected to take until mid-2013 to complete and will affect the Group's waste statistics accordingly.

In 2011 there was also a significant drop in the number of environmental incidents, as well as a decline in transport incidents. In the case of environmental incidents we report even minor product releases, in line with our internal voluntary commitment. For substances with a high hazard potential, we report quantities greater than 100 kg. Unfortunately, even our extensive safety precautions and training procedures cannot entirely prevent environmental incidents or traffic accidents from occurring. Any such events are carefully analyzed and evaluated so that adequate steps can be taken to prevent a recurrence.

Bayer's aim is to achieve an appropriate and uniform standard of HSEQ (health, safety, environmental protection and quality) throughout the Bayer Group and steadily improve it. To meet this goal, the company has established HSEQ management systems in all subgroups and service companies that are based on recognized international standards and are regularly reviewed and updated. In 2011 about 90% of Bayer production sites had an HSE management system audited by Bayer. More than 80% of our business activity (in relation to production volume and energy input, respectively) takes place at sites that are certified or externally validated according to recognized international standards such as ISO 14001, EMAS or OHSAS 18001. All subgroups and service companies have industry-specific quality management systems such as ISO 9001 or GMP (Good Manufacturing Practice). The subgroups have additional systems and standards that address product-specific requirements.

Our highest priorities are the health and safety of everyone who handles our products and the protection of the environment. For us, product stewardship entails a thorough evaluation of health and environmental risks along the entire value chain – from product research and development to production – and includes responsible product marketing, use and disposal. Nearly all products manufactured by Bayer are subject to wide-ranging statutory obligations concerning the publication of information, such as those imposed by the European Union chemicals policy "REACH." After submitting the first 125 substances to the chemicals agency ECHA in 2010, Bayer is preparing the second registration phase involving substances it produces in quantities exceeding 100 tons per year. This phase ends on June 1, 2013. For many of these substances, too, Bayer has formed registration consortia with competitors in order to share data and avert the need for additional animal studies. Bayer is not yet affected by the authorization process introduced in 2011. We have registered all substances requiring classification under the Globally Harmonized System (GHS) for chemicals, which applies in Europe and also came into effect in China in 2010.

CLIMATE PROTECTION

Bayer's strategy takes climate change into account as an ecological, economic and social challenge. The Bayer Climate Program initiated in 2007 became a cornerstone of the Bayer Sustainability Program in 2009. It involves examining the energy efficiency of our processes and developing solutions to protect the climate and address the effects of climate change.

In 2011 Bayer was again listed in the Carbon Disclosure Leadership Index in recognition of our transparent reporting – this time as one of the four best companies in all sectors worldwide. Bayer was also included in the Carbon Performance Leadership Index (CPLI) with an "A" ranking in light of our efforts to reduce carbon dioxide emissions.

Group's climate objectives tightened again

We plan to continue systematically along this path and have again tightened up our long-term climate objectives for the reduction of greenhouse gas emissions in the context of our goals for 2015. The new goal for the Bayer Group is to reduce specific greenhouse gas emissions (direct and indirect emissions in relation to the manufactured sales volume in metric tons) by 35% between 2005 and 2020. To achieve this, the target for the reduction of specific emissions in our energy-intensive MaterialScience subgroup was raised in 2011 to 40% (previously 25%), while the target for the reduction of absolute emissions at HealthCare was increased to 10% (previously 5%). At CropScience, the target for the reduction of absolute emissions remains at an ambitious 15%.

Bayer bases its reporting of greenhouse gas emissions on the international standard of the Greenhouse Gas (GHG) Protocol. The company aims to hold total emissions at 2007 levels through 2020 despite growth in production. Despite a further 5% rise in manufactured sales volume in 2011, with most of this increase occurring at MaterialScience, direct greenhouse gas emissions were reduced by about 12%,

thanks largely to process improvements and energy-saving measures. Energy-related indirect greenhouse gas emissions rose by 5.7%. The total of direct and indirect greenhouse gas emissions declined by 4.2%.

To track our target achievement more transparently, we publish detailed information on emission levels in our Sustainable Development Report.

Improving energy efficiency is a major factor in reducing our own greenhouse gas emissions. The energy and CO_2 savings potentials identified by the Bayer Climate Check have been integrated into the energy management system known as STRUCTese™ (Structured Efficiency System for Energy). MaterialScience had already launched this certified system (DIN EN 16001) at 46 energy-intensive production facilities by 2011 to ensure that these savings potentials are realized for the long term and the efficiency of our production processes is steadily improved. We plan to have introduced STRUCTese™ at a total of 61 energy-intensive facilities by the end of 2012.

Process innovations are another focus of our efforts to reduce greenhouse gas emissions. One example is an innovative, climate-friendly chlorine production process developed by Bayer together with partners. In 2011 we commissioned the first industrial-scale pilot facility in Krefeld, Germany. It has a capacity of 20,000 tons per year and can cut energy consumption by up to 30% compared with the conventional membrane technology. We also drove forward process engineering modifications to further reduce nitrous oxide emissions.

In addition, Bayer supplies solutions for climate protection – for example in the construction industry, because energy usage in buildings accounts for some 30% of global CO_2 emissions. Climate protection is achievable with Bayer's EcoCommercial Building (ECB) program. An interdisciplinary network of suppliers, planners, engineers and service providers in the construction sector is developing customized concepts for energy-optimized buildings and even zero-emissions buildings. We welcomed a further 28 partners to the global ECB network in 2011, one of the aims being for polyurethane insulation solutions from Bayer to become even more firmly established in construction. Apart from our efforts to raise energy efficiency and reduce emissions, we are continuing to develop our market solutions for the construction industry and lightweight solutions for more sustainable mobility.

The Bayer Climate Program also uses other approaches, including the "Eco-Fleet" program to reduce CO_2 emissions caused by company cars, the use of new telecommunications technologies to reduce the need for business travel, and the improvement of energy efficiency in the IT environment. Between 2007 and the end of 2011, the Eco-Fleet program and improved energy efficiency in IT already reduced CO_2 emissions by over 32,500 tons per year and some 3,500 tons per year, respectively.

9.4 Social Commitment

Bayer's social commitment is an established part of our sustainability strategy and corporate policy. The company considers itself part of society and sees its commitment to corporate citizenship as an investment in society's future viability and a contribution to a positive business environment. Bayer's social commitment is exemplified by numerous projects in many parts of the world, some of which the company has been organizing or supporting for years. In 2011 Bayer provided some €54 million (2010: €57 million) in funding in four main areas of focus.

€54 million
for social initiatives

Expenses for Social Initiatives [Table 3.36]

Main sponsorship areas	2010	2011
	€ million	€ million
Education and research	7	8
Environment and nature	3	2
Health and social needs	26	24
Sports and culture	21	20

We continue to consistently implement our funding strategy, focusing on projects of high social relevance that meet specific needs and are related to our corporate activity. In addition to financial support, we aim to contribute our technological and commercial expertise wherever possible.

EDUCATION AND RESEARCH

Bayer places great importance on support for education and research, especially in the area of science and technology. This is because, as a research-based company, we depend heavily on recruiting highly trained scientists and on society's acceptance of technology.

Support for talented young researchers and leading scientists

The funding programs of the Bayer Science & Education Foundation cover the entire scientific training and career path. In 2011 the foundation approved total funding of some €1 million for dedicated school students, innovative school projects, ambitious trainees, exceptional university students, outstanding young scientists and leading researchers.

