Major sites by division

Site	*Operations*
Merck Serono	
Darmstadt, Germany	Merck Serono headquarters, Marketing & Distribution, Production, Research & Development hub
Coursier sur Vevey, Switzerland	Production, Distribution
Mollet del Valles, Spain	Marketing & Distribution, Production, Research & Development
Semoy, France	Production, Distribution
Bari, Italy	Production, Research & Development
Rio de Janeiro, Brazil	Marketing & Distribution, Production, Research & Development
Rockland, USA	Research & Development, Distribution
Mexico City, Mexico	Production, Distribution
Beijing, China	Research & Development hub
Billerica, USA	Research & Development hub
Tokyo, Japan	Research & Development hub
Consumer Health	
Darmstadt, Germany	Consumer Health headquarters, Production, Marketing & Distribution
Spittal, Austria	Marketing & Distribution, Production
Dijon, France	Marketing & Distribution
Hull, UK	Marketing & Distribution, Production
Jakarta, Indonesia	Marketing & Distribution, Production, Research & Development
Performance Materials	
Darmstadt, Germany	Performance Materials headquarters, Production, Marketing & Distribution, Research & Development
Gernsheim, Germany	Production, Distribution
Atsugi, Japan	Production, Marketing & Distribution, Research & Development
Shanghai, China	Production, Marketing & Distribution, Research & Development
Poseung, South Korea	Production, Marketing & Distribution, Research & Development
Taoyuan, Taiwan	Production, Marketing & Distribution, Research & Development
Merck Millipore	
Billerica, USA	Merck Millipore headquarters, Marketing & Distribution
Bedford, USA	Production, Marketing & Distribution, Research & Development
Jaffrey, USA	Production, Distribution
Darmstadt, Germany	Production, Marketing & Distribution, Research & Development
Molsheim, France	Production, Marketing & Distribution, Research & Development
Beijing, China	Production, Distribution
Bangalore, India	Production, Marketing & Distribution

Fundamental Information about the Group

The Merck Group and its divisions

The Merck Group, which is headquartered in Darmstadt, Germany, is a global corporate group. With a history dating back nearly 350 years, it is the world's oldest pharmaceutical and chemical company. Merck holds the global rights to the Merck name and brand. The only exceptions are Canada and the United States, where Merck operates as EMD. Merck's product portfolio ranges from innovative pharmaceuticals and biopharmaceutical products, to specialty chemicals, high-tech materials and life science tools. Merck markets its wide range of products within its four divisions: Merck Serono, Consumer Health, Performance Materials and Merck Millipore.

Merck Serono

Merck Serono discovers, develops, manufactures and markets innovative prescription drugs to treat cancer, multiple sclerosis (MS), infertility, and growth disorders, as well as certain cardiovascular and metabolic diseases and allergies. As the company's largest division, Merck Serono generates 56% of Group sales and 57% of EBITDA pre one-time items (excluding Corporate and Other). The Merck Serono division was formed in 2007 with the acquisition of the Swiss biopharmaceutical company Serono SA, which was integrated stepwise into Merck's traditional business with prescription drugs. The integration process progressed steadily in recent years and was completed after divesting the former Serono headquarters in Geneva, Switzerland in 2013 and fully transferring divisional headquarters to Darmstadt.

Merck Serono commercializes its products worldwide and has a strong presence in established markets. The regions of Europe and North America contributed 63% of divisional sales in 2013. However, Merck Serono has also been operating in emerging markets for over three decades. This presence was continuously further expanded in recent years. In 2013, the division generated 30% of sales in that region, which is higher than the share of sales in emerging markets at many other pharmaceutical companies in Europe or the United States.

Merck Serono has a strong focus on biopharmaceuticals

Merck Serono sells mainly biotechnologically produced drugs. Rebif® is the top-selling product. It is used to treat relapsing forms of multiple sclerosis (MS), which is one of the most common neurological diseases among young adults.

In Oncology, Merck offers Erbitux® for the targeted treatment of metastatic colorectal cancer. Erbitux® is the second best-selling drug in Merck Serono's product portfolio. This monoclonal antibody is also a standard in the treatment of squamous cell carcinoma of the head and neck.

Merck Serono also offers products that help couples to conceive a child. The division has a complete portfolio of recombinant gonadotropins, including Gonal-f®, the most frequently prescribed gonadotropin worldwide. The products in the Fertility franchise are an important growth driver for Merck Serono. This is primarily due to couples postponing childbearing until later in life when natural fertility declines.

The General Medicine franchise comprises brand-name products to treat cardiometabolic diseases. Although no longer patent-protected, these are still the therapies of choice for numerous diseases. This applies, for example, to Glucophage® containing the active ingredient metformin, the drug of choice for first-line treatment of type 2 diabetes, or Concor®, a drug for chronic cardiovascular disease. Particularly in emerging markets, there is a continuous rise in demand for cardiometabolic therapies. This is due to both increasing life expectancy and in part also to growing prosperity in this region, along with the resulting changes in lifestyle and eating habits.

→ *The Merck Group and its divisions*

Merck Serono also develops advanced injection devices

Merck Serono is continuously working to improve ways to administer medicines and active ingredients. For several years, therefore, Merck Serono has been developing novel, more user-friendly injection devices, which make injections less painful and at the same time more reliable for patients than conventional, pre-filled syringes. In addition, these products make it easier for medical staff to check whether patients adhere to their therapeutic regimen. Examples are the Gonal-f® RFF Redi-ject™ injection device and the electronic auto-injection device Rebif® Rebidose. These disposable injection devices were approved by the U.S. Food and Drug Administration in 2013 after already having been successfully used in many countries. An optimized and expanded version of the new easypod® system was introduced in Europe in 2013. This is an innovative delivery device for the treatment of growth hormone deficiency.

Merck is also active in the field of allergology. Subsequent to the acquisition of the remaining shares in Allergopharma in December 2012, Merck intends to further expand its product range for the global allergy market. The Allergopharma unit is specialized in developing high-dose hypoallergenic products for specific immunotherapy and diagnosis of type 1 allergies (such as hay fever or allergic asthma). In 2013 Merck broke ground on a new production facility for this unit in Hamburg, Germany in order to serve new markets, such as China, with these products.

Consumer Health

The Consumer Health division manufactures and markets over-the-counter pharmaceuticals. The division focuses on a number of well-known strategic brands, e.g. Bion®3, Nasivin®, Femibion®, Seven Seas®, Sangobion®, Cebion®, Sedalmerck® and Kytta® and contributed 4% to Group sales and 2% to EBITDA pre one-time items (excluding Corporate and Other) in 2013. Consumer Health has high market penetration in Europe, Latin America as well as Southeast Asia. The division is also generating very strong growth in Russia and Emerging Markets, particularly in India, Indonesia and Brazil, which have firmly established themselves among the division's top-ten markets in terms of sales.

Global megatrends favor future growth of Consumer Health. People are becoming more health-conscious and concerned with their own physical well-being. Preventive health care and as little invasive therapy as possible are becoming increasingly important – in both established and emerging markets, characterized by a growing middle class with specific needs.

Performance Materials

The Performance Materials division comprises Merck's entire specialty chemicals business. It offers high-tech performance chemicals for applications in fields such as consumer electronics, lighting, coatings, printing technology, plastics applications, and cosmetics. In 2013, Performance Materials contributed 15% to Group sales and 23% to EBITDA pre (excluding Corporate and Other). The EBITDA pre margin was 47.5% of sales. This reflects the far above-average profitability of the business.

Performance Materials comprises three business units: Liquid Crystals, Pigments & Cosmetics, and Advanced Technologies.

→ *The Merck Group and its divisions*

Performance Materials is also very active in the OLED sector

Liquid Crystals generates more than 70% of divisional sales. With a market share of over 60%, Merck has established itself as the global market and technology leader in liquid crystal mixtures. The market is highly consolidated. In addition, there are high barriers to market entry due to the technological complexity of liquid crystals and the high quality requirements of customers and consumers. The seven largest LC display manufacturers are among the customers of the liquid crystals business. Performance Materials has the broadest product offering in the industry and also offers liquid crystals based on PS-VA and IPS technologies. This enables the division to meet individual customer needs and offers solutions for all display sizes, from smartphones and tablet computers to large-area television screens. The division also manufactures and markets materials for organic light-emitting diodes (OLEDs), which are used in innovative lighting applications and display technologies.

Pigments & Cosmetics develops and markets a comprehensive product portfolio of effect and functional pigments, spanning a variety of colors and shimmer effects. The pigments are primarily processed into automotive and industrial coatings, plastics, printing, materials used in installations for renewable energy production, cosmetics, and counterfeit prevention applications. The product portfolio also includes high-quality cosmetic products for use in skin, hair and oral care, including UV filters.

By providing innovative research and development, the Advanced Technologies business unit bolsters the growth of the Liquid Crystals and the Pigments & Cosmetics business units.

Merck Millipore

Merck Millipore is a leading supplier of life science tools

The Merck Millipore division has a broad product and technology portfolio and offers innovative solutions for the life science industry. Life science comprises the research branches of natural and engineering sciences concerned with the structure and behavior of living organisms. The division's products and services are used in the research, development and manufacture of biotechnological and pharmaceutical drug therapies, and for general laboratory applications. The division was established in 2010 following the acquisition of the Millipore Corporation. It is a leading supplier of life science tools.

In 2013, Merck Millipore contributed 25% to Group sales and 18% to EBITDA pre (excluding Corporate and Other). The majority of sales are generated by consumables. This enables the division to achieve recurring sales and stable, attractive cash flows. A highly diversified and loyal customer base additionally ensures a low risk profile. At the same time, Merck Millipore benefits from its broad portfolio and its global reach.

Merck Millipore comprises three business units: Bioscience, Lab Solutions and Process Solutions. The main product groups of the Bioscience business unit include tools and consumables for filtration and sample preparation, reagents and kits for cell biology experiments, as well as small tools and consumables for cell analysis. With these products, Merck Millipore supports its customers in understanding complex biological systems and identifying new target molecules. The Bioscience business unit contributed 16% to divisional sales in 2013. Merck Millipore offers complete and validated applications to make research processes faster and more efficient. The Bioscience business unit is highly innovative. A solid proportion of annual sales are achieved with new products. Examples include the Muse™ cell analysis system and the Direct Detect™ biomolecular quantification system. In 2013, these products were recognized with numerous innovation awards (for example, the R&D Magazine 100 Award).

→ *The Merck Group and its divisions*

The Lab Solutions business unit manufactures products for research as well as analytical and clinical laboratories in a wide variety of industries. The business unit accounts for 42% of divisional sales. It is one of the leading suppliers of laboratory water equipment, laboratory chemicals and consumables. In addition, Lab Solutions develops and markets test solutions to identify microbial contamination, for example in pharmaceutical products, food or drinking water. For inorganic chemistry, Lab Solutions supplies ultrapure reagents, including salts, acids, caustic alkalis, and buffering agents. It also manufactures reference materials for instrumental analysis and products for inorganic trace analysis.

The products offered by Process Solutions help drug manufacturers to conduct research more efficiently

The Process Solutions business unit offers a diversity of products to pharmaceutical and biotechnology companies that enable customers to develop large- and small-molecule drugs safely, effectively and cost-efficiently. Accounting for 42% of Merck Millipore sales, Process Solutions offers its customers continuous innovations, highest quality standards as well as high reliability of supply, and is growing faster than the competition.

In addition, the business unit's portfolio comprises more than 400 chemicals for the synthesis of active pharmaceutical ingredients as well as drug delivery compounds. The offering in biotech production comprises products supporting cell growth and gene expression, a wide range of filtration systems, as well as salts and sugars. The single-use solutions offered by the Process Solutions business unit provide increased operational flexibility to biopharmaceutical customers since they eliminate time- and cost-intensive cleaning procedures. Moreover, these single-use solutions are compatible with various products, reducing investment costs for the customer.

Objectives and strategies of the Merck Group

In 2007, Merck launched a transformation process aimed at securing its business viability through profitable growth in highly specialized niche markets within the pharmaceutical and chemical sectors.

Second phase of the "Fit for 2018" transformation and growth program initiated

This process started with the large-scale acquisitions of Serono SA in 2007 and the Millipore Corporation in 2010. Afterwards, we embarked on the "Fit for 2018" transformation and growth program with a new executive management team. In the first phase, we created the foundation for profitable growth by introducing a new leadership organization and a comprehensive efficiency program that covers all businesses, functions and regions. The second phase is aimed at successively implementing the growth options identified. Merck will continue to develop its portfolio further by building on existing core competencies. The objectives here are:

- Closeness to existing businesses
- Innovative strength
- Customer proximity (to offer tailored solutions)
- Focus on specialty businesses

Moreover, Merck is aiming to expand its business model systematically and continuously to include new technologies. This also includes the planned acquisition of AZ Electronic Materials, which is aimed at broadening the product base and new technology offerings for customers, through which Merck can win new customers for existing business. This transformation into a specialist for innovative high-tech products operating in pharmaceuticals and chemicals is already reflected in our financials.

In Pharmaceuticals, the Merck Serono division already generates more than 60% of its sales with medicines of biotechnological origin. In 2006, we only had one such product: Erbitux®, which accounted for less than 10% of sales. The Chemicals business has increasingly become a high-tech materials business that offers a wide range of value-adding products. Today, high-tech materials and life science tools make up around 80% of sales in this sector. In 2006, the share was around 30%.

General principles and Group strategy

The year 2018 will mark the 350th anniversary of Merck. The general principles of the transformation and growth program "Fit for 2018" and the Group strategy are to serve as a compass beyond 2018 as well.

General principles

The long-term development of value and sustainability play a key role at Merck

In all its business endeavors, Merck orients toward **general principles**. They help those responsible within the company to shape strategic plans and to make decisions.

The structure of Merck KGaA with members of the **Merck family** as personally liable partners requires the Executive Board to pay special attention to the long-term development of value. Therefore, sustainability plays a special role at Merck. The objective is to align the long-term development of the company with the legitimate interests of shareholders, whose engagement in Merck is often of a shorter duration. That is why Merck's business portfolio must always be balanced so that it reflects an optimum mix of entrepreneurial **opportunities and risks**. Merck achieves this through sustained diversification in pharmaceuticals, chemicals and life science tools, as well as through its geographic breadth with respect to growth sources.

→ *Objectives and strategies of the Merck Group*

For Merck, the principle of **sustainability** applies not only to economic aspects. Instead, it also encompasses responsibility for society and environmental preservation. With its current and future product portfolio, Merck wants to help solve global challenges and shape a sustainable future. That is also why innovation is the basis of the company's business activities; it is the prerequisite for future growth. The Merck Group is continually working on new products and service innovations for patients and customers and relies on a continual process of internal innovation throughout all areas of the company.

Merck is aiming for sustainable and profitable growth

Group strategy

Merck focuses on innovative and top-quality high-tech products in the pharmaceutical and chemical sectors. The company's goal is sustainable and profitable growth. Merck intends to achieve this by growing primarily organically and by further developing its competencies, but also by making targeted acquisitions that complement and expand existing strengths in meaningful ways. Building on leading branded products in all four divisions, Merck aims to generate income that is largely independent of the prevailing economic cycles. Moreover, the aim is to further expand the strong market position in emerging markets in the medium to long term. In 2013, the Emerging Markets region contributed 36% to Group sales.

Strategic initiatives

Capability initiatives

As Merck continues to grow in size and the business becomes increasingly global, we want Merck to be seen as ONE company. ONE Merck stands not only for a strong brand, but also for a performance-oriented global company with a strong sense of "we". Merck is more than the sum of its parts. For this purpose, we have launched four capability initiatives.

The capability initiative **ONE Merck brand** aims to strengthen the value of the Merck brand, to increase the company's global visibility and reputation, to become more attractive to customers, partners and talent globally.

The framework for talent development, compensation and performance management is to be harmonized globally as **ONE Talent Development, Rewards and Performance Management.**

As part of this initiative, Merck will focus on establishing a consistent and integrated talent and performance management process and improving the talent portfolio by proactively identifying and sourcing talent as well as by ensuring workforce diversity.

The goal of the third capability initiative **ONE Process Harmonization, Standardization and Excellence** is to better coordinate processes and apply them consistently. This is particularly the case with software applications. Continuous improvement will take place through benchmarking. Ultimately, this will allow Merck to adapt rapidly to business changes as well as to integrate future acquisitions both seamlessly and efficiently.

→ *Objectives and strategies of the Merck Group*

The importance of Merck's global headquarters in Darmstadt is to be underscored along the lines of **ONE global headquarters**. Merck in Darmstadt is to become a vibrant home for creativity, exchange and innovation.

Our aim is to implement all capability initiatives in the medium term.

Business initiatives

With its business initiatives, Merck wants to capture new business opportunities

Furthermore, Merck has set up a range of **business initiatives** in order to expand the existing portfolio as well as to capture new business opportunities. The following initiatives are of major significance:

Biosimilars

In order to capture the opportunities offered by biosimilars, Merck set up a dedicated unit. Merck wants to use its expertise in developing, manufacturing and commercializing high-quality biotechnological medicines in order to create a competitive biosimilars portfolio. The focus is on developing molecules through in-house research and development as well as through partnerships.

Research & Development at Merck Serono

Merck Serono introduced a more entrepreneurial model to elevate the performance dynamics of its Research & Development. Based on Translational Innovation Platforms (TIPs), the division wants to foster long-term planning and an entrepreneurial mindset, supported by an independent advisory board of external experts.

OLEDs

The Performance Materials division aims to further expand its global leadership position in display materials. Merck expects OLED technology to increase in importance in the future. Performance Materials is therefore investing in developing a comprehensive OLED portfolio. By 2018, Merck aims to be a leading supplier of OLED materials.

Business strategies of the divisions

Merck Serono

Merck Serono aims to grow at least in line with the global pharmaceutical market

Merck Serono aims to become a preferred global biopharmaceutical partner, providing innovative specialty medicines, leading brands, and high-value solutions. Global megatrends such as world population growth and a general increase in life expectancy are bolstering the demand for our products. The aim is to grow at least in line with the global pharmaceutical market.

→ *Objectives and strategies of the Merck Group*

Innovative drugs are the key to competing in mature markets, which remain the largest and most profitable markets for our products. In addition, we will use customized products and dosage forms to systematically capture the growth potential of emerging markets in order to further expand our leading position in key cardiometabolic diseases mainly based on our General Medicine products such as Glucophage®, Concor® and Euthyrox®.

The division continues to focus on the therapeutic areas of Oncology, Multiple Sclerosis, Fertility and General Medicine.

In Oncology, Merck launched the Erbitux® Reloaded program, the strategic focus of which is on building on the existing business to expand market share and to ensure market leadership in first-line therapy of metastatic colorectal cancer in patients with KRAS wild-type tumors. Based on the results of the FIRE 3 study as well as further retrospective analyses of pivotal trials, Merck Serono is emphasizing the importance of offering patients complete testing for RAS status in order to ensure optimum treatment. In Multiple Sclerosis, the vision is to remain a leader by providing innovative solutions that include drugs, devices and services to help people living with multiple sclerosis. Merck Serono plans to fully exploit the potential of Rebif®, its top-selling product, in an increasingly competitive multiple sclerosis market and to position it as the best interferon-based therapeutic option for patients who suffer from the relapsing form of the disease. Merck Serono intends to further expand its market leadership in Fertility especially by leveraging the comprehensive portfolio of products and life cycle management activities, and by capturing growth opportunities in emerging markets. In General Medicine, Merck Serono will focus on further boosting its efforts in emerging markets and enhancing the life cycle management of its products. In addition, Merck Serono intends to continue to strengthen its current portfolio through suitable partnerships.

Merck Serono wants to step up its activities in China, Brazil and North America

China and Brazil are key growth markets for the division. Merck Serono wants to step up its activities in these countries by 2018. At the same time, Merck Serono intends to further expand its activities in North America. The division is therefore examining potential business models such as alliances, acquisitions of start-ups as well as the launch of new products..

Consumer Health

Consumer Health aims to expand its market share in all key markets

In 2012 and 2013, the Consumer Health division undertook steps to strategically realign the internal organization while sharpening its focus on core brands and particularly attractive key markets. As of 2014, Consumer Health intends to push ahead with its growth agenda, particularly in emerging markets of Latin America and Southeast Asia. To this end, the division is pursuing a clear strategy: The aim is for Consumer Health to achieve a market share of at least 3% by 2021 in each of the division's top 20 markets (including France, Mexico, Brazil, Germany and the United Kingdom), with at least three brands in leading positions. An important milestone within the framework of this strategy will be the transfer of the Neurobion® and Floratil® brands from the Merck Serono to the Consumer Health division in 2014. Neurobion® is a leading global brand in the vitamin B segment and Floratil® is a leading brand in the probiotic antidiarrheal segment in Brazil. Their transfer to Consumer Health will allow a stronger focus on consumer needs. As a consequence, the emerging markets exposure of Consumer Health will increase from 28% in 2013 to 51% in 2014, and Consumer Health will also increase the market share of the division in key markets such as Brazil, Mexico, India and Indonesia.

→ *Objectives and strategies of the Merck Group*

Performance Materials

Performance Materials aims to further expand its market and technology leadership position in liquid crystals

The demand for high-tech products in general and for innovative display solutions in particular has seen high global growth in recent years. Nor is this trend expected to weaken in the coming years. Instead, Merck assumes that there will be increasing demand for these types of consumer goods from a growing middle class in emerging markets. Therefore, Performance Materials will defend its position as the market and technology leader for liquid crystals and further expand it as far as possible.

Since the typical life cycle of liquid crystal mixtures is less than three years, innovation will remain the key success factor. The liquid crystals pipeline is well-stocked with new technologies such as self-aligned vertical alignment (SA-VA), advanced fringe field switching (FFS) as well as projects beyond displays. The division wants to further position itself in the OLED market and play a leading role in this market segment in the medium to long term. Lower production costs for OLED displays are a precondition for this. External partnerships will also be used in the future to ensure the required exchange of technology and expertise.

In addition, the planned acquisition of AZ Electronic Materials and the resulting combination of two research and development teams will lead to further innovative solutions for customers in the electronics industry.

Within its Pigments & Cosmetics business unit, Merck will continue to focus on customers as well as the effect pigments business and selected technology segments in the functional materials business.

Merck Millipore

Merck Millipore aims to continue to outperform its peers

In order for Merck Millipore, the life science tools division of Merck, to continue to outperform its peers, the division is pursuing various strategic approaches. Merck Millipore will maximize the potential of the combined portfolio, drive market share growth in North America, Asia and Latin America, and increase sales generated by new products. The division's profitability is to improve by globalizing the entire portfolio and reducing organizational complexity. Merck Millipore will secure operational excellence by implementing systems such as Enterprise Resource Planning (ERP), delivering the highest standard of customer service, and cultivating talent in the organization. These measures are to be fully implemented by 2017.

→ *Objectives and strategies of the Merck Group*

Strategic financial and dividend policy

Merck is pursuing a conservative financial policy

For reasons of sustainability, Merck generally follows a conservative financial policy. Apart from a solid balance sheet with transparent and healthy structures, this policy is reflected by the selection of financing sources, liquidity management, key financial indicators, dividend policy, and risk management.

Merck generates high business free cash flow and its return on capital employed is consistently improving. In the context of the Group-wide efficiency program currently underway, cash is being reserved with high priority to fund restructuring measures across all divisions and regions. Around € 800 million of one-time costs related to restructuring are planned to be incurred from 2012 to 2015. As of 2014, major acquisitions will again be on Merck's agenda.

Moreover, cash is to be used for selective acquisitions in order to provide for future growth, for instance the planned takeover of AZ Electronic Materials (Performance Materials).

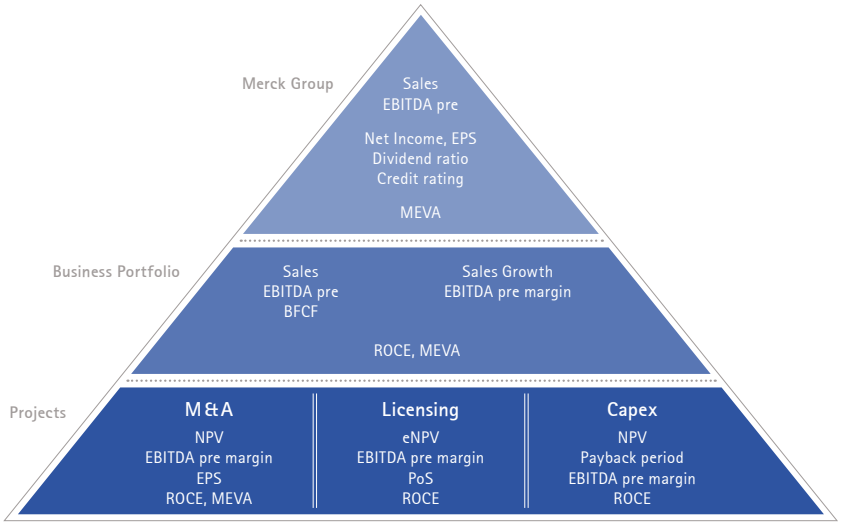
Lastly, Merck uses its cash for **dividend payments** to its shareholders. Merck's dividend policy is aimed at a moderate long-term sustainable payout ratio of 35% to 40% based on net income before one-time items.