In 2011 the foundation added a further 52 teaching projects to its school funding program in the communities near Bayer's German sites, bringing total funding for such projects to some €462,000. As part of Bayer's support program for college and school students, €237,000 was pledged in scholarships for 49 young people to study abroad. The foundation also made available a total of €179,000 to enable young international scientists to attend the Nobel Prize laureate meeting in Lindau, Germany, and to provide 100 Bayer scholarships at 23 universities of excellence throughout Germany under the government's "Germany Scholarships" program.

The "Bayer Early Excellence in Science Award" was again awarded in 2011 to three young scientists in the fields of biology, chemistry and materials. Dr. Cristobal Uauy from the John Innes Centre in Norwich, United Kingdom, was honored for his contributions to understanding the wheat genome and to increasing crop productivity in wheat breeding. Dr. Andreas Bender of Cambridge University Cancer Centre, United Kingdom, received the award for his work in the field of cheminformatics to develop prediction models for active substance properties in the life sciences. Professor Arne Thomas from the Institute for Chemistry at the Technical University of Berlin was honored for the development of new functional materials for use in catalysis and gas storage.

The Bayer Science & Education Foundation presented the €75,000 Hansen Family Award 2011 to Professor Stefan W. Hell, who works at the Max Planck Institute for Biophysical Chemistry in Göttingen and the German Cancer Research Center in Heidelberg. The 48-year-old researcher received the award for his breakthroughs in the field of microscopy, which led to a new class of light microscopes that provide insights into living cells and tissue.

In 2011 Poland, Switzerland and Turkey joined Bayer's international education initiative "Making Science Make Sense." This program, now regularly implemented in 14 countries on four continents, is aimed at elementary school students. Bayer employees donate their time to illustrate the fascination and practical importance of science through experiments.

As part of our social commitment in India, we are continuing our "Learning for Life" program with an integrated package of measures. The program enables children and young people to attend school or vocational training courses. The focus of the program continues to be on vocational training. In Karnataka state, for example, approximately 2,700 trainees have regularly attended the vocational instruction we have organized in conjunction with local non-governmental organizations, initially at five government schools, in the 2009/2010 through 2011/2012 academic years.

ENVIRONMENT AND NATURE

Another focus of our social commitment is on educating young people about environmental issues.

Involving young people in environmental projects

In 2011 Bayer and the United Nations Environment Programme (UNEP) again organized about a dozen environmental projects for children and young people as part of their global partnership. These activities centered on the International Children's Conference on the Environment in Bandung, Indonesia, attended by some 1,400 young people from 100 countries, the theme of which was "Reshaping Our Future Through Green Economy and Sustainable Lifestyles." In 2011, a total of about 50 young people from 18 countries took part in a week-long study trip to Germany to learn more about environmental protection – the annual highlight of Bayer's "Young Environmental Envoys" program.

Thanks once again to its particular popularity in China, the annual children's painting competition received a record 4 million entries from 99 countries. The subject for the 2011 contest was "Life in the Forests."

HEALTH AND SOCIAL NEEDS

Bayer is globally committed to improving social conditions and health care with the dual aims of promoting stability in the communities near its sites and helping to solve global health challenges.

As part of our ongoing aid programs, we again supported the World Health Organization (WHO) in 2011 in the fight against neglected tropical diseases. The company donated free supplies of medicines included on the WHO Essential Drug List, such as drugs to combat Chagas disease, an infection widespread in Latin America that is transmitted via the bite of the assassin bug. The existing agreement with the WHO was extended early to run until 2017. The annual medicine donation will be doubled to one million Lampit™ tablets, and the company will continue to provide financial support of US$300,000 per year for logistics and distribution. Bayer also provided further support for the WHO by donating medicines to combat African sleeping sickness.

We also formed an alliance with the WHO and the Stop Tuberculosis (TB) Partnership for the fight against multiresistant tuberculosis in China. Bayer provided 620,000 tablets of the antibiotic moxifloxacin for this program in 2011.

The Bayer Cares Foundation, dedicated to promoting independent social initiatives, spent a total of roughly €126,000 in 2011 to support 40 charity projects in the communities near the company's sites in Germany. In addition, the Bayer Volunteering Program was launched in 13 countries of Central and Latin America based on the successful German model, with total funding of €55,000. In this way the Bayer Cares Foundation is rewarding voluntary efforts by Bayer employees and other citizens to improve social conditions in their communities.

In 2011 the Foundation presented the €35,000 "Aspirin Social Award" for innovative health care aid and consultancy programs in Germany for the second time.

The Bayer Cares Foundation initiated a Group-wide appeal to help the victims of the earthquake and tsunami in Japan, to which employees from 20 countries responded with total donations exceeding €300,000. Bayer headquarters and the Japanese subsidiary topped this up to €700,000. Bayer is using this amount to support the relief organization Ashinaga in building a care and educational center for children who live in the affected region and lost one or both parents as a result of the disaster. In addition, the company donated €880,000 to the Japanese Red Cross and medicines worth €700,000 to the Japanese health authorities immediately after the disaster, bringing Bayer's total aid to Japan to €2.3 million.

In 2011 the company or the Foundation also provided emergency relief and reconstruction aid totaling €680,000 to flood victims in Australia, Brazil, Cambodia, Thailand and the Philippines, earthquake victims in New Zealand and famine victims in eastern Africa.

SPORTS AND CULTURE

The Bayer Arts & Culture program, the company sports clubs and our other special-interest clubs have contributed to the attractiveness of our corporate locations for employees and other citizens alike for more than a century. Bayer is restructuring its sports sponsorship in the vicinity of its Leverkusen, Dormagen and Krefeld-Uerdingen sites and will gradually shift its focus to six large clubs by 2015. These clubs will receive a total of some €13 million annually for activities in the areas of recreational, youth and disabled sports.

A further seven soccer clubs signed up to the "Simply Soccer" joint initiative with the German Soccer Federation (DFB). As a result, some 200 girls and boys with mental or learning disabilities regularly played soccer in 13 ordinary sports clubs in 2011.

10. Events After the End of the Reporting Period

Since January 1, 2012, no events of special significance have occurred that we expect to have a material impact on the financial position or results of operations of the Bayer Group.

11. Future Perspectives

11.1 Opportunity and Risk Report

- No risks that could endanger the company's existence
- Opportunity and risk management an integral part of corporate governance
- Clearly structured risk management organization

11.1.1 Opportunity and Risk Management

Business operations necessarily involve opportunities and risks. Effective management of opportunities and risks is therefore a key factor in sustainably safeguarding a company's value.

Managing opportunities and risks is an integral part of the corporate governance system in place throughout the Bayer Group, not the task of one particular organizational unit. Thus the organizational units are closely interlinked in this respect. Key elements of the opportunity and risk management system are the planning and controlling process, Group regulations and the reporting system.

At regular conferences held to discuss business performance, the opportunities and risks that are evaluated both qualitatively and quantitatively in determining the strategies of the strategic business entities and the regions are updated, and targets and necessary actions are agreed upon.

Opportunity management in the Bayer Group is based on the detailed observation and analysis of individual markets and the early recognition and evaluation of trends from which opportunities can be identified. Macroeconomic, industry-specific, regional and local trends are taken into account. It is the task of the subgroups and strategic business entities to make use of strategic opportunities arising in their respective markets. The strategic framework necessary for them to do this is set, and the necessary financing and liquidity ensured, at the Group level. Opportunity-based projects involving more than one subgroup are centrally coordinated and accounted for.

The principles of the Bayer Group's risk management system are set forth in a directive published on the Group-wide intranet. The directive explains the fundamentals of risk management in compliance with the German Law on Corporate Supervision and Transparency and includes the principles for the early identification, communication and addressing of risks. These principles mainly relate to the areas of statutory requirements, risk management policies at Bayer and risk management activities.

In the Bayer Group, risks are systematically and continuously identified, analyzed and documented in a database. Risks are defined as events and possible developments within or outside of the company that could jeopardize a sustained increase in enterprise value. Risk-relevant information is compiled at least quarterly and also on an ad hoc basis where necessary.

The documentation contains a description of the risk, an assessment of the extent of possible damage and the probability of occurrence, along with measures to monitor and counteract the risk.

Materiality limits for the subgroups and service companies are defined by the Bayer Group in consultation with the respective units. To transparently present risk issues at an early stage and allow potential risks to be countered in a timely manner, the risk documentation prescribes action thresholds that are well below the materiality limits.

The members of the Group Leadership Circle have unrestricted access to the risk database, which is mapped to the management information system.

Risk management at the Group level is assigned to the Chief Financial Officer. The subgroups, service companies and the units of the holding company have nominated persons responsible for risk management at the upper managerial level as well as risk management coordinators to ensure that an effective system for the early identification of risks is implemented and maintained. The risk management coordinators and specialists in the organizational units are responsible for the risk inventory, including the identification, evaluation and documentation of risks, and for explaining the risk strategy. The annual risk report to the Supervisory Board covers the risk management system, legal risks, compliance issues, the reports by Corporate Auditing and the report on the internal control system.

Corporate Auditing is responsible for coordinating the identification and documentation of risk areas throughout the Group and for enhancing the risk management system.

The effectiveness of the risk management system is monitored by Corporate Auditing at regular intervals. Corporate Auditing adopts a risk-based approach to audit planning. In addition, the external auditor assesses the early warning system as part of the annual financial statements audit and informs the Group Management Board and the Supervisory Board of the findings. These findings are taken into account as part of the continuous enhancement of our risk management system. The risk management system is monitored by the Supervisory Board, especially its Audit Committee.

11.1.2 Internal Control and Risk Management 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 (HGB))

Bayer has an internal control and risk management system in place under which appropriate structures and processes for (Group) accounting and financial reporting are defined and implemented throughout the organization. This system is designed to guarantee timely, uniform and accurate accounting for all business processes and transactions. It ensures compliance with statutory regulations, accounting and financial reporting standards and the internal accounting directive, which is binding upon all the companies included in the consolidated financial statements. The relevance and consequences for the consolidated financial statements of any amendments to laws, accounting or financial reporting standards or other pronouncements are continually analyzed, and the Group directives and systems are updated accordingly.

Apart from defined control mechanisms such as system-based and manual reconciliation processes, the fundamental principles of the internal control system include the separation of functions and compliance with directives and operating procedures. The accounting and financial reporting process for the Bayer Group is managed by the Group Accounting and Controlling department of Bayer AG.

The Group companies prepare their financial statements either locally or using the Group's shared service centers and transmit them with the aid of a data model that is standardized throughout the Group and based on the Group accounting directive. The Group companies are responsible for their compliance with the directives and procedures applicable throughout the Group and for the proper and timely operation of their accounting-related processes and systems. The employees involved in the accounting and financial reporting process for the consolidated financial statements of the Bayer Group and the financial statements of Bayer AG receive regular training, and the Group companies are supported by headquarters personnel throughout the process. As part of the process, measures are implemented that are designed to ensure the regulatory compliance of the consolidated financial statements. These measures serve to identify and evaluate risks, and to limit and monitor any risks that may be identified. For example, material new contractual relationships are systematically tracked and analyzed.

The consolidated financial statements are prepared centrally on the basis of the data supplied by the included subsidiaries. The consolidation, certain reconciliation operations and monitoring of the related time schedules and procedures are performed by a dedicated Group Financial Statements department. System-based controls are monitored by personnel and supplemented by manual inspection. At least one additional check by a second person is carried out at every level. Defined approval procedures must be observed at all stages in the accounting process. There is also a dedicated unit, separate from the financial statements preparation process, for clarification of specific accounting-related questions or particularly complex issues.

Bayer's internal control system for financial reporting is based on the framework issued by COSO (Committee of the Sponsoring Organizations of the Treadway Commission). For IT processes, the COBIT (Control Objectives for Information and Related Technology) framework is used accordingly. The standards for the mandatory Group-wide internal control system (ICS) were derived from these frameworks, defined centrally and implemented by the Group companies. The management of each company is responsible for the implementation and oversight of the local ICS. All ICS-relevant business processes, together with the related risks and controls, are documented in a uniform and audit-proof manner in a Group-wide system and clearly mapped in a central IT system at the Group level.

The role of Corporate Auditing includes verifying the accuracy of the accounting at German and foreign companies, especially with regard to the following aspects:

- compliance with statutory regulations, directives of the Board of Management, and other internal regulations and procedures,
- formal and substantial correctness of accounting and the corresponding reporting,
- functioning and effectiveness of the internal control system to protect the company against financial loss,
- correctness of working procedures and adherence to economic principles.

Bayer AG has a standardized, Group-wide procedure to monitor the efficacy of the accounting-related internal control system. This procedure is aligned to potential misreporting risks in the consolidated financial statements.

The appraisal of the effectiveness of the accounting-related ICS is based on a cascaded self-assessment system that starts with the persons directly involved in the process, then involves the principal responsible managers and ends with the Group Management Board. Corporate Auditing performs an independent review of random samples of these self-assessments.

The Group Management Board has examined the effectiveness of the internal control system for accounting and financial reporting. The examination confirmed the functionality of this internal control system for fiscal 2011. The effectiveness of the internal control system is monitored by the Audit Committee of the Bayer AG Supervisory Board in compliance with the German Accounting Law Modernization Act, which came into effect in May 2009. However, it should be noted that an internal control system, irrespective of its design, cannot provide absolute assurance that material misstatements in the accounting will be avoided or identified.

11.1.3 Opportunities

As an international enterprise, Bayer is exposed to a wide variety of developments in the various national and international markets in which it operates in its three business areas. Different potential risks and opportunities arise within the existing operational framework according to the business performance described in this report and the company's overall situation.

We aim to take maximum advantage of the opportunities that present themselves in our various fields of activity. We continuously evaluate potential additional opportunities in all areas as an integral part of our strategy, which is described in detail in Chapter 11.2 "Strategy."

Research and development present major opportunities, and we are working continuously to find new products and improve existing ones. These activities are presented in detail in Chapter 8 "Research and Development."

We also believe that the emerging markets hold further potential. More information on our business in these countries is provided in Chapter 3.5 "Business Development in the Emerging Markets."

Various risks described in the following – particularly financial risks – are counterbalanced by the opportunities that could result from positive trends.

11.1.4 Risks

RISK EXPOSURE

As a global company with a diverse business portfolio, the Bayer Group is exposed to numerous risks. We have purchased insurance coverage – where it is available on economically acceptable terms – in order to minimize related financial impacts. The level of this coverage is continuously re-examined.

Significant risks for the Bayer Group are outlined in the following sections. The order in which the risks are listed is not intended to imply any assessment as to the likelihood of their materialization or the extent of any resulting damages.

LEGAL RISKS

We are exposed to numerous legal 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, patent disputes, tax assessments and environmental matters. The outcome of any current or future proceedings cannot be predicted. It is therefore possible that legal or regulatory judgments 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 described in Note [32] to the consolidated financial statements.