Internal management system of the Merck Group

As a global pharmaceutical and chemical company organized around four divisions with a diverse portfolio of products and services, Merck uses a comprehensive framework of indicators to manage performance. Within this framework, the most important KPI (key performance indicator) to measure the operational performance of the Merck Group and its divisions is EBITDA pre.

EBITDA pre is the most important key performance indicator of the Merck Group

The Merck Value Creation and Financial KPI Pyramid, which summarizes the important financial performance measures of the Merck Group, reflects the comprehensive framework of financial KPIs to steer our businesses and prioritize the allocation of our cash resources. It consists of three managerial dimensions, which require the use of different indicators: Merck Group, Business Portfolio and Projects. Apart from its strong focus on operational performance, the Merck Value Creation and Financial KPI Pyramid also emphasizes the need for measurable mid- and long-term value creation as well as the efficient allocation of cash to the most promising investment alternatives.



Explanations: EBITDA pre = Earnings before interest, income tax, depreciation and amortization pre one-time items, EPS = Earnings per share, MEVA = Merck value added, BFCF = Business free cash flow, ROCE = Return on capital employed, NPV = Net present value, eNPV = expected Net present value (probability adjusted), PoS = Probability of success

→ *Internal management system of the Merck Group*

Group and Division KPIs

Sales, EBITDA pre and business free cash flow serve as performance indicators for the development of the Merck Group and its divisions

The three Group and division KPIs, namely sales, EBITDA pre and business free cash flow, are the most important financial KPIs used to assess the operational performance of the Merck Group and its divisions. Reference to these KPIs can therefore be found in the report on economic position, the report on risks and opportunities, and in the report on expected developments. As the most important indicators of Merck's financial business performance, the Group and division KPIs are key elements of Merck's performance management and incentive system.

Sales

Sales are defined as the sales of goods and services rendered to external customers net of value added tax and after sales deductions such as rebates or discounts. Sales are the main indicator of business growth in the Merck Group and therefore an important parameter of external as well as internal performance measurement.

Merck Group | Sales

€ million/change in %	2013	2012	Change in %
Sales	**10,700.1**	**10,740.8**	**–0.4**

EBITDA pre

EBITDA pre is the main performance indicator measuring ongoing operational profitability and is used internally and externally. To allow for an understanding of the underlying operational performance of the Merck Group and its four divisions, it excludes from the operating result depreciation and amortization in addition to specific income and expenses of a one-time nature. One-time items within EBITDA are restricted to five categories: integration costs/IT costs, restructuring costs, gains/losses on the divestment of business, acquisition costs and other one-time items. The classification of specific income and expense as one-time items follows clear definitions and underlies strict governance at corporate level. For example IT costs, which are not related to the integration of an acquired business, can only be classified as one-time items if they are related to a fundamental change in the global IT landscape of the Merck Group or a division. Also, the category restructuring costs only includes one-time charges for globally defined and centrally approved restructuring programs. Restructuring costs incurred in 2012 and 2013 were directly related to the Group-wide "Fit for 2018" transformation and growth program.

Within the scope of internal performance management, EBITDA pre allows for the necessary changes or restructuring without penalizing the performance of the operating business.

→ *Internal management system of the Merck Group*

Merck Group | Reconciliation of EBIT to EBITDA pre

€ million/change in %	2013	2012	Change in %
Operating result (EBIT)	**1,610.8**	**963.6**	**67.2**
Depreciation/Amortization/Reversals of impairments	1,458.4	1,396.6	4.4
EBITDA	**3,069.2**	**2,360.2**	**30.0**
Restructuring costs	130.5	503.8	–74.1
Integration costs/IT costs	49.0	36.7	33.5
Gains/losses on the divestment of businesses	2.3	60.1	–96.2
Acquisition costs	0.0	1.0	–100.0
Other one-time items	2.3	3.1	–25.8
EBITDA pre	**3,253.3**	**2,964.9**	**9.7**

Business free cash flow (BFCF)

Apart from EBITDA pre and sales, business free cash flow (BFCF) is the third important Group and division KPI and therefore also used for internal target agreements and individual incentive plans. It comprises the major cash-relevant items that the individual businesses can influence. Broken down to the divisional level, it sums up EBITDA pre less main cash items such as investments in property, plant and equipment, software, advance payments for intangible assets, as well as changes in inventories and trade accounts receivable, all of which are under full control of the individual businesses. To manage working capital on a regional and local level, our businesses use the two indicators DSO (days sales outstanding) and DSI (days sales in inventory). The introduction of business free cash flow has led to considerable improvements in cash awareness as well as reduced working capital requirements.

Merck Group | Business free cash flow

€ million/change in %	2013	2012	Change in %
EBITDA pre	**3,253.3**	2,964.9	9.7
Investments in property, plant, equipment and software as well as advance payments for intangible assets	–446.2	–366.5	21.7
Changes in inventory according to the balance sheet	59.7	157.2	–62.0
Changes in trade accounts receivable according to the balance sheet	93.2	213.7	–56.4
Business free cash flow	**2,960.0**	**2,969.3**	**–0.3**

→ *Internal management system of the Merck Group*

Investments and value management

Sustainable value creation is essential to secure the long-term success of our company. To optimize the allocation of financial resources we use a defined set of parameters as criteria for the prioritization of investment opportunities and portfolio decisions.

Net present value (NPV)

Net present value is the main criterion for prioritizing investment opportunities

The main criterion for the prioritization of investment opportunities is net present value. It is based on the discounted cash flow method and is calculated as the sum of the discounted free cash flows over the projection period of a project. Consistent with the definition of free cash flow, the weighted average cost of capital (WACC), representing the weighted average of the cost of equity and cost of debt, are used as the discount rate. Depending on the type and location of a project different mark-ups are applied to the WACC.

Return on capital employed (ROCE)

In addition to NPV, ROCE is an important metric for the assessment of investment projects. It is calculated as the operating result (EBIT) excluding one-time items divided by the sum of property, plant and equipment, intangible assets and working capital.

Payback period

An additional parameter to prioritize investments into property, plant and equipment is the payback period, which indicates the time in years after which an investment will generate positive net cash flow.

Merck value added (MEVA)

MEVA gives information about the value created in a period. Value is created when the return on the company's or divisional capital employed (ROCE) is higher than the weighted average cost of capital (WACC). MEVA metrics provide Merck with a powerful tool to weigh investment and spending decisions against capital requirements and investors' expectations.

Capital Market-Related Parameters

The operational performance of our businesses within a certain period provides an important basis for assessing the financial health of our company. In addition, the financial stability of the company is reflected by the following capital market-related parameters:

Net income and earnings per share (EPS)

Merck's financial stability is indicated by earnings per share, credit rating and dividend ratio

Earnings per share are calculated by dividing profit after tax attributable to the shareholders of Merck KGaA (net income) by the weighted average number of theoretical shares outstanding. The use of a theoretical number of shares takes into account the fact that the general partner's capital is not represented by shares. To provide a more comparable view, Merck also publishes EPS pre, which excludes one-time items and

→ *Internal management system of the Merck Group*

amortization of intangible assets (mostly from the acquisitions of Serono SA and the Millipore Corporation) and is based on the company's underlying tax ratio.

Credit rating

The rating of Merck's credit worthiness by external agencies is an important indicator with respect to our ability to raise debt capital at attractive market conditions. The capital market makes use of the assessments published by independent rating agencies in order to assist debt providers in estimating the risks associated with a financial instrument. Currently, Merck is assessed by Moody's and Standard & Poor's (S&P). Here, net financial debt is an important indicator, which we define as current and non-current financial liabilities less cash and cash equivalents as well as current financial assets. A five-year overview of Merck's credit rating can be found in the report on risks and opportunities.

Dividend ratio

As a publicly listed company Merck strives to pay a reasonable dividend to shareholders based on the returns that we generate. With the aim of ensuring an attractive return to shareholders, Merck pursues a reliable dividend policy with a target payout ratio based on adjusted net income (reported net income plus one-time items, e.g. restructuring costs).

Other Relevant/Non-Financial Performance Measures

Apart from the indicators of the financial performance of our businesses, non-financial measures also play an important role in furthering the success of our company. From a Group perspective, specifically innovations in our businesses as well as the attraction and retention of highly qualified employees are of central importance. Further indicators of relevance to specific topics can be found in the Corporate Responsibility report.

Innovation

Innovation is the foundation of our business and will also be the prerequisite for future success in changing markets. We are continuously working to develop new products and service innovations for patients and customers, which is also reflected in our slogan "Merck – Living Innovation". Indicators for the degree of innovation are defined individually depending on the specifics of our businesses.

Talent retention

Employing a highly qualified and motivated workforce is the basis for achieving our ambitious business goals. Therefore, we put a strong focus on establishing the processes and the environment needed to attract and retain the right talent with the right capabilities at the right time. To measure how successful we are in our efforts, talent retention has been implemented as an important non-financial indicator.

Corporate Responsibility

Responsible conduct with respect to our employees, products, the environment, and society plays a key role in Merck's corporate culture. In the course of our nearly 350-year history, the principle of corporate responsibility has become a permanent pillar of our corporate governance. It constitutes part of our daily conduct and thus a fundamental prerequisite for our business success.

More information on this topic can be found in our 2012 Corporate Responsibility Report[1].

Strategy and management

Our CR Committee steers all of our corporate responsibility activities throughout the Merck Group

Our corporate responsibility (CR) activities are steered by our Group-wide CR Committee, which consists of representatives from Merck's divisions, as well as from relevant Group functions. Our ambition is to be a global company that creates added value for consumers, our market partners and the community while also helping them lead better lives. We endeavor to achieve positive recognition for Merck in society and have an obligation to operate safely as well as respect the environment.

Mankind is confronted with major global issues, such as the increasing demand for affordable, renewable energy, a growing need for access to health – especially in developing health care systems – and the prevention of greenhouse gas emissions. We believe that we can do our part to resolve these global challenges through our innovative pharmaceutical, chemical and life science products, as well as through responsible corporate governance; in this way, we can prepare ourselves for the future while increasing Merck's acceptance in society.

Merck's CR engagement is focused on three spheres of activity:

- **People:** We strengthen our company's ability to act by recruiting, developing and motivating the most suitable employees. We want to help society function better and aim to set the example for ethical conduct.
- **Products:** Our products serve people's current and future needs, and many of them contribute to environmental protection. Safety and ethical aspects matter just as much as business success.
- **Environment:** In the manufacture of our products, we seek to impact the environment as little as possible. Safety, environmental protection and quality management are absolutely essential to this goal.

Merck is committed to the United Nations Global Compact, as well as to the Responsible Care Global Charter of the International Council of Chemical Associations

Merck supports relevant initiatives concerning responsible corporate governance. We participate in the United Nations Global Compact and are committed to complying with the compact's principles regarding human rights, labor standards, environmental protection, and anti-corruption. Another way in which we live our corporate responsibility is our commitment to follow the guidelines of the Responsible Care Global Charter, an initiative of the International Council of Chemical Associations (ICCA). This charter aims to continuously improve the products and services of the chemical industry in terms of environmental protection, health, plant safety, and security.

[1] Merck applies the G3.1 Sustainability Reporting Guidelines of the Global Reporting Initiative

→ *Corporate Responsibility*

Merck maintains an ongoing dialogue with its various stakeholders

In addition, we are involved in the Chemie[3] initiative, a collaboration between the German Chemical Industry Association (VCI), the German Employers' Federation of the Chemical Industry (BAVC), and the German Mining, Chemical and Energy Industrial Union (IGBCE). This initiative aims to make sustainability a core part of the chemical industry's guiding principles and seeks to jointly drive the sector's position within the German economy as a key contributor to sustainable development.

To Merck, corporate responsibility does not merely mean actively taking action, but also actively listening. The dialogue with the various stakeholder groups is therefore highly important to us. These stakeholders include our employees, our business associates, the Merck family, investors, regulatory agencies, and associations. We engage in a continuous exchange with our stakeholders in order to transparently demonstrate how we live the Merck Values.

This engagement has earned Merck a variety of recognition, not the least of which was our listing on the FTSE4Good Index once more in 2013. To be included in this leading international sustainability index, a company has to demonstrate socially conscientious, ecological and ethical conduct.

Responsibility for people: Social responsibility

Merck sees itself as part of the community, not only at its individual locations, but also at global level. Taking responsibility towards society is an integral part of our entrepreneurial approach. We believe that we can make an important contribution to society through our knowledge, our skills and our products.

Merck focuses particularly on health projects and promoting education

Our social responsibility activities are primarily focused on those areas in which we have specific expertise stemming from our core businesses. We are thus engaged in health care projects and support education, specifically in the natural sciences. We provide disaster relief in emergency situations, especially in those regions in which we also do business.