INDUSTRY-SPECIFIC RISKS

Pharmaceutical product prices are subject to regulatory controls in many markets. Some governments intervene directly in setting prices. In addition, in some markets major purchasers of pharmaceutical products have the economic power to exert substantial pressure on prices. Price controls, as well as price pressure from generic manufacturers as a result of government reimbursement systems favoring less expensive generic pharmaceuticals over brand-name products, diminish earnings from our pharmaceutical products and could potentially render the market introduction of a new product unprofitable. We expect the current extent of regulatory controls and market pressures on pricing to persist or increase. Changes regarding governmental price controls in our key markets are continuously monitored. If necessary, we adjust our business plans depending on the extent of such price controls.

The performance of our MaterialScience subgroup is affected by cyclicality in customer industries. A downturn in the business cycle, characterized by weak demand – especially from principal customers – and overcapacities, may lead to price pressure and more intense competition.

Holistic portfolio management

The early identification of trends in the economic or regulatory environment and active portfolio management are important elements of our business management. Our analyses of the global economy and forecasts of medium-term economic development are documented in detail on a quarterly basis and used to support operational business planning. However, even our detailed analyses may not ensure that a massive economic downturn of the kind that occurred in 2008 and 2009 can be predicted.

For a summary forecast, see Chapter 11.3 "Economic Outlook."

Where it appears strategically advantageous, we may acquire a company or part of a company and combine it with our existing business. The amount of goodwill and other intangible assets reflected in the Bayer Group's consolidated statement of financial position has increased significantly in recent years as a result of acquisitions. Failure to successfully integrate a newly acquired business or unexpectedly high integration costs could jeopardize the achievement of quantitative or qualitative targets, such as synergies, and adversely impact earnings. Suitably experienced resources are therefore assigned to the teams that steer the integration processes. Teams of experts also provide support for any divestiture projects.

PRODUCT DEVELOPMENT RISKS

The Bayer Group's competitive position, sales and earnings depend significantly on the development of commercially viable new products and production technologies. We therefore devote substantial resources to research and development. Because of the lengthy development processes, technological challenges, regulatory requirements and intense competition, we cannot assure that all of the products we will develop in the future or are currently developing will actually reach the market and achieve commercial success as scheduled or at all.

Furthermore, adverse effects of our products that may be discovered after regulatory approval or registration despite thorough prior testing may lead to a partial or complete withdrawal from the market, due either to regulatory actions or our voluntary decision to stop marketing a product. Also litigations and associated claims for damages due to negative effects of our products may materially diminish our earnings.

To ensure an effective and efficient use of resources in research and development, the Bayer Group has implemented an organizational structure and process organization comprising functional departments, working groups and reporting systems that monitor development projects.

REGULATORY RISKS

Our life science businesses, in particular, are subject to strict regulatory regimes relating to the testing, manufacturing and marketing of many of our products. In some countries regulatory controls have become increasingly demanding. We expect this trend to continue, particularly in the United States and the European Union. Increasing regulatory requirements, such as those governing clinical or (eco-)toxicological studies, may increase product development costs and/or delay product (re-)registration.

To counter risks arising from legal or other requirements, we make our decisions and engineer our business processes on the basis of comprehensive legal advice provided both by our own experts and by acknowledged external specialists. Projects have been initiated to coordinate the implementation of new regulatory controls and mitigate any negative implications for the business.

PATENT RISKS

Increased competitive pressure following patent expiration

A large proportion of our products, mainly in our life science businesses, is protected by patents. We are currently involved in lawsuits to enforce patent rights in our products. Generic manufacturers and others 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.

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. Details of related litigation are provided as part of the description of legal risks in Note [32] to the consolidated financial statements.

In some areas of activity we may also be required to defend ourselves against charges that products infringe patent or proprietary rights of third parties. This could impede or even halt the development or manufacturing of certain products or require us to pay monetary damages or royalties to third parties.

Our life science businesses, in particular, have a comprehensive product life-cycle management system in place. In addition, our patents department, in conjunction with the relevant functional departments, regularly reviews the patent situation. Potential infringements of our patents by other companies are carefully monitored so that legal action can be taken if necessary.

PRODUCTION, PROCUREMENT MARKET AND ENVIRONMENTAL RISKS

Production capacities at some of our manufacturing facilities could be adversely affected by, for instance, technical failures, natural disasters, regulatory rulings or disruptions to supplies of key raw materials or intermediates, as in the case of dependence on a single source for critical materials. This applies particularly to our biotech products because of the highly complex manufacturing processes. If in such cases we are unable to meet demand by shifting sufficient production to other plants or drawing on our inventories, we may suffer declines in sales revenues.

Long-term supply contracts to hedge against raw material price risks

The supply of strategically important raw materials is ensured wherever possible through long-term contracts and/or by purchasing from multiple suppliers. Furthermore, all stages of our production processes and our material inputs are continuously monitored by the respective expert function within the company.

Moreover, the manufacturing of chemical products is subject to risks associated with the production, filling, storage and transportation of raw materials, products and wastes. These risks may result in personal injury, property damage, environmental contamination or business interruptions and liability for compensation payments.

The presence of unintended trace amounts of genetically modified organisms in agricultural products and/or foodstuffs cannot be completely excluded.

We address product and environmental risks by adopting suitable quality assurance measures. An integrated quality, health, environmental and safety management system ensures process stability. In addition, we are committed to the international Responsible Care and Global Product Strategy initiatives of the chemical industry and are driving forward our sustainability strategy and management. We report annually on our sustainability performance including the areas of environmental protection and safety.

IT RISKS

Business and production processes and the internal and external communications of the Bayer Group are increasingly dependent on information technology systems. Major disruptions or failure of global or regional business systems may result in loss of data and/or impairment of business and production processes.

The foundations for a continuous and sustainable IT risk management system have been laid by establishing a comprehensive organization, issuing regulations that define the relevant roles and responsibilities, and implementing a periodic reporting system. For this purpose a committee has been established at the Group level to resolve upon the basic strategy, architecture and IT security features, which are implemented accordingly by the subgroups and service companies in consultation with this central organization. Technical precautions such as data recovery and continuity plans have been established together with our internal IT service provider to address this risk.

RISK TO PENSION OBLIGATIONS FROM CAPITAL MARKET DEVELOPMENTS

The Bayer Group has obligations to current and former employees related to pensions and other post-employment benefits. Changes in relevant valuation parameters such as interest rates, mortality and rates of increases in compensation may raise the present value of our pension obligations. This may lead to increased pension costs or diminish stockholders' equity due to actuarial losses being recognized directly in equity. 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. This in turn may diminish equity, and/or it may necessitate additional contributions by the company. Further details are given in Note [25] to the consolidated financial statements.

We address the risk of market-related fluctuations in the fair value of our plan assets through prudent strategic investment, and we constantly monitor investment risks in regard to our global pension obligations.

FINANCIAL RISKS

Management of financial and commodity price risks

As a global enterprise, Bayer is exposed in the normal course of business to credit risks, liquidity risks and various market price risks that could materially affect its net assets, financial position and results of operations.

It is company policy to use derivatives to minimize or eliminate the market price risks associated with operating activities and the resulting financing requirements. Derivatives are used almost exclusively to hedge realized or forecasted transactions. The use of derivatives is subject to strict internal controls based on centrally defined mechanisms and uniform guidelines. The derivatives used are mainly over-the-counter instruments, particularly forward exchange contracts, foreign currency options, interest-rate swaps, cross-currency interest-rate swaps, commodity swaps and commodity option contracts concluded with banks. We set counterparty limits for such banks depending on their creditworthiness.

The various risks associated with financial instruments are outlined below together with the relevant risk management systems.

Credit and country risks

Credit risks arise from the possibility of the value of receivables or other financial assets being impaired because counterparties cannot meet their payment or other performance obligations. Since the Bayer Group does not conclude master netting arrangements with its customers, the total of financial assets represents the maximum credit risk exposure.