To increase the effectiveness of our projects, we have consolidated our resources into three global lighthouse projects:

1. The Merck Praziquantel Donation Program: We are partnering with the World Health Organization (WHO) to combat the worm disease schistosomiasis in school children in Africa (see also p. [55]).
2. Global Pharma Health Fund: This is a charitable initiative funded by Merck to fight counterfeit medicines in developing countries and emerging markets (see also p. [56]).
3. The Deutsche Philharmonie Merck, a cultural ambassador: With up to 80 professional musicians and a very diverse concert repertoire, this orchestra is an integral part of the cultural life in the vicinity of our Group headquarters in Darmstadt and also tours internationally.

Spending on social engagement activities totaled € 46.2 million in 2013

In addition, our subsidiaries are engaged in local projects. We have defined a general set of criteria for selecting projects, and the decisions concerning specific local projects are made by our subsidiaries. In 2013, we spent a total of € 46.2 million on corporate social responsibility activities. Of the total monetary and non-monetary donations made by our subsidiaries in 2013, 63% went to Emerging Markets (Latin America and Asia, excluding Japan), 36% to Europe, as well as 1% to North America and the Rest of World region.

→ *Corporate Responsibility*

Responsibility for people: Merck employees

In accordance with the Merck Values, we live a culture of mutual esteem and respect. We want to become better and faster by recruiting, developing and motivating the most suitable employees. In addition, we would like to further enhance the performance culture of our company and promote the diversity of our workforce.

Merck had more than 38,000 employees as of the end of 2013

As of December 31, 2013, Merck had 38,154 employees worldwide (2012: 38,847). Merck was represented by a total of 191 companies in 66 countries, with 63 production sites located across 21 countries.

Fit for 2018

The "Fit for 2018" transformation and growth program impacted HR work in 2013 as well. At the majority of Merck's sites, the structural prerequisites were put in place and agreements were reached with the respective social partners in order to create a socially responsible approach to the workforce reduction required by the transformation process. For example, in Germany, around 1,200 employees chose to participate in a partial retirement program or a voluntary leaver program. By the end of 2013, we had completed the process of moving Merck Serono headquarters from Geneva to Darmstadt. In comparison with 2012, the total number of employees in 2013 decreased by 693.

Vocational and advanced training

Merck continues to take the vocational and advanced training of its employees very seriously. We have therefore maintained a constant vocational training rate at Darmstadt, the largest site of the Merck Group. In 2013, a total of 516 young people were enrolled in vocational training programs at this site, in 23 different occupations. At other sites where we offer vocational and advanced training, we have likewise maintained a high vocational training rate.

"Start in die Ausbildung", a German program to prepare young people for an apprenticeship, was continued with 20 interns, the same number as in 2012.

In 2013, Merck harmonized its approach to advanced training across the Merck Group

In 2013, we globally harmonized our approach to advanced training, better gearing it towards the future business focus of the Merck Group. Here, our goal is to advance the competencies and abilities of our employees and managers so that they can help implement our corporate strategy more efficiently while at the same time unlocking their individual potential. We have accordingly revised our training programs at all levels.

Performance management

In 2012, we ran a pilot of an integrated performance and talent management process, which we then rolled out broadly in 2013. Merck considers it important to identify employee potential early on and foster it on an individual basis. We want to offer our talent attractive career opportunities as well as continual personal and professional prospects within the company.

The new process systematically combines talent recognition with the Performance Management Process that allows us to objectively assess the performance of each individual employee. This assessment is a crucial prerequisite for personal development as well as for the overall success of the company. Key features here are clear objectives, differentiated and open feedback on performance, as well as individual development

→ *Corporate Responsibility*

plans. To date, around 22,400 employees have participated in the globally harmonized Performance Management Process.

Internal talent development and external recruiting

Merck aims to further strengthen its performance culture

Through the above-mentioned process, Merck aims to bolster its performance culture and develop talent in a more targeted manner. In 2013, we achieved our first successes and expanded our pool of internal talent, which makes it easier to fill management positions with internal staff when they become vacant. In 2013, 92% of management position vacancies were filled by internal candidates. Merck also recruited external executives for several key positions in the organization in order to add new outside perspectives to our long-standing in-house expertise.

Merck is using the motto "Make great things happen" to position itself in the global job market, which conveys to potential applicants a sense of what makes Merck unique: an inspiring, motivating work environment in which innovations thrive; an environment in which everyone has the opportunity to apply their ideas and engagement to benefit customers and the company, while at the same time growing as employees.

Occupational health and safety

As a responsible employer, it is especially important to us to do everything in our power to prevent workplace-related illnesses and accidents. We apply the lost time injury rate (LTIR) as an indicator to determine the success of measures aimed at accident prevention as well as occupational health and safety. This internationally recognized key performance indicator describes the number of workplace accidents resulting in lost time per one million working hours. Merck set itself the goal of reducing the LTIR to 2.5 by 2015. In 2013, we again outperformed this goal, achieving an LTIR of 2.1.

Incidents

	2009	2010	2011	2012	2013*
LTIR (Lost Time Injury Rate)	3.5	3.0	2.0	2.3	2.1
Number of fatalities	0	1	0	0	0

*Incl. temps

The BeSafe! program is helping to further reduce the number of workplace accidents

This continuous rate of improvement can be particularly attributed to the BeSafe! program, which was launched in 2010. In 2013, we continued to sensitize our employees to workplace hazards through numerous activities and awareness campaigns. BeSafe! is a Group-wide initiative with harmonized standards and local modules for the specific requirements at individual sites. This program focuses on engaging managers in the safety culture and building their buy-in; it aims to make safety an intrinsic value and empower our employees to take responsibility for their own safety.

Since 2010, Merck has been presenting the Safety Excellence Award in order to underscore the importance of safety. It is granted to all production sites with no workplace accidents on record for the year. In 2013, 38 out of 63 production sites were recognized.

→ *Corporate Responsibility*

Workforce diversity

We believe that workforce diversity leads to greater innovation and promotes better team performance, which is why we aim to foster diversity among our employees. To this end, the Executive Board has defined three focus areas. As a global company, we particularly endeavor to achieve a good balance between different cultures and nationalities, between different age groups, as well as between male and female employees.

The Diversity Council is responsible for the diversity and inclusion strategy of the Merck Group

In addition to creating the position of Chief Diversity Officer, who is responsible for strategically managing diversity within the Merck Group, Merck also established the Diversity Council in 2013. This aims to build further buy-in for diversity within the company. The council consists of high-ranking managers from every division as well as from several Group functions; it is primarily concerned with developing and refining our diversity and inclusion strategy.

In addition, Merck supports specific employee networks in order to foster exchange among like-minded individuals, building expertise that benefits the company. For example, in 2013, we worked with a network of international employees to better gear our Darmstadt site to an international workforce. This helps employees from across the globe to easily and quickly familiarize themselves with Group headquarters, thereby increasing work efficiency within the company.

Focus areas: Internationality, demography, gender ratio

One of our fundamental principles is to recruit employees from the countries in which we operate and offer them career development opportunities. People from a total of 114 different nations work at Merck. Only 27% of Merck employees are German citizens, and 72% work outside of Germany. Three of our four divisions are currently headed by non-Germans.

In Germany, several other EU countries and the United States, we must prepare ourselves for demographic change. In these countries, the average age of our employees exceeds 40 – and we assume that this figure will continue to rise in the coming years. In Europe, we are addressing these demographic challenges through various programs. These include adapting workplaces to the needs of older employees and establishing a health management program to maintain their ability to do their jobs.

Merck intends to increase the percentage of female employees wherever they are underrepresented

Women currently make up 42% of our entire workforce. Since the ratio of women to men varies widely across the different regions, divisions and functions, Merck has set itself the goal of increasing the percentage of female employees wherever they are underrepresented.

Filling management positions

We believe that balanced diversity among management enhances career advancement opportunities for talented employees while also helping to provide a broad experience base within the company. It furthermore allows for differentiated entrepreneurial decision-making, thereby making a significant contribution to the success of the company.

→ *Corporate Responsibility*

As a global company, Merck considers it highly important to have an international management team. Currently, 61% of our managers – meaning positions rated Global Grade 14 and up in our Global Grading System – have a nationality other than German. Altogether, 59 different nationalities are represented in such positions.

The percentage of management positions held by women (Global Grade 14 and up) is currently 25% Group-wide. In the subsidiaries outside of Germany, this percentage is higher than at Group headquarters in Darmstadt. Likewise, more women work in managerial positions in our Pharmaceuticals divisions than in our Chemicals divisions. Certain Group functions such as IT have a lower percentage of women in management positions. However, the figures are clearly increasing across the Group as a whole. Merck has reached its strategic goal of raising the percentage of management positions held by women from 25% to 30% and intends to further increase this percentage by 2016. In order to achieve this ambition, Merck is implementing numerous measures at the local level. 2013 was the first time that a woman was appointed as head of a Merck Group division.

Work-life balance

Merck wishes to help its employees achieve a good balance between their professional and personal objectives. This maintains and strengthens their motivation and performance potential, making it easier for them to plan their daily lives.

In Germany and other countries, Merck offers various flexible working hour models. Globally, approximately 5% of our employees worked part-time in 2013. 8% of our part-time employees are men.

The assistance4me program launched by Merck in 2013 is a new initiative that helps improve employee work-life balance

In addition to this, Merck introduced a comprehensive employee assistance program called "assistance4me" in 2013. Throughout Germany, this initiative offers employees extensive help with regard to finding childcare and nursing care, as well as home and garden services. At various sites, employees benefit from childcare options that Merck subsidizes. A daycare center has been operating at the Darmstadt site in Germany for more than 40 years, financially supported by the Merck family. In 2013, Merck invested in expanding the facility, increasing the daycare center staff by 40% in order to provide 50 additional spots. The hours of operation were also extended. The daycare center will be hiring English-speaking staff in order to accommodate the increasingly international workforce at Merck.

Responsibility for our products

Our success and our future are founded on innovative products that address people's needs and enable them to lead a better life. Through our products, we are helping to overcome global challenges such as climate change and access to health. At the same time, we are also helping our customers achieve their own sustainability goals.

Product safety is at the core of Merck's corporate responsibility

The safety of our products is at the core of our corporate responsibility. As long as used properly, our products should pose no danger to customers or the environment, nor should our pharmaceuticals have a negative benefit-risk evaluation. We therefore examine safety across the entire life cycle of our products and continuously take steps to minimize risks. We make our products safer to use by providing patients and customers with extensive informational material so that they can use the products in a responsible, safe and proper manner.

→ *Corporate Responsibility*

Safety of our chemical products

There are numerous regulations intended to ensure that chemicals pose no danger to humans or the environment. Compliance with these regulatory requirements is an important part of our work. With our Group-wide Product Safety Chemicals policy, we have introduced global processes for defining, steering and implementing product safety, and have established the corresponding management structures.

Our policies and regulations incorporate all relevant national and international chemical regulations, including the EU chemicals regulation REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) and the Globally Harmonised System of Classification and Labeling of Chemicals (GHS). We are committed to transparency; for instance, in line with the Global Product Strategy, an international initiative of the chemical industry, we provide our customers with product safety summaries for hazardous materials.

Merck has successfully completed the second phase of REACH implementation. All substances we produce or import in quantities ranging from 100 to 1,000 metric tons per year – around 70 different substances – were fully registered with the European Chemicals Agency (ECHA) by June 1, 2013. The next step, part of the third phase, is for us to register all substances produced or imported in quantities ranging from one to 100 metric tons by 2018. We have already started this process and are right on schedule with our activities.

Safety of our drugs

In everything we do, our number one priority is our patients' safety. Ultimate responsibility for drug safety matters at Merck Serono is borne by our Medical Safety and Ethics Board (MSEB), which is chaired by the Global Chief Medical Officer. Merck Serono Global Drug Safety is responsible for continuously, systematically monitoring the safety of our drugs (pharmacovigilance). This unit processes safety information from various sources such as clinical trials, adverse reaction reports and scientific literature in order to provide patients with the latest risk-benefit evaluations during the entire life cycle of a drug. Through our Pharma Code for Conducting Pharmaceutical Business and Pharmaceutical Operations, we set standards for responsible marketing activities in order to ensure that patients and professional health care providers have access to relevant information and that patients receive effective treatment.

Quality of our products

Merck's quality vision: "Quality is embedded in everything we do!"

Our goal is to provide customers and patients with high-quality brand-name products. Through our quality vision – "Quality is embedded in everything we do!" – we remind our employees of their responsibility – across all divisions, all Group functions and all levels of the company.

Sustainable products

We strive to continuously enhance the sustainability footprint of our products and are working to offer our customers products that enable them to reduce the impact of their own activities, as well as to achieve their own sustainability goals. One example of this is the Green^3 concept. Through this program, the Performance Materials division is helping to promote environmentally preferable, energy-efficient, safe technologies and materials. We are developing innovative materials for energy-efficient liquid crystal and OLED displays and are thus helping our customers to reduce their own environmental impacts. Thanks to liquid crystals from Merck, displays consume approximately 20% less energy in comparison with the preceding generation of technology.

→ *Corporate Responsibility*

We have expanded the Green[3] concept to include cosmetic products from our Performance Materials division. We are working to sustainably procure and produce cosmetic ingredients as well as optimize the related production processes. In dialogue with our customers from the cosmetics industry, we also develop proposals for cosmetic formulations that meet strict sustainability criteria as well as address the current trend towards more natural cosmetics. Several of our products have recently been certified by ECOCERT, an independent organization that represents high international standards for environmentally sustainable products.

As part of the Design for Sustainability program, the Merck Millipore division has developed a number of tools to drive sustainability across the product development process. One example is a scorecard that identifies key health and environmental impacts in certain life cycle stages as well as opportunities to make improvements. The Design for Sustainability program is especially aimed at reducing our customers' own environmental impact, including their carbon footprint and water use.

In addition to this, Merck fosters its employees' ideas for new businesses through its Innospire program. In view of the globally rising levels of energy consumption as well as the increasing scarcity of water, in 2013 we focused on energy conservation, energy efficiency, and energy conversion, as well as water treatment, water quality analyses, and efficient water consumption. These topics were of particular importance in our Performance Materials and Merck Millipore divisions. Merck employees were called upon to submit suggestions for new materials and systems, as well as for new business models. During the 2013 run of the Innospire program, 300 ideas were submitted, some of which pertained to the above-mentioned topics.

Access to health

Merck strives to improve access to health for underserved populations

Promoting access to health – not only to medicines – for underserved populations across the world is a priority for Merck. Our Access to Health (A2H) initiative leverages core competencies across all Merck divisions to provide comprehensive health solutions to underserved populations and patients in low- and middle-income countries. Merck is committed to the UN Millennium Development Goals (MDGs) and to working with partners to achieve them. Our robust approach to addressing the complex challenge of providing access is comprised of four components, known as the 4As for Access: Availability, Affordability, Awareness and Accessibility.

Availability

Availability includes efforts to reduce barriers to health care solutions and to tackle unmet needs in therapeutic areas that disproportionately affect the poor in low- and middle-income countries. Merck is a signatory to the London Declaration on Neglected Tropical Diseases (NTDs), which aims to expand access for the 1.4 billion people affected by NTDs. Within the scope of this unprecedented multi-stakeholder effort, Merck pledged to increase its praziquantel donation tenfold and to develop a pediatric formulation to treat schistosomiasis, a worm disease that often is contracted via contaminated water and is endemic in Africa, Asia and Latin America.

Affordability

The Praziquantel Donation Program is one of Merck's lighthouse projects

Affordability entails offering our products at prices that poor populations can also afford through programs such as innovative pricing, intellectual property initiatives and donations. Through the Merck Praziquantel Donation Program, which is one of our lighthouse projects, Merck donates Cesol® 600 tablets, which contain the active ingredient praziquantel, to the World Health Organization (WHO) to fight schistosomiasis in Africa. At the end of 2011, Merck pledged to continue its efforts until the disease is eliminated in Africa, contributing

→ *Corporate Responsibility*

up to 250 million tablets annually in the medium term. The WHO partnership has made it possible to treat around 38 million African children. Manufacturing plants in developing countries allow Merck to improve the affordability of their products by selling them in local markets at lower prices.

The Global Pharma Health Fund is an initiative funded by Merck to help in the fight against counterfeit medicines

Awareness

Awareness focuses on the education of health care professionals, technicians and patients to promote high-quality disease prevention, screening and treatment. Interpol, the world's largest international police organization, estimates that up to 30% of all medicines in developing countries are either counterfeit or of substandard quality. This is especially true in Africa and Asia, since they have little in the way of effective governmental drug inspection centers. The Minilab™ developed by the Global Pharma Health Fund (GPHF), which is exclusively financed by Merck, is an important element of our efforts to combat counterfeit medicines and ensures patient safety. The Minilab™ detects counterfeit medicines quickly, easily and inexpensively by using reference samples to test the identity and concentration of 70 active ingredients, ranging from antimalarial drugs and antibiotics to analgesics and antipyretics. To date, the GPHF has supplied 642 Minilabs to more than 80 countries. Merck also collaborates with Interpol and other biopharmaceutical companies to raise awareness about the harmful effects of counterfeit medicines.

Through our three-year Capacity Advancement Program (CAP), Merck is promoting awareness among health workers. In Kenya, we collaborate with the University of Nairobi on the Diabetes Community Awareness and Medical Education Program in a campaign to improve the early diagnosis of diabetes. The campaign has already reached 1,000 people in Kenya, providing patients with free screenings and medical check-ups. We run and sponsor pharmacovigilance training programs in collaboration with local health authorities to ensure that patients get best-quality health solutions, regardless of their location.

Accessibility

To strengthen supply chain and delivery as well as contribute to addressing the so-called "last mile" challenge, we are engaged with various global health stakeholders in discussions around collective and tailored solutions. To raise awareness about thyroid disorders, Merck runs screening programs in Africa, Asia and Latin America. We also use our ThyroMobil® to provide onsite screening and education about iodine deficiency. In Algeria, Merck supports local production through the transfer of manufacturing technology for the production of metformin and bisoprolol. As part of its commitment to improving access to health care for underserved populations, Merck has also constructed the rural pharmacy – an innovative pharmacy specifically designed for rural parts of Africa that will be piloted in Ghana. The pharmacy is a 40-foot shipping container which can be transported to rural communities pre-equipped and with minimal assembly required. Since people living in rural areas often travel great distances to access health care services, the pharmacy will improve accessibility by bringing health solutions directly to them.

Merck aims to establish itself as a health partner of choice in low- and middle-income countries and actively support them as they continue to develop.

→ *Corporate Responsibility*

Supplier management

Merck's suppliers must also adhere to environmental, compliance and social responsibility standards

For its business activities Merck needs raw materials, packaging materials, technical products, components, and services. Our basic expectations for suppliers and service providers include their compliance with fundamental environmental and social standards, derived primarily from the Core Labor Standards of the International Labour Organisation and the UN Global Compact. We have also signed the Code of Conduct of the German Association Materials Management, Purchasing and Logistics e.V. (BME), which is intended to combat corruption, violations of antitrust law, and child labor, among other issues.

In 2013, we instituted the Merck Responsible Sourcing Principles, which codify the requirements that we expect our suppliers to meet with regard to environmental, social and compliance standards. We have integrated these principles into our general terms and conditions and, depending on the potential risk, verify compliance with the Responsible Sourcing Principles by subjecting our suppliers to sustainability audits.

Responsibility for the environment

We have set out to reduce our impact on the environment by applying the precautionary approach principle. This especially includes utilizing resources such as energy, water and raw materials both sparingly and efficiently while also reducing our emissions and waste.

Environmental management system

Our Corporate EHS Policy defines our principles and strategies for environment, health and safety. It is implemented through internal guidelines and instruction manuals on compliant behavior, such as the Merck Group EHS Security and Quality Manual. At all sites, the local EHS managers are also in charge of operational environmental protection measures. These employees continually receive training and obtain additional qualifications.

In 2013, Merck invested a total of € 142 million in environmental protection, health and safety measures

Since our businesses are constantly changing, our environmental management system must also remain flexible and adaptable. For this reason, we have internal and external audits conducted on a regular basis to determine whether the ISO 14001 requirements are still being met. In 2013, Merck received the ISO 14001 group certificate for our environmental management system for the fifth consecutive year.

Expenditure on environmental protection, health and safety totaled € 142 million in 2013, which also includes investments made during 2013.

Climate protection

Climate change and its consequences are one of the main challenges facing society in the 21st century. Being a responsible company, it is especially important to us to do our part, which is why we have set ourselves the goal of reducing total direct and indirect greenhouse gas emissions by 20% by 2020, measured against the 2006 baseline.

In 2013, Merck reduced its greenhouse gas emissions by around 1% relative to the 2006 baseline

In order to achieve this goal, Merck has launched a climate protection program called EDISON that consolidates all climate change mitigation and energy efficiency activities of the Merck Group. In 2014, as in 2012 and 2013, the Executive Board will additionally earmark around € 10 million for measures to conserve energy and reduce greenhouse gas emissions. We intend to use this sum to initiate another 130 individual projects as well as to continue projects from 2012 and 2013. Through the 200 EDISON projects that were launched in

→ *Corporate Responsibility*

these two years, Merck aims to annually save around 63 metric kilotons of CO_2 in the medium term. In 2013, Merck lowered its greenhouse gas emissions by around 1% relative to the 2006 baseline.

Around two thirds of the projects planned Group-wide have already been or are being rolled out, including also major energy generation projects. In Jaffrey, New Hampshire (USA), as well as in Goa, India, Merck is currently constructing power plants that will use carbon-neutral biomass as fuel in order to supply the sites with electricity. Another EDISON project is the gas-fired cogeneration unit at our site in Gernsheim, Germany, which went on line in mid-2013. It uses a high-efficiency gas turbine-driven cogeneration system to produce electricity, while almost completely preventing the loss of unused heat. This will cut down Merck's carbon footprint by around 6,000 metric tons of carbon dioxide per year.

Energy consumption (in GWh)

	2009	2010	2011	2012	2013
Total energy consumption	**1,275**	**1,395**	**1,391**	**1,388**	**1,431**
Direct energy consumption	823	905	906	920	968
Natural gas	742	794	798	818	864
Liquid fossil fuels	66	96	95	89	89
Biomass and other self-generated renewable energy	15	15	13	13	15
Indirect energy consumption	452	490	485	468	463
Electricity	443	480	481	464	458
Water vapor	9	10	4	4	5

Portfolio-adjusted in accordance with the Greenhouse Gas Protocol

CO_2eq emissions (eq=equivalents)

Emissions in kilotons	2009	2010	2011	2012	2013
Total CO_2eq emissions	**474**	**537**	**502**	**502**	**524**
Direct CO_2eq emissions	299	348	315	317	343
Indirect CO_2eq emissions	175	189	187	185	181

Portfolio-adjusted in accordance with the Greenhouse Gas Protocol

Focus areas: Energy efficiency, greenhouse gas emissions, water scarcity

Energy management plays a key role in our efforts for sustainable energy efficiency and climate change mitigation. Merck's production sites in Darmstadt and Gernsheim account for around 40% of Merck's global energy consumption. In 2012, both of these sites qualified for ISO 50001 – Energy Management System certificates, which were reaffirmed in 2013. Our Taoyuan site in Taiwan received the ISO 50001 certificate in 2013 for the first time. Counting the Bari and Tiburtina sites in Italy, this makes five Merck production sites that have a certified energy management system.

→ *Corporate Responsibility*

With its new company car policy, Merck intends to reduce its CO_2 emissions by 30% by 2020

We utilize company cars sparingly and ensure that they are energy efficient, which also contributes to climate change mitigation and cuts down costs. In 2013, Merck therefore revised its company car policy and defined specific goals. By 2020, we want to decrease the Group-wide CO_2 emissions of our car fleet by 30% relative to the 2012 baseline. Consequently, Merck will be requiring its company cars to be low-emission, state-of-the-art vehicles that provide good fuel economy.

The Climate Performance Leadership Index and the Climate Disclosure Leadership Index of the Climate Disclosure Project (CDP), an independent non-profit organization, both indicate that we are on the right track. In 2013, we were once more ranked in performance band B, which puts us clearly in the upper range of all participating companies in the Germany, Austria and Switzerland category. Merck again significantly improved its disclosure score, raising it to 92 out of 100 possible points, thus meeting the requirements for the CDP's top quality rating. Around 350 companies are rated on their performance in emissions reductions and climate change reporting. The CDP publishes these two indices in order to make greenhouse gas emissions reporting more transparent.

In addition to energy, in 2013 Merck also focused its attention on the topic of water. We have examined our sites to determine which ones are located in regions where water is scarce and thus an especially precious commodity, and plan to establish sustainable water management programs particularly at these sites. Furthermore, we participated in the CDP's water program in 2013 for the first time.

Research and Development at Merck

Merck conducts research and development worldwide in order to develop new products and services designed to improve the quality of life of patients and customers. In 2013, we focused on further optimizing the relevance and profitability of our research and development activities and we increased the number of new collaborations with external research and development partners.

Nearly 4,000 employees around the world work for Merck researching innovations to serve long-term health and technology trends in established and emerging markets as well as in developing countries.