To effectively manage the credit risks from trade receivables, Bayer has put in place a standardized risk management system, which is the subject of a Group directive. Each invoicing company has appointed a responsible credit manager who regularly analyzes 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. Reservation of title is generally agreed 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's Central Financial Risk Committee.

To minimize credit risks, financial transactions are only conducted with banks and other partners of first-class credit standing in line with predefined exposure limits. All risk limits are based on methodical models. Adherence to the risk limits is continuously monitored.

Country risks relating to trade receivables, intra-Group loans and the creditworthiness of the countries themselves are continuously monitored, systematically evaluated and centrally managed.

Liquidity risks

Liquidity risks – those arising from the possibility of not being able to meet current or future payment obligations because insufficient cash is available – are centrally managed in the Bayer Group. Sufficient liquid assets are held to meet all of the Group's payment obligations when they fall due, thereby ensuring solvency at all times. Payment obligations result both from operating cash flows and from changes in current financial liabilities. In addition, a reserve is maintained for unbudgeted shortfalls in cash receipts or unexpected disbursements. For this purpose, budget deviation analyses are performed on the basis of historical time series, adjusted for variations in business structure. The liquidity reserve is then determined which, with a defined probability, will cover a negative deviation from budgeted cash flows. The size of this reserve is regularly reviewed and adjusted as necessary to current conditions. Liquid assets are kept mainly in the form of overnight and term deposits. Credit facilities also exist with banks. These include, in particular, a €3.5 billion syndicated credit facility, which is undrawn.

We intend to service the bonds maturing in 2012 out of liquidity and free operating cash flow.

Market risks

Market risks relate to the possibility that the fair value or future cash flows of financial instruments may fluctuate due to variations in market prices. Market risks include currency, interest-rate and other price risks, especially commodity price risks.

Sensitivity analysis is a widely used risk measurement tool that allows our management to make judgments regarding the potential loss in future earnings, fair values or cash flows of market-risk-sensitive instruments resulting from one or more selected hypothetical changes in interest rates, foreign currency exchange rates, commodity prices or other relevant market rates or prices over a selected period of time. We use sensitivity analysis because it provides reasonable risk estimates using straightforward assumptions (for example, an increase in interest rates). The risk estimates we provide below assume:

- a simultaneous, parallel shift in foreign exchange rates in which the euro depreciates against all currencies by 10%,
- a parallel shift of 100 basis points in the interest-rate yield curves of all currencies, and
- a simultaneous 20% decline in the prices of all the commodities underlying the derivatives we hold.

We use market information and additional analytics to manage our risk exposure and mitigate the limitations of our sensitivity analysis. We have found sensitivity analysis to be a useful tool for achieving specific risk management objectives. Sensitivity analysis offers an easy-to-understand risk exposure estimate reflecting the effects that changing market conditions could have on our business. It also allows our management to take the necessary steps to address such risks.

We continually refine our risk measurement and reporting procedures. This includes periodically re-examining the underlying assumptions and parameters utilized.

The sensitivity analyses included in the following sections of this Risk Report present the hypothetical loss in cash flows of financial instruments and derivatives that we held as of December 31, 2011 and December 31, 2010. The range of sensitivities that we chose for these analyses reflects our view of the changes in foreign exchange rates, commodity prices and interest rates that are reasonably possible over a one-year period.

Currency risks

Since the Bayer Group conducts a significant portion of its operations outside the eurozone, fluctuations in currency exchange rates can materially affect earnings. Currency risks from financial instruments exist with respect to receivables, payables, cash and cash equivalents that are not denominated in a company's functional currency. In the Bayer Group these risks are particularly significant for the U.S. dollar, the Japanese yen, the Canadian dollar and the Chinese renminbi.

Currency risks are identified, analyzed and managed centrally and systematically. The scope of hedging is evaluated regularly and defined in a corporate directive. Recorded foreign currency operating items, receivables and payables are normally fully hedged.

The anticipated foreign currency exposure from forecasted transactions in the next twelve months is hedged on a basis agreed between the Group Management Board, the central finance department and the operating units. A significant proportion of contractual and foreseeable currency risks is hedged, mainly through forward exchange contracts and currency options.

The Group Management Board has provided clear guidance on how to limit and monitor cash flow risks that result from this approach.

We applied a hypothetical adverse scenario in which the euro simultaneously depreciates by 10% against all other currencies compared with the year-end exchange rates. Under this scenario the estimated hypothetical loss of cash flows from derivatives and non-derivatives as of December 31, 2011 would be €305 million (2010: €279 million). Of this €305 million, €95 million is related to the U.S. dollar, €46 million to the Japanese yen, €32 million to the Canadian dollar, €26 million to the Chinese renminbi and €106 million to other currencies. Of the €305 million estimated hypothetical loss of cash flow, €321 million results from derivatives used to hedge anticipated exposure from planned sales denominated in foreign currencies. Such transactions qualify for hedge accounting, and the respective changes in value are recognized in equity under other comprehensive income (OCI). The offsetting position of €16 million is primarily attributable to account balances in foreign currencies and unhedged currency derivatives embedded in supply contracts. The impact of exchange-rate fluctuations on our anticipated sales in foreign currencies is not included in this calculation.

Interest-rate risks

The Bayer Group's interest-rate risks arise primarily from financial assets and liabilities with maturities exceeding one year. In the case of fixed-rate financial instruments, such as fixed-rate bonds, the risk of fluctuations in capital-market interest rates results in a fair-value risk because the fair values fluctuate as a function of interest rates. In the case of floating-rate instruments, a cash flow risk exists because interest payments could increase in the future.

Interest-rate risks in the Bayer Group are analyzed centrally and managed by the central finance department. This is done in line with the duration set by the Board of Management, which implicitly also includes the ratio of fixed-rate to floating-rate debt. The duration is subject to regular review. Derivatives – mainly interest-rate swaps, cross-currency interest-rate swaps and interest options – are employed to preserve the target structure of the portfolio.

Financial liabilities including derivatives amounted to €11,663 million as of December 31, 2011 (December 31, 2010: €11,767 million). The sensitivity analysis was performed on the basis of our floating-rate debt position at year end 2011, taking into account the interest rates relevant to our liabilities in all principal currencies. A hypothetical increase of 100 basis points, or 1 percentage point per annum, in these interest rates (assuming constant currency exchange rates) as of January 1, 2011 would have raised our interest expense for the year ended December 31, 2011 by €68 million (2010 based on our floating-rate debt position at year end 2010: €45 million).

Other price risks (especially commodity price risks)

The Bayer Group requires significant quantities of petrochemical feedstocks and energy for its various production processes. The prices of these inputs may fluctuate considerably depending on market conditions. As in the past, there may be times when it is not possible for us to pass on increased raw material costs to customers through price adjustments. This applies particularly to our MaterialScience business.

We have addressed this risk by concluding long-term contracts with multiple suppliers. The procurement departments of the subgroups are responsible for managing these price risks on the basis of internal directives and centrally determined limits, which are subject to constant review. The operation of our production facilities requires large amounts of energy, mostly in the form of electricity and steam. To minimize our exposure to energy price fluctuations, we aim for a balanced diversification of fuels for steam production and a mix of external procurement and captive production for power generation.

We applied a hypothetical adverse scenario in which all commodity and energy prices simultaneously decrease by 20%. Under this scenario the estimated hypothetical loss of cash flows from derivatives as of December 31, 2011 would be €1 million (2010: €8 million). Of this €1 million, €0 million would be recognized in profit or loss and €1 million would be recognized as a value adjustment in other comprehensive income (OCI) according to hedge accounting rules. In considering sensitivities for commodity futures and commodity option contracts, we have made a small allowance for the fact that forward rates are less volatile than spot rates. The stated long-term contract volumes are therefore based on somewhat smaller price changes. The derivatives used by the Bayer Group to mitigate the risk of changes in exchange rates, interest rates and commodity prices are described in Note [30.3] to the consolidated financial statements.

ASSESSMENT OF THE OVERALL RISK SITUATION

Compared with the previous year, the overall risk situation did not change significantly in the reporting period. The overall risk assessment is based on a consolidated view of all significant individual risks. At present, no potential risks have been identified that either individually or in combination could endanger the continued existence of the Bayer Group.

11.2 Strategy

BUSINESS STRATEGY

As an inventor company with the mission "Bayer: Science For A Better Life," Bayer continues to focus on its core competencies in the development of new solutions in the fast-growing, innovation-driven areas of health care, nutrition and high-tech materials. Based on our innovative capability, we are pursuing a strategy of sustainable and profitable growth that adds corporate value.

Across all of our businesses we are striving to further reinforce our portfolio, consistently capitalize on growth opportunities and continuously raise productivity.

Portfolio: We aim to continue playing leading roles in lucrative markets and to steadily expand the strong positions we already hold.

Growth: We are systematically investing in our innovative capabilities, maximizing the value of our research and development pipeline and realizing opportunities in the emerging markets, particularly China and Brazil.

Productivity: Based on the maxim "More innovation – less administration," we are continuing our efforts to improve efficiency by simplifying our structures and processes. By 2013 we aim to be saving €800 million a year, half of which is to be reinvested in research and development and the continuing expansion of our business in the emerging markets.

HEALTHCARE

We believe that four overarching trends will play a decisive role in shaping the health care markets of the future: an aging population, the growing demand for health care products in the emerging markets, increasing patient and consumer influence on health policy decisions, and increasing demands on the health care industry to demonstrate that it is adding value as part of each country's health system. In addition, health systems the world over are in a process of transformation and under pressure to cut costs.

Focus on growth through innovation

We have a research pipeline of products with the potential to treat chronic illnesses, in particular – an important aspect in light of rising life expectancy worldwide. With the increasing demand for better health care products and services in the emerging markets, we intend to build on our strong positions in the respective countries. In selected areas we plan to supplement our product-centered business with more value-based models and services, benefiting from our expertise in the area of prescription medicines and consumer products. The high reputation of the Bayer umbrella brand has a central role to play in this. The overriding objective of our strategy is therefore to achieve above-average, profitable and sustainable growth – with the emphasis on growth through innovation. We also aim to further expand our position among the leading players in the market for prescription-free (OTC) medicines.

Activities in Pharmaceuticals, our largest segment in terms of sales, are focused on products for women's and cardiovascular health and on specialty pharmaceuticals in the areas of oncology, hematology and ophthalmology. Our portfolio also includes medicines that are usually prescribed by general practitioners.

We will maintain our focus on diseases where there is a high unmet medical need and where major potential exists for improving the standard of care through innovative approaches to diagnosis and therapy. Our in-house research and development is therefore an important growth engine for our Pharmaceuticals segment, supplemented by product inlicensing, alliances and collaborations.

In India, for example, we established the 50:50 joint venture Bayer Zydus Pharma together with the Indian company Zydus Cadila in early 2011. The new company greatly strengthens our presence in India's rapidly expanding pharmaceuticals market. In addition we signed an agreement with Trius Therapeutics, Inc., United States, in July 2011 giving us exclusive rights to Trius' antibiotic tedizolid phosphate (tedizolid) in Asia – excluding North and South Korea – as well as Africa, Latin America and the Middle East.

We already occupy leading positions in the pharmaceutical markets of many emerging countries, especially China, and plan to build on these positions.

Our Consumer Health segment includes non-prescription medicines, dermatology products, blood glucose meters, medical devices, contrast agents, and pharmaceuticals and grooming products for companion animals and livestock.

The goal of the Consumer Care Division is to build on our position in the global over-the-counter (OTC) medicines market, primarily leveraging the organic growth potential of proven brands such as Aspirin™. In addition, we will continue to take advantage of external growth opportunities in the form of strategically relevant acquisitions or product inlicensing. The focus of our expansionary course is on emerging markets such as Central and Eastern Europe, Latin America and the Asia/Pacific region.

In the Medical Care Division, we are aiming to build on our competitive positions in the core areas of diabetes management, contrast agents and medical devices. In diabetes, we plan to expand our product range by developing new blood glucose monitoring systems and innovative, customer-centric solutions that help people with diabetes to better manage the disease. In the medical equipment business, we are continuing to develop our core products in the areas of contrast agent injection systems and thrombectomy systems. We are also developing new software products and IT-based service solutions to optimize both contrast agent dosage and the clinical workflows involved in processing diagnostic data and images. To strengthen our position among the leading companies in the field of innovative, high-performance diagnostic imaging and interventional technologies, we combined the diagnostic imaging business, formerly part of the Pharmaceuticals segment, with our medical devices business to form the new Radiology and Interventional unit. To step up our presence in interventional cardiology, we acquired the U.S. company Pathway Medical Technologies, Inc. in September 2011. Pathway is among the leading manufacturers of products to mechanically remove arterial plaque.

In the Animal Health Division, we aim to build on the leading position we hold among suppliers of products for companion animals and livestock. Our strategy is directed toward achieving organic growth by focusing on countries and markets with long-term sales potential and successfully managing the life cycles of existing core brands. We aim to step up the development of new proprietary products to safeguard our long-term success. In addition, we are pursuing external growth opportunities through acquisitions and product inlicensing. For example, in January 2011 we acquired the New Zealand animal health company Bomac, which supplies a broad range of innovative animal health products for the livestock sector. We plan to introduce the products outside of Australia and New Zealand as well, particularly in emerging markets, to strengthen our business in the Asia/Pacific region.

CROPSCIENCE

CropScience, one of the leading innovation-driven companies in its industry, aligns its corporate planning to long-term trends in agricultural markets. It aims to offer products and customer-oriented solutions for the production of affordable, high-quality food, feed, fiber and energy crops. Against a background of limited arable land, advancing climate change and a steadily increasing global population, it is essential to safeguard and further increase crop yields. We manage our business responsibly, in keeping with our commitment to sustainable development and our goal of achieving long-term growth and attractive returns.

CropScience strategy built on four key elements

The CropScience strategy for future growth is built on four key elements: rejuvenation of the Crop Protection business, customer-centricity along the entire value chain, the refocusing of innovation activities and the extension of the BioScience business.

A key strategic objective is the **rejuvenation of our Crop Protection business** to create a solid basis for future growth. We are therefore currently restructuring our portfolio. While phasing out older products, we are increasing our focus on strategically important product families. All remaining WHO class I insecticides will be removed from our portfolio by the end of 2012 and replaced by modern, targeted and more environmentally friendly formulations. This also demonstrates our continuing commitment to sustainable agriculture. We plan to extend our geographic presence further into emerging markets and optimize our production and supply chain operations. To achieve these aims and make resources available for further investment, we intend to steadily improve cost efficiency and increase flexibility.

Another major element in our strategy is leveraging **customer-centricity along the entire value chain** to deliver solutions all the way from seed to shelf. For Crop Protection/BioScience, this involves increased grower orientation and improved channel management practices. It also comprises new or improved customer relationship tools that leverage the trusted expertise of the Bayer brand and broaden the successful food chain partnership business model through cooperation with multinational food companies and retailers. Our Environmental Science unit, too, develops and commercializes solutions that are tailored to the specific needs of our customers – both consumers and professional users – and are designed for easy application and safe handling. The strategic alignment of this business emphasizes systematic customer orientation, including the expansion of marketing activities and the continued development of specific market segments such as forestry or industrial vegetation management.