Overall, the Merck Group invested around € 1.5 billion in research and development in 2013. In addition, we are focusing on a newly defined mix of in-house research and cost-saving collaborations, which enables us to increase the productivity of our research while simultaneously reducing financial outlay.

The organizational set-up of our research and development activities reflects the divisional structure of the Merck Group. Within the Executive Board, Stefan Oschmann is responsible for the Merck Serono and Consumer Health divisions and Bernd Reckmann is responsible for the Performance Materials and Merck Millipore divisions.

Merck Serono

General

Number of employees in R&D: 2,523

R&D spending in 2013: € 1,182.8 million

Guiding principle is to foster an R&D environment from bench to bedside

In 2013, R&D at Merck Serono evolved significantly. Starting in 2013 as separate functions – Global Research and Early Development, and Global Development and Medical – Merck Serono unified the two groups into one global R&D organization.

The guiding principle of the new organization at Merck Serono is to foster an environment of end-to-end research and development – from bench to bedside – with a resolute commitment to ensuring that the needs of the patient are the primary driver of Merck Serono's efforts. Operationally, there is a strong focus on delivering the highest-quality science to clinical development with speed and efficiency, and translating that science into meaningful, differentiated new therapies for patients in need.

Discovery is structured across three distinct yet closely aligned Translational Innovation Platforms (TIPs): Oncology, Immuno-Oncology, and Immunology/Neurodegenerative Diseases. Each TIP integrates research, the early phases of development and biomarker strategies, and is now accountable for delivering promising discovery programs into development up to clinical proof of confidence. In order to achieve this, in-house teams of researchers and clinicians work closely together, while collaborating with leading academic institutes, research laboratories and industry organizations to complement their internal capabilities.

Open collaborative model promotes mutually beneficial R&D partnerships

Merck Serono is implementing an open collaborative model in R&D and reflecting this, numerous collaborations were entered into during 2013. These included an innovative strategic collaboration with Quintiles creating a comprehensive process that integrates the expertise and experience from both organizations into a single, well-aligned clinical development unit. Several agreements were also signed with external partners in both research and development.

Across the continuum of R&D, Merck Serono is promoting a solution-oriented, collaborative and accountable culture that delivers value to the business and to patients. The Merck Serono R&D organization is boosting its efforts to advance a robust pipeline and achieve its launch ambitions.

→ *Research and Development at Merck*

Research & Development strategy

In 2013, Merck Serono R&D made considerable progress in simplifying its global operations structure. Today, a nimble and highly-experienced team of just over 2,500 R&D professionals is working towards adding value and bringing new therapeutic options to patients around the world.

With hubs in Darmstadt, Germany; Boston, Massachusetts (USA); Tokyo, Japan; and Beijing, China, the broad footprint of Merck Serono gives it access to innovation in its key markets. Across the spectrum of the biopharma ecosystem – from academia, to hospitals, to research institutions, and to other companies in the biopharmaceutical industry – Merck Serono complements its internal expertise by leveraging the experience and knowledge of others. In 2013, Merck Serono delivered clear examples of this strategic priority, announcing agreements with several companies and academic institutions around the world (for details see the pipeline on page 70).

Merck and Quintiles form partnership

In April 2013, Merck and Quintiles, the world's largest provider of biopharmaceutical development and commercial outsourcing services, announced a new, five-year clinical development agreement. This strategic collaboration is the first of its kind between a biopharmaceutical company and a biopharmaceutical services provider, integrating the expertise and experience of both organizations. This novel approach to clinical development is founded on a shared commitment to cost-disciplined science. The collaboration is intended to optimize productivity in the design and execution of clinical studies with a focus on quality, speed and efficiency. Under the agreement, Merck Serono is shaping and leading the strategy of its clinical development programs, with Quintiles directing clinical trial planning, design and execution, using highly efficient processes and proven technologies.

New building in Darmstadt for biopharmaceutical research and development

In the course of 2013, Merck Serono further strengthened its global presence. In Darmstadt, the division officially opened a biopharmaceutical R&D building. In Boston, the division's R&D site was renamed the EMD Serono Research and Development Institute, and will accommodate more than 500 employees in the coming years across the full R&D spectrum. Merck Serono continues to build on its 80-year history in China and sees excellent opportunities to further strengthen its reputation as a partner in biopharma, a leader in R&D, and an employer of choice for top talent in this market. The division's hub in Tokyo serves as a gateway to northeast Asia, allowing the delivery of scientific and medical innovation of its pipeline to patients with diseases that are of particular concern to this region.

World-class physicians and scientists have joined the Merck Serono leadership team

Merck Serono strengthened its leadership team by appointing world-class physicians, scientists and health care professionals to senior positions, including the Global Chief Medical Officer, and the Head of Global Clinical Development, both of whom joined the organization in January 2014.

To further advance the field of medicine Merck sponsors research and advanced medical education globally, reflecting our commitment to science, education and patient care. For example, Merck Serono supports outstanding extramural research projects through its Grant for Fertility Innovation and its Grant for Multiple Sclerosis Innovation, which are both awarded annually and available to researchers and clinicians worldwide. Similar annual Grants for Innovation were launched in 2013 in Oncology and Growth Disorders and the first awards in these fields will be granted in 2014. Through contributions to multiple medical education providers, Merck Serono supports the development and delivery of independent advanced medical training for scientists, physicians, nurses, pharmacists, and other health care professionals. In 2013, Merck Serono invested more than € 13 million in independent medical education programs and in grants for innovation.

→ *Research and Development at Merck*

Overall, the global Merck Serono R&D organization is now well-positioned, with enhanced operational effectiveness, an unwavering commitment to exceptional science, and a focus on delivering a pipeline that will continuously bring innovation to the business and to patients.

The Merck Serono pipeline in 2013

R&D focus: oncology, immuno-oncology, immunology and neurology

Merck Serono's core R&D fields include oncology, immuno-oncology, immunology and neurology. The development pipeline continues to be weighted towards oncology, however 2013 also saw important scientific and business development advances in other areas. Merck Serono has an open collaborative model in R&D and in reflection of this a number of collaborations were entered into during 2013, some of which are highlighted below.

In December 2013 the European Commission approved an amendment to the Erbitux® (cetuximab) product information, updating the indication for Erbitux® to the treatment of patients with RAS wild-type metastatic colorectal cancer (mCRC). The European Commission approval is based on the totality of data emerging on the role of mCRC RAS tumor status in the benefit–risk profile of anti-EGFR monoclonal antibodies. The approval primarily refers to new biomarker data from the OPUS (OxaliPlatin and cetUximab in first-line treatment of mCRC) study. OPUS is a randomized, controlled, Phase II trial, involving 337 mCRC patients, 179 with KRAS wild-type (exon 2) tumors, demonstrating the efficacy of Erbitux® plus FOLFOX-4 (oxaliplatin-based therapy) versus FOLFOX-4 alone. Results of a RAS tumor status analysis were presented at the Gastrointestinal Cancers Symposium (American Society of Clinical Oncology – GI meeting) in January 2014, in San Francisco. Recent analyses of multiple studies evaluating monoclonal anti-epidermal growth factor receptor (EGFR) antibodies, such as Erbitux®, examined KRAS wild-type tumor status (exon 2) for additional RAS mutations (defined as mutations in exons 3 or 4 of KRAS and/or exons 2, 3 or 4 of NRAS). The results from these studies suggest that patients with RAS wild-type tumors may benefit from treatment with Erbitux®, while patients with RAS mutant tumors may not. The Summary of Product Characteristics of Erbitux® has therefore now been updated as part of the European Commission approval.

FIRE-3 study compared Erbitux® and bevacizumab

Initial results of the independently run FIRE-3 study, a randomized, controlled, head-to-head Phase III trial comparing Erbitux® and bevacizumab on top of standard chemotherapy (FOLFIRI) in patients with KRAS wildtype metastatic colorectal cancer (mCRC), were presented at the American Society of Clinical Oncology (ASCO) meeting in 2013 by the German cooperative investigator group AIO. The study did not achieve the primary endpoint as the objective response rate (ORR) was not significantly different for the two treatment arms: 62% for Erbitux® combination versus 58% for bevacizumab combination. However, investigators reported the median overall survival based on a 57% event rate was 28.7 months for the Erbitux® plus FOLFIRI group versus 25.0 months for the bevacizumab plus FOLFIRI group. The toxicity profiles in the two groups were manageable and as expected from previous studies.

→ *Research and Development at Merck*

Phase II proof-of-concept studies demonstrate the clinical efficacy of Sym004

Also at the 2013 ASCO meeting, data were presented from two proof-of-concept Phase II trials, evaluating the safety and efficacy of Sym004, an early-stage development opportunity inlicensed from Symphogen, a private Danish biopharmaceutical company developing recombinant antibody mixtures. Sym004 is a mixture of two chimeric monoclonal antibodies (mAbs) against different parts of the Epidermal Growth Factor Receptor (EGFR). Both mAbs bind EGFR with high affinity but have only limited preclinical activity individually. Synergistic inhibition has however been demonstrated by the Sym004 mixture both in vitro and in vivo. Results from a Phase II study in metastatic colorectal cancer showed clinical activity in anti-EGFR treatment-refractory KRAS wild-type mCRC patients, warranting further development. No unexpected adverse events were observed. In a Phase II study in squamous cell cancer of the head and neck (SCCHN), Sym004 demonstrated clinical activity in heavily pretreated patients with advanced SCCHN previously progressing on, or after therapy with already available anti-EGFR mAbs. No unexpected toxicities were reported.

TH-302 is currently being tested in two Phase III trials under an SPA

Turning to TH-302, an investigational hypoxia-targeted drug, the global Phase III MAESTRO study was launched in late 2013, to assess its efficacy and safety in combination with gemcitabine, in patients with previously untreated, locally advanced unresectable or metastatic pancreatic adenocarcinoma. This followed a positive Phase II study in this indication which was reported at the American Association for Cancer Research (AACR) meeting in 2012. MAESTRO is a randomized, placebo-controlled, international, multi-center, double-blind Phase III trial of TH-302 plus gemcitabine compared with placebo plus gemcitabine and is targeted to enroll 660 patients. The primary efficacy endpoint is overall survival and secondary endpoints include progression-free survival (PFS), overall response rate and disease control rate, as well as assessments of safety and tolerability, pharmacokinetics and biomarkers. The study is being conducted under a Special Protocol Assessment (SPA) with the U.S. Food and Drug Administration (FDA). An SPA is a review conducted by FDA on a clinical trial that will form the primary basis of an efficacy claim in a marketing application. MAESTRO is the second Phase III study of TH-302 since there is already an ongoing study in soft tissue sarcoma patients assessing the efficacy and safety of TH-302 in combination with doxorubicin. This trial is targeted to enroll 620 patients in order to investigate the effect in overall survival for patients being treated with the combination. This trial is being conducted by Threshold Inc. also under an SPA with the U.S. FDA.

In the first quarter of 2013 Merck announced that its Phase III CENTRIC study of the investigational integrin inhibitor cilengitide given in combination with standard chemoradiotherapy for patients with newly diagnosed glioblastoma (brain tumors) and methylated MGMT gene promoter status, did not reach its primary endpoint of significantly increasing overall survival. The trial was conducted in partnership with the European Organisation for Research and Treatment of Cancer (EORTC), and its results were presented at the ASCO meeting in June 2013. In view of the results of this study, Merck decided to discontinue the overall development program for cilengitide.

→ *Research and Development at Merck*

START2 is investigating the efficacy, safety and tolerability of tecemotide

Tecemotide, a MUC1 antigen-specific cancer immunotherapy (formerly referred to as Stimuvax and L-BLP25) is being investigated in patients with inoperable locally advanced non-small-cell lung cancer (NSCLC). In September, Merck announced its decision to proceed with a new Phase III study: START2 which is planned to include around 1,000 patients. This was based on the results of the Phase III START study, which were also presented at the ASCO 2013 annual meeting, as well as on consultation with certain regulatory authorities. While the primary endpoint of the START study was not met, a post-hoc analysis of a large predefined subgroup of patients from the study (consisting of 853 patients), who had received initial concurrent chemoradiotherapy (CRT) followed by tecemotide, demonstrated longer overall survival compared to those who had received concurrent CRT plus placebo (30.8 months, versus 20.6 months; p=0.016). START2 is a randomized, double-blind, placebo-controlled multicenter Phase III trial designed to assess the efficacy, safety and tolerability of tecemotide in patients with unresectable, locally advanced NSCLC who showed response or stable disease after at least two cycles of platinum-based concurrent CRT. Concurrent CRT is the current standard of care for these patients. The primary endpoint of START2 is overall survival. Merck received scientific advice from the European Medicines Agency (EMA) on the program, and reached an agreement with the U.S. FDA on an SPA for this study.

Phase I trial on pimasertib in combination with hDM2 inhibitor started

Also during the ASCO 2013 meeting in June 2013 data were presented from two pimasertib trials. Results from a Phase I trial in combination with Sanofi's dual PI3K/mTOR inhibitor (SAR245409) in advanced solid tumors showed that continuous daily dosing of pimasertib and SAR245409 is tolerated and has shown signs of activity. In addition, results from the ongoing study of pimasertib in combination with gemcitabine in patients with pancreatic cancer showed activity at a dose of 60 mg twice per day, and this is now being investigated further in this indication. In the fourth quarter of 2013 an additional Phase I trial was initiated of pimasertib in combination with Sanofi's hDM2 inhibitor (SAR405838) in patients with solid tumors.

In June Merck Serono announced its commitment to the field of cancer immunotherapy by creating a fully dedicated immuno-oncology translational innovation platform (or TIP) integrating research, early development and biomarker strategies. In addition to the division's existing oncology platform, this new immuno-oncology platform is focusing on developing therapies that leverage the immune system's natural ability to fight tumors, and work in combination with existing and future therapies in the following areas:

Fully dedicated immuno-oncology translational innovation platform created

- Therapeutic cancer vaccines: targeting tumor antigens to elicit a tumor-specific immune response
- Cancer stem cells: targeting cancer stem cells to prevent or reduce tumor formation and inhibit metastases
- Immunotolerance: eliminating or circumventing inhibitory mechanisms in the immune system that prevent cancer cells from being recognized and attacked by the body

→ *Research and Development at Merck*

To ensure a broad immuno-oncology research and early development platform, an in-house team of researchers and clinicians has been assembled to build a portfolio of investigational immunotherapies, while collaborating with leading academic, research and industry organizations to complement internal capabilities. The current immuno-oncology portfolio comprises a robust pipeline of preclinical molecules as well as several therapeutic candidates in early clinical development (Phase I) in solid tumors, including:

Team of internal researchers and external clinicians building a portfolio of investigational immunotherapies

- → Anti-PD-L1, a monoclonal antibody targeting PD-L1 (programmed cell death ligand) expressed by various tumors
- → NHS-IL12, a cancer immunotherapy targeting IL-12 to the necrotic regions of tumors, sponsored by the U.S. National Cancer Institute (NCI)
- → NHS-IL2, targeting IL-2 to the necrotic regions of tumors

Merck's approach is to develop immunotherapies that can be combined with other therapeutic modalities, bearing in mind that attacking multiple cancer targets simultaneously increases the possibility of therapeutic success.

Several collaborations between Merck and other organizations were announced in the field of oncology throughout 2013. These included:

- → A collaboration to run innovative projects in oncology under the roof of an innovation center operated by BioMed X GmbH on the campus of the University of Heidelberg. The objective is to seed and boost early stage research projects in the field of oncology. This new research lab will establish a new way of fostering innovation, a concept that has been co-developed by Merck Serono and BioMed X. It will allow Merck Serono to run research projects with interdisciplinary project teams of young talented scientists recruited worldwide and coached by a supervisor from the division, in the vibrant environment of an open-innovation lab facility.
- → Selvita, a biotechnology company based in Krakow, Poland, in the field of joint discovery and lead optimization for small-molecule-based drugs targeting proteins involved in cancer cell metabolism. The partners plan to target key metabolic pathways involved in sustaining growth and the proliferation of cancer cells with the aim of delivering potential first-in-class candidate drugs for multiple oncology indications.

→ *Research and Development at Merck*

→ BeiGene Co., Ltd., a biotech research and development company based in China. In 2013, Merck entered into two agreements with this company to co-develop, and commercialize two molecules for the treatment of cancer: BeiGene-283, a second-generation BRAF inhibitor that is currently in preclinical development. BRAF is a protein that is a downstream component of the MAPK (mitogen-activated protein kinase) signaling pathway, which is thought to promote cancer cell growth, and that is dysregulated in a number of human cancers. BeiGene-290, a potent poly (ADP-ribose) polymerase (PARP) inhibitor which is currently in preclinical development. PARP inhibitors target an enzyme family which is involved in a number of cellular processes, including DNA repair and programmed cell death.

→ Spanish National Cancer Research Centre (CNIO) in the area of cancer drug development. The agreement builds upon CNIO's research discoveries to encourage the development and commercialization of new compounds. As part of the agreement Merck has been granted exclusive rights to develop and commercialize CNIO's new inhibitors of the ataxia telangiectasia and Rad3-related (ATR) kinase. This enzyme has an important role in the response to DNA damage and in facilitating cell survival. Due to the fact that tumor cells accumulate more DNA damage than healthy cells, blocking ATR kinase activity with selective inhibitors is a strategy worth investigating further for specific tumor types.

Merck Serono is moving ahead to develop a Biosimilars portfolio

The division is moving ahead with the development of a portfolio of biosimilar compounds applicable to various disease areas including oncology and rheumatology.

Turning to the multiple sclerosis (MS) field, ONO-4641 (ceralifimod), a sphingosine-1-phosphate receptor modulator, showed positive results in the Phase II DreaMS study in patients with relapsing MS, and these were presented at the American Academy of Neurology (AAN) annual meeting in 2012. In 2013 further studies, both non-clinical and clinical, were performed and provided more information on efficacy, safety and the potential for differentiation of this agent, including 12-month results from an ongoing blind DreaMS extension study presented at the 29th annual meeting of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS) in October. Merck Serono is in discussions with certain regulatory authorities concerning potential Phase III study designs. The final decision about the future of the Phase III program will be made in the second quarter of 2014.

Plovamer acetate enters Phase II trials

One project in the MS field advanced into Phase II in the fourth quarter of 2013, namely plovamer acetate, a second-generation peptide copolymer immunomodulator. This study is targeted to include 550 patients with relapsing-remitting multiple sclerosis (RRMS) in over 120 centers internationally. In addition an immune-tolerizing agent known as ATX-MS-1467, which is intended to reduce an inappropriate immune response against certain components of the patient's own nervous tissue, completed Phase I testing and is being prepared for a proof of principle Phase IIa study in patients with RRMS. This is scheduled to start in the first half of 2014.

→ *Research and Development at Merck*

Merck receives license option from Opexa Therapeutics

Early in 2013 Merck announced that it had been granted an option by Opexa Therapeutics, Inc. for the development and commercialization of Tcelna™ (imilecleucel-T), as a potential first-in-class therapy for patients suffering from MS. Tcelna™ is being developed by Opexa and currently is in a Phase IIb clinical trial in patients with secondary progressive MS (SPMS). It is being developed as a personalized therapy specifically tailored to each patient's individual disease profile and has been evaluated in Phase I and II clinical studies in MS. Tcelna™ has received Fast Track Designation from the U.S. FDA as a potential treatment for SPMS.

In the fourth quarter of 2013 Merck Serono signed a memorandum of understanding with the Israel biotech company Kadimastem, which develops human pluripotent stem cell-related products. The aim is to utilize the screening platform of Kadimastem to characterize new compounds which could act as remyelinating agents in MS; as well as to possibly extend the collaboration into related fields like amyotrophic lateral sclerosis (a form of motor neuron disease).

In Immunology, Merck is focusing on the development of sprifermin

In the field of Immunology, Merck decided to focus the development of its investigational drug sprifermin (recombinant human FGF-18) on the osteoarthritis (OA) indication and to embark on a new multinational Phase IIb study known as FORWARD in patients with OA of the knee. This is being performed as part of a strategic alliance on sprifermin that Merck entered into in early 2013 with Nordic Bioscience Clinical Development A/S of Denmark. Sprifermin is a protein thought to stimulate cells known as chondrocytes to synthesize cartilage matrix and to renew themselves. The alliance draws on the joint expertise and resources of Merck and Nordic Bioscience which will provide clinical development services to Merck on a shared-risk basis. Merck retains full responsibility for the development and commercialization of sprifermin. The FORWARD study further evaluates sprifermin for inhibition of the progression of structural damage, reduction of pain and improvement of physical function in patients with OA of the knee. This study was initiated in the third quarter of 2013 and is planned to include over 500 patients.

New Phase II trial for atacicept started

Merck is currently investigating atacicept (anti-Blys/anti-APRIL fusion protein) for the treatment of systemic lupus erythematosus (SLE). Clinical and biomarker results from the APRIL SLE Phase II study of atacicept were presented at the Annual Meeting of the European League Against Rheumatism (EULAR) in June 2013. APRIL SLE was a double-blind, placebo-controlled study assessing the therapeutic value of atacicept in SLE. While no statistically significant difference was observed in the number of patients experiencing a disease flare between atacicept 75 mg and placebo during the 52 week treatment period (primary endpoint), post hoc analyses suggested that treatment with the 150-mg dose of atacicept was associated with a reduced number of patients experiencing SLE flares versus placebo (36.6% versus 54.1%). Based on the totality of data from the APRIL SLE study Merck decided to proceed to a new Phase II study: ADDRESS II. This is a double-blind, placebo-controlled study to further assess the efficacy and safety of atacicept at two doses (75 mg and 150 mg given subcutaneously once per week) in reducing SLE disease activity in patients receiving standard-of-care therapy. The primary endpoint of the study will investigate the effect of atacicept in reducing disease activity.

→ *Research and Development at Merck*

In early 2013 Merck and the Feinstein Institute for Medical Research, the research division of the North Shore-Long Island Jewish Health System in New York, announced that they will collaborate to develop antibodies as potential treatments of SLE. This collaboration allows Merck Serono to further strengthen its research in SLE with the intention of developing new treatments for this disease.

In March, Merck Serono announced the creation of Calypso Biotech in Geneva, Switzerland, a spin-off company resulting from its Entrepreneur Partnership Program (EPP) which was launched in April 2012. Formed around an R&D portfolio in the field of inflammatory bowel diseases, Calypso will target selected niche indications with high unmet medical needs.

FDA granted approval for Gonal-f® RFF Redi-ject™

Merck Serono has a strong legacy in fertility and continues to pioneer innovative science that advances its goal of improving pregnancy outcomes and "take home baby rates". Gonal-f® (recombinant follitropin alfa for injection) is prescribed to supplement or replace naturally occurring follicle-stimulating hormone (FSH), an essential hormone widely used to treat infertility. In the fourth quarter Merck Serono announced that the U.S. FDA granted approval for Gonal-f® RFF Redi-ject™ (follitropin alfa injection), a disposable pre-filled injection device intended for the subcutaneous injection of a liquid formulation of Gonal-f® RFF (Revised Formulation Female). This pen is part of a global product franchise of ready-to-use pens with demonstrated dose accuracy designed for patient self-administration of Merck's fertility hormones (gonadotropins). Merck Serono is continuously innovating to improve its injection devices in order to meet the needs of patients and health care professionals alike.

Fertility research remains an important R&D focus

Fertility research continues to be an important focus of R&D innovation. In December 2013 Merck Serono announced the creation of TocopheRx, a Boston-based spin-off company resulting from its EPP, and is seed financed by MS Ventures. TocopheRx, the eighth spin-off in the EPP will focus on an oral follicle-stimulating hormone (FSH) agonist for treatment of infertility, a promising early asset that could help couples seeking solutions for fertility problems. An oral FSH agonist would have obvious advantages to the patient since injections of this hormone would be avoided. TocopheRx will advance Merck Serono's preclinical program towards clinical testing, bringing forward an innovative Merck Serono investigational asset through externalization in a capital-efficient manner. This project demonstrates Merck's continued commitment to developing the next-generation of infertility treatments and required technologies to improve the success rate of in vitro fertilization procedures as well as patient convenience.

Grant for Fertility Innovation award promotes translational fertility research projects

Merck announced its strong support for the Grant for Fertility Innovation (GFI) award with grants totaling up to € 4 million for the years 2013/2014. The announcement was made during the 29th annual meeting of the European Society of Human Reproduction and Embryology (ESHRE). Launched in 2009, the GFI is dedicated to transforming innovative translational fertility research projects into concrete health solutions to improve the outcomes of assisted reproductive technologies (ART). In the last five years, more than 600 applications were received from over 50 countries around the world, and 26 projects from 16 countries were awarded grants totaling € 6 million. Merck Serono has recently launched similar Grants for Innovation in the fields of multiple sclerosis, oncology and growth disorders. The first four awards of the Grant for Multiple Sclerosis Innovation (GMSI) were presented on the occasion of the 29th annual meeting of ECTRIMS in Copenhagen in October 2013.