In the areas of **innovation** and research, we will sharpen the focus on BioScience and new, expanding areas of agricultural chemistry – such as plant health and stress tolerance – while reducing our spending for traditional crop protection research focused on the control of pests, weeds and diseases. Our aim is to double the annual R&D spend in the BioScience unit between 2010 and 2015 (2010: about €200 million) in order to come up with the new products that will drive growth at CropScience. The annual R&D budget of CropScience as a whole is planned to rise by about 20 percent over the same period, to more than €850 million.

Another key feature of our strategy is the continuing **extension of our BioScience business**. We plan to further strengthen our positions in the established crops – cotton, oilseed rape/canola and vegetables, both by organic growth and through acquisitions. Our aim is also to build significant positions in soybeans, rice and wheat – three of the four major broad-acre crops. For example, we intend to gain long-term access to high-quality breeding material and steadily expand our existing breeding expertise. We already made considerable progress in this area in 2011 with new acquisitions and partnerships. We intend to continue making targeted acquisitions and entering into partnerships and license agreements in order to implement our growth strategy.

With these four strategic elements, we aspire to propel farming's future.

MATERIALSCIENCE

MaterialScience aims to exploit opportunities in emerging markets

The strategic objective of MaterialScience is to exploit growth opportunities in the emerging economies, especially those of Asia, safeguard its competitive positions in the established markets, and add new businesses to its portfolio through an active dialog with industries, markets and customers. In this way we intend to contribute to a sustained increase in enterprise value. With our products and solutions, we aim to make a lasting contribution to overcoming global challenges such as dwindling energy reserves, climate change and increasing mobility, at the same time helping many people to improve their quality of life. Our activities are based on an investment policy guided by medium- and long-term market trends. We keep our innovations, business processes and production methods strictly in line with the needs of our target markets, offering customized products and solutions in addition.

In the Polyurethanes (PUR) business unit, our primary objective is to expand our global market leadership in isocyanates. We plan to take advantage of long-term growth opportunities by maintaining a sustainable innovation portfolio, using a variety of distribution channels and operating global competence centers. At the same time, we are concentrating on further increasing efficiency to safeguard our cost leadership in the long term.

World-scale plant commissioned in Shanghai, China

Investment in our production facilities, particularly in China, plays a key role in our operational growth. At the end of 2011, for example, a major new 250,000 tons-per-year facility for the production of toluene diisocyanate (TDI) – which is required in the production of mattresses, furniture, footwear and adhesives, among other items – was brought on stream in Shanghai, China. The Asian market already accounts for more than 40% of global polyurethane consumption. A world-scale TDI facility with a capacity of 300,000 tons per year is due on stream at Dormagen, Germany, in 2014. Bayer plans to consolidate its European TDI production at this location, the new facility replacing the existing plants there and in Brunsbüttel, Germany.

We are also targeting sustainable growth in the diphenylmethane diisocyanates (MDI) product group. We aim to meet rising demand – particularly in Asia – for insulating materials in key customer industries, such as construction and household appliances, by increasing our annual capacities in Shanghai, China, to a total of 1,000,000 tons.

Our polyether polyols portfolio complements our service spectrum and will therefore support the growth of our isocyanates business.

In the Polycarbonates (PCS) business unit, too, we are focusing on the Asia region, which already accounts for more than 60% of the world market and where sales of these plastics are expected to grow distinctly faster than global GDP. There is considerable demand in Asia – particularly China – for these materials, which are used primarily in the automotive, electrical/electronics and construction industries.

We therefore intend to more than double our annual production capacity for polycarbonates in Shanghai, China, to 500,000 tons, placing continued reliance on the efficient processes and technologies employed at our existing large facilities.

The announced transfer of PCS headquarters from Leverkusen, Germany, to Shanghai, China, was successfully completed in 2011. This improves our ability to steer the business close to the market and thus take account of Asia's growing importance.

In the field of semi-finished products, substantial market potential still exists for the use of polycarbonate for LCD diffuser sheets in large-format flat screens. The steadily increasing trend toward light-weight construction in the automotive industry is likely to gain momentum in the coming years as electromobility increases.

As the world's leading supplier of polyurethane-based products in its markets, the Coatings, Adhesives, Specialties (CAS) business unit aims to offer customized solutions along the entire value chain.

We intend to further expand our leading market position in basic and modified isocyanates and are responding to rising demand in the emerging markets by expanding production capacities. At the beginning of 2011, for example, we commissioned a new polyisocyanate facility in Ankleshwar, India. In Shanghai, China, we are planning new plants for the production of hexamethylene diisocyanate (HDI) and isophorone diisocyanate (IPDI). We also intend to build a multi-purpose facility for these two isocyanates in Leverkusen, Germany.

The strategic business entity "Resins" is focusing on modern, eco-friendly coating and adhesive raw material systems – including formulations for waterborne and radiation-curing dispersions – to further increase profitability. The business with certain conventional coating resins – which was bundled in the subsidiary Viverso – was sold in 2011 to Nuplex Industries Ltd., a global manufacturer of polymer resins based in New Zealand and Australia.

The CAS portfolio also includes polymer solutions for medical applications and cosmetics. The streamlining of activities offers potential for opening up further promising fields of business.

Also with a view to new market opportunities, we are developing functional films and carbon nanotubes for possible use in a number of areas.

In addition, we are working continuously to develop new processes, both to facilitate new applications for our materials and to optimize our own production. For example, we continued developing the oxygen-depolarized cathode electrolysis process for producing chlorine from salt. A demonstration facility for this technology began operating in Krefeld, Germany, in 2011. New standards in climate protection and efficiency are also being set by the gas-phase phosgenation process for isocyanate production, which is already in use at the new TDI plant in Shanghai, China, and will also be employed in the planned facility for this raw material in Dormagen, Germany. This new process technology reduces solvent consumption by up to 80% and energy use by up to 60% compared with conventional facilities of comparable size.

FINANCIAL STRATEGY

The financial management of the Bayer Group is conducted by the strategic management holding company 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, raw material price and default risks helps to reduce the volatility of our earnings.

The contracted rating agencies assess Bayer as follows:

Rating [Table 3.37]

	Long-term rating	Outlook	Short-term rating
Standard & Poor's	A-	stable	A-2
Moody's	A3	stable	P-2

These credit ratings reflect the company's high solvency and ensure access to a broad investor base for financing purposes. It remains our goal to achieve and maintain financial ratios that support an A rating in order to maintain our financial flexibility. Accordingly, we plan to use part of our operating cash flows to reduce net financial debt.

We pursue a prudent debt management strategy to ensure flexibility, drawing on a balanced financing portfolio. Chief among these resources are a multi-currency Euro Medium Term Notes program, 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 directives.

Further details of our risk management objectives and the ways in which we account for all the major types of hedged transactions – along with price, credit and liquidity risks as they relate to the use of financial instruments – are given in Chapter 11.1 "Opportunity and Risk Report."

11.3 Economic Outlook

GLOBAL ECONOMY

The prospects for the global economy in 2012 remain uncertain despite positive signals in North America. This is especially due to doubts about the outcome of the euro crisis, which are likely to dampen investment activity. The high levels of private and public debt in many countries will probably also have a negative impact on demand. A significant increase in the oil price during the year would further weaken the economy. By contrast, the highly expansionary monetary policy is expected to continue supporting growth.

For the eurozone, we anticipate considerably slower expansion in 2012 than in 2011, and negative growth is likely in some countries. In this environment, the German economy has so far proven robust, with consumption buoyed especially by the positive trend on the employment market. This effect will probably continue for some time. However, given the importance of the other European countries for German exports, Germany is unlikely to be able to disconnect itself from the European economy in the long term. For this reason we expect the German economy, too, to grow less rapidly in 2012 than in the previous year.

In the United States a moderate recovery began to materialize toward the end of 2011, and the threat of a recession appears to have been averted for the time being. However, in view of the continuing tight employment market and the high level of government debt, we anticipate that the U.S. economy will remain fragile.

By contrast, the emerging markets are forecast to grow rapidly again in 2012. However, even these countries cannot be expected to escape the deterioration in the global economy, especially in light of the weaker prospects for exports to Europe. We therefore believe we will see somewhat lower growth rates in some of the emerging markets, although their rapid expansion will continue.

HEALTHCARE

We expect the growth rate for the **Pharmaceuticals market** in 2012 to be in the mid-single digits. A major part of this growth will probably continue to take place in emerging markets such as China, Brazil, India and Russia. In the traditional markets such as the United States and the major European countries, we expect growth to be only in the low single digits.

The **Consumer Care market** is likely to expand at the same or a slightly slower rate than in 2011, with higher rates of growth in the emerging markets being offset by slower expansion in Europe and the United States. We anticipate that the **Medical Care market** will grow somewhat faster in 2012 than in 2011 in light of a stronger market for medical devices. We expect the **Animal Health market** as a whole to continue expanding in 2012 at the rate of recent years despite the weaker economic prospects for the first half.

CROPSCIENCE

We expect the market environment for the global **seed and crop protection business** to remain favorable in 2012. Against a background of limited arable land and steadily rising demand for food, feed and plant-based energy sources, we expect prices to remain relatively high despite the volatility of world agricultural markets. Farmers' overall economic prospects should therefore remain favorable, prompting further investment in seeds and crop protection products in order to safeguard and raise crop yields. The global seed and crop protection market should benefit from this development.

From a geographical perspective, we expect Latin America to post the strongest growth in 2012. There, the seed and crop protection market is set to benefit mainly from an increase in soybean cultivation, which already accounts for over one third of the Latin American market. In Asia/Pacific, too, we expect agricultural production to rise, though at slower rates than in Latin America. Expansion in Asia/Pacific will be driven by specialty crops such as fruit and vegetables, as well as by rice and cereals. In the industrialized regions of the northern hemisphere we expect lower overall market growth in 2012.

MATERIALSCIENCE

For 2012 we anticipate that the **global markets** of importance to BMS will continue to grow, though perhaps more slowly. We believe Asia will retain its economic growth momentum.

We continue to expect robust global growth in the **automotive industry**. India and China, in particular, are likely to maintain their rapid pace of expansion. Sales in Western Europe are currently expected to decline, with demand in the Mediterranean countries remaining weak and car production in Germany heavily dependent on export markets. Vehicle sales in North America will probably increase in 2012, although a number of economic risk factors remain.

Robust growth is also forecast for the **electrical/electronics industry**. Demand is likely to rise in nearly all segments, especially in the BRIC countries (Brazil, Russia, India and China). In addition, the trend toward renewable energy sources is supporting further investment in western Europe, which could open up business opportunities for the electrical/electronics industry as well.

The recovery in the **construction industry** is likely to continue in 2012. The major Asian markets are expected to continue growing strongly, although construction output in China is likely to be somewhat below the 2011 level. The expected positive development in the U.S. construction sector currently remains subject to a number of risks. A slight decline is anticipated in Western Europe in view of the debt crisis.

Global **furniture sales** in 2012 are likely to show modest growth. We see significant potential in the positive market development in Eastern Europe and the Middle East. In North America, too, we predict a further recovery this year. Despite certain risks, we expect the Asian market to remain largely stable in 2012.

11.4 Sales and Earnings Forecast

The following forecasts are based on the business development described in this report, taking into account the potential risks and opportunities.

BAYER GROUP

For 2012 we forecast a currency- and portfolio-adjusted sales increase of about 3%. Based on our currency assumptions – including a rate of US$1.40 (2011 average: US$1.39) to the euro – we therefore expect Group sales to come in at around €37 billion. We are planning a slight improvement in EBITDA before special items. This will be driven by HealthCare and CropScience, while earnings at MaterialScience are likely to be flat with 2011 in view of the currently difficult market conditions. We also plan to slightly improve core earnings per share (calculated as explained in Chapter 4.3).

We anticipate taking special charges of about €0.2 billion for ongoing restructuring programs in 2012. We have planned capital expenditures of €1.5 billion for property, plant and equipment and €0.4 billion for intangible assets. Depreciation and amortization are expected to total about €2.6 billion, including €1.3 billion in amortization of intangible assets. We expect research and development spending to continue on the high level of recent years at about €3.0 billion. We forecast a non-operating result of approximately minus €0.8 billion and an effective tax rate of about 26–27%.

In 2013 we expect the Bayer Group to achieve continued growth in sales, EBITDA before special items and core earnings per share, with our new pharmaceutical products contributing to this expansion. We plan to make capital expenditures for property, plant and equipment and for intangible assets on about the same levels as in 2012. We anticipate a slight increase in research and development expenses and plan to continue developing our projects as described in Chapter 8 “Research and Development.”

HEALTHCARE

HealthCare's top priority for 2012 is to successfully commercialize the new pharmaceutical products. We expect sales to increase by a low- to mid-single-digit percentage after adjusting for currency and portfolio effects. We plan to slightly improve EBITDA before special items, although earnings are likely to be hampered by higher marketing expenses and the effects of the genericization of Yasmin™ in Europe.

We forecast sales of the Pharmaceuticals segment in 2012 to remain stable or move slightly higher on a currency- and portfolio-adjusted basis, and EBITDA before special items to approximately match the prior-year level.

In the Consumer Health segment, we anticipate mid-single-digit growth in currency- and portfolio-adjusted sales and in EBITDA before special items.

In 2013 we expect growth to gain momentum, especially in Pharmaceuticals, through our new products and EBITDA before special items to improve in both HealthCare segments.

CROPSCIENCE

We expect market conditions for our CropScience business to remain favorable in 2012. We predict above-market growth and anticipate that currency- and portfolio-adjusted sales and EBITDA before special items will advance by mid-single-digit percentages.

In 2013 we again expect sales to grow faster than the market and EBITDA before special items to post a further improvement.

MATERIALSCIENCE

In light of the weaker development in 2011, we currently forecast currency- and portfolio-adjusted sales and EBITDA before special items in 2012 to remain level with the prior year. Should the market environment develop more favorably than anticipated, we expect sales and earnings to increase accordingly.

We forecast currency- and portfolio-adjusted sales in the first quarter of 2012 to be roughly level with the fourth quarter of 2011. We expect EBITDA before special items in the first quarter of 2012 to be well above the figure for the fourth quarter of 2011 but below the first quarter of 2011.

Assuming a positive market environment, we plan to increase sales and EBITDA before special items in 2013.

BAYER AG

As the holding company for the Bayer Group, Bayer AG derives most of its income from its subsidiaries. Under profit and loss transfer agreements with the major operating subsidiaries in Germany, their earnings are transferred directly to Bayer AG. The positive expectations for the Group's business development outlined above are also likely to be reflected in the earnings of Bayer AG. In addition, the net interest position should continue to improve in light of the reduction in financial debt.