→ *Research and Development at Merck*

Merck Serono entered into several collaborations relevant across all of its core R&D fields of Oncology, Immuno-oncology, Immunology and Neurology, as follows:

- → Merck and Ablynx announced in the third quarter of 2013 that they have further expanded their relationship through a research alliance that could lead to several co-discovery and co-development collaborations. Merck Serono will fund a dedicated discovery group at Ablynx to develop Nanobodies® against a number of targets of interest to Merck Serono.
- → Merck and Open Monoclonal Technology, Inc., a leader in the genetic engineering of animals for the development of human therapeutic antibodies, announced the expansion of the collaboration agreement they entered into in 2012. Merck Serono will now have unlimited access to the OmniRat™ technology platform.
- → Merck Serono announced a five-year strategic partnership broadening its collaboration with the Lead Discovery Center GmbH (LDC), Dortmund, Germany, a renowned translational research organization. The new agreement integrates the expertise and resources of both organizations to expedite the discovery and development of therapeutic candidates in diseases with high unmet medical needs in areas of interest to Merck Serono. The first project under the new agreement is in immunology and emerged from an ongoing collaboration of LDC with the Max-Planck researcher and Nobel Laureate Professor Robert Huber.

Israel Bioincubator further expanded in 2013

Merck Serono's Israel Bioincubator continued to develop in 2013. The Bioincubator is financed by the € 10 million Merck Serono Ventures Israel Bioincubator and is focused on preseed and seed opportunities originating in Israel. In addition to housing Neviah Genomics, the following two companies joined in late 2013: Metabomed, which focuses on research in the field of cancer metabolism and computational biology; and ChanBio, which focuses on the discovery of antibodies selective for ion channels, considered to be potential therapeutic targets for the treatment of MS.

New easypod® system introduced to the European market

In the field of growth disorders, an updated version of the easypod® system for use in European markets was presented in September 2013 on the occasion of the 9th Joint Meeting of Paediatric Endocrinology organized by the European Society for Paediatric Endocrinology (ESPE). The easypod® system is an electronic, fully automated recombinant human growth hormone injection device that provides accurate data on treatment adherence. The new easypod® system provides information to help physicians address the issues of poor patient compliance and low adherence rates that are often associated with growth hormone (GH) therapy.

→ *Research and Development at Merck*

Merck Serono pipeline, as of December 31, 2013

Therapeutic area	Compound	Indication	Status
Neurodegenerative diseases	ONO-4641 (ceralifimod, oral S1P receptor modulator)	Multiple sclerosis	Phase II
	Plovamer acetate (PI-2301, second-generation peptide copolymer)	Multiple sclerosis	Phase II
	ATX-MS-1467 (immune-tolerizing agent)	Multiple sclerosis	Phase I
Oncology	Erbitux® (cetuximab, anti-EGFR mAb)	Head and neck cancer	Filed in China
	TH-302 (hypoxia-targeted drug)	Soft tissue sarcoma	Phase III
	TH-302 (hypoxia-targeted drug)	Pancreatic cancer	Phase III
	TH-302 (hypoxia-targeted drug)	Hematological malignancies and solid tumors	Phase I
	DI17E6 (Anti-integrin mAb)	Colorectal cancer	Phase II
	DI17E6 (Anti-integrin mAb)	Castration-resistant prostate cancer	Phase II
	Pimasertib (MEK inhibitor)/gemcitabine combination	Pancreatic cancer	Phase II
	Pimasertib (MEK inhibitor)	Malignant melanoma	Phase II
	Pimasertib/PI3K inhibitor novel combination	Low grade ovarian cancer	Phase II [1]
	Pimasertib/PI3K inhibitor novel combination	Solid tumors	Phase I [1]
	Pimasertib/hDM2 inhibitor combination	Solid tumors	Phase I [2]
	C-Met kinase inhibitor	Solid tumors	Phase I
	Sym004 (anti-EGRF mAb mixture)	Head and neck cancer	Phase II
	Sym004 (anti-EGRF mAb mixture)	Solid tumors	Phase I
	P7056K and Akt inhibitor	Solid tumors	Phase I
Immuno-Oncology	NHS-IL2 (cancer immunotherapy)	Solid tumors	Phase I
	NHS-IL12 (cancer immunotherapy)	Solid tumors	Phase I [3]
	Anti-PD-L1 mAb	Solid tumors	Phase I
	Tecemotide (L-BLP25, MUC1-antigen-specific cancer immunotherapy)	Non-small cell lung cancer	Phase III [4]
Immunology	Atacicept (anti-Blys/anti-APRIL fusion protein)	Systemic lupus erythematosus	Phase II [5]
	Sprifermin (FGF-18)	Osteoarthritis	Phase II [6]
Endocrinology	Kuvan® (sapropterin dihydrochloride)	PKU in pediatric patients < 4 years	Phase III [7]

[1] Combined with PI3K/mTOR inhibitor (SAR245409) from Sanofi, conducted under the responsibility of Merck
[2] Combined with hDM2 inhibitor (SAR405838) from Sanofi, conducted under the responsibility of Sanofi
[3] Sponsored by the National Cancer Institute (USA)
[4] START2 study in preparation, INSPIRE study ongoing
[5] ADDRESS II study in preparation
[6] FORWARD study
[7] Post-approval request by the European Medicines Agency

More information on the ongoing clinical trials can be found at www.clinicaltrials.gov

S1P: Sphingosine-1-phosphate
MEK: Mitogen-activated protein kinase
PI3K: Phosphoinositide 3-kinase
hDM2: Human double minute 2 oncogene
C-Met: Mesenchymal-epithelial transition proto-oncogene
EGFR: Epidermal growth factor receptor
Akt: Protein kinase B
PD-L1: Programmed cell death ligand
PKU: Phenylketonuria
MUC1: Mucin 1
Blys: B-lymphocyte stimulator
APRIL: A B cell proliferation-inducing ligand
FGF: Fibroblast growth factor

→ *Research and Development at Merck*

Consumer Health

Number of employees in R&D: 105

R&D spending in 2013: € 17.1 million

In its Consumer Health division, Merck markets over-the-counter medicines and food supplements in Europe – primarily for France, Germany, and the United Kingdom – as well as in Emerging Markets, where sales volumes are rising.

Consumer Health research and development activities focus on constantly improving tried and proven formulations consistent with the needs of consumers. At the same time, the division is further developing its established brand-name products by making them simpler to use and by offering accompanying services. Consumer Health products include Bion®3, Nasivin®, Femibion®, Seven Seas®, Sangobion®, Cebion®, Sedalmerck® and Kytta®.

Performance Materials

Number of employees in R&D: 429

R&D spending in 2013: € 143.0 million

Merck is the undisputed market and technology leader in liquid crystals, which are primarily used in televisions and mobile communication applications. We are also one of the leading suppliers of functional and decorative effect pigments. Our high-tech materials and solutions are used by customers from the consumer electronics, lighting, printing technology, plastics applications, and cosmetics industries. Within Performance Materials, Merck is also focusing on the growth dynamics of emerging markets.

Liquid Crystals

In 2013, the Liquid Crystals business unit developed an initial prototype of a 3D television that does not require glasses

In addition to developing new liquid crystal mixtures and individual LC substances to further develop products for television and mobile applications, the Liquid Crystals business unit is also focusing on materials that will enable information to be presented in true 3D, using technologies such as holographic displays. The division is furthermore working on the development of technologies for liquid crystal displays that will provide a realistic 3D viewing experience without the glasses required by current 3D televisions. In 2013, Merck developed an initial prototype of this new generation of televisions. All research and development activities pertaining to the liquid crystals of tomorrow have been consolidated under the LC2021 initiative.

Merck is also developing liquid crystals for entirely new applications. Liquid crystals can be used in items such as smart windows to regulate the transmission of light and heat through building facades. Merck is working together with architects and glass manufacturers on the windows of the future. Besides remote control features, liquid crystals provide flexibility in selecting the color as well as integrating windows into existing facades, and they also help save energy. Whether installing windows in new buildings or replacing old windows, liquid crystals offer a sustainable, innovative solution for the future.

OLEDs

OLEDs are being used in the latest technical applications, for instance smartwatches

Organic light-emitting diodes (OLEDs) are used in innovative lighting applications and display technologies. They provide brilliant colors and sharp images from any viewing angle; they have a long lifespan and are highly energy efficient. In addition, OLEDs enable round or flexible displays, making them perfect for use in the latest technical applications. One such example is the smartwatch, a wristwatch that provides additional computer functionality along with Internet access.

The Merck product line for these types of applications is called livilux®. Merck has developed a strong portfolio of worldwide patents, based on more than ten years of experience.

→ *Research and Development at Merck*

Development partnerships with customers are a way of testing new technologies and making them market-ready. For instance, with printer manufacturer Seiko Epson, the Performance Materials division has co-developed a technology that can be used to print OLED displays. While Merck contributed its expertise in vacuum research and ink development to the collaboration, Seiko Epson contributed its expertise in print heads featuring micro piezo inkjet technology. This jointly developed technology offers the advantage of lower costs and higher material efficiency since, in contrast to vapor-deposited OLED displays, printed OLED displays are produced at room temperature in a non-toxic atmosphere. In addition, this technique only deposits material in the areas where diodes are actually located.

High-quality pigments and functional materials

Effect pigments in the Meoxal® family are suitable for a wide variety of high-performance applications

This broad term stands for high-quality decorative effect pigments and functional materials used in applications such as laser marking, conductive coatings, and heat-reflective glazing for greenhouses.

The Meoxal® brand is the latest development in effect pigments. These pigments captivate with their brilliant color saturation and exceptional performance, thanks to their innovative layer technology and the use of aluminum flakes as substrate. They are highly suitable for a multitude of high-performance applications, especially for automotive and plastic coatings. The first pigments in the new brand family – Meoxal® Wahiba Orange and Taklamakan Gold – were launched in the second quarter of 2013. The first examples of their practical application were showcased at the 2013 International Motor Show (IAA) in Frankfurt am Main.

The portfolio also includes cosmetic actives. For instance, 2013 saw the launch of RonaCare® Poppy SE, the innovative skin-firming product made from natural poppy seed extract. Besides skin-firming properties, skin protection and color adaptation are also topics of focus. Sun-tanned skin remains an ideal of beauty in western societies. To meet this need, Merck has developed RonaCare® Bronzyl™, which stimulates the production of melanin, the skin's natural tanning process. The opposite effect can be achieved with RonaCare® Pristine Bright™. This product supports a light skin tone, which is highly esteemed particularly in Asian cultures.

→ *Research and Development at Merck*

Merck Millipore

Number of employees in R&D: 778

R&D spending in 2013: € 159.8 million

Within the Merck Millipore division, we are working with our customers to develop innovative solutions for the research, development and production of biopharmaceuticals and biotech processes worldwide.

Lab Solutions

In 2013, the Lab Solutions business unit developed the EZ-product family. It comprises the EZ-Fit™ Manifold, the EZ-Pak® Dispenser Curve, the EZ-Stream™ Pump, and the EZ-Fluo™ Rapid Detection System. The aim of these products is to streamline the bioburden analysis workflow. The EZ-Fit™ Manifold makes laboratory filtration easier thanks to its unique design that permits assembly and disassembly without tools, access to all internal areas for easy cleaning, and a low profile to increase operator comfort. Different filtration heads, all with quick-fit connections, make the manifold compatible with disposable filtration devices, stainless steel and glass funnels. The EZ-Pak® Dispenser Curve provides high-speed sterile membrane dispensing with no-touch operation. With the efficient EZ-Stream™ Pump, filtered fluids flow directly through the pump to waste, eliminating the need for intermediate waste containers. The pump is designed for quiet operation, and the vacuum level is compliant with regulatory standards. The EZ-product family is complemented by the EZ-Fluo™ Rapid Detection System, an easy-to-use, non-destructive, fluorescent staining-based system for rapid detection and quantification of microbial contamination in filterable samples.

Process Solutions

The Clarisolve® system is one of the latest products launched by the Process Solutions business unit

The Process Solutions business unit is also continuously working to develop new products. For instance, **Clarisolve® Depth Filters,** used in cell culture processing, were launched in September 2013. Their greater volumetric capacity and reduced turbidity over currently available depth filters significantly improve the clarification of pretreated feed streams. In addition, the Clarisolve® system does not require a secondary stage of clarification, while eliminating the need for centrifugation and reducing the pre-use flushing volume by up to 93%. This lowers the environmental burden and helps customers to improve overall process economics. In December 2013, Clarisolve® Depth Filters received an Innovation Award from "Pharmaceutical Manufacturing Magazine", a U.S. trade publication.

Bioscience

The Bioscience business unit is a prime example of innovation. For instance, Merck Millipore has developed, among others, the Muse™ Cell Analyzer, which is one of the world's leading analytical devices. The Muse™ Cell Analyzer provides real-time, multidimensional information on cell populations. This semistationary flow cytometer enables faster, more accurate decision-making based on greater insight into cell health. As a result, the speed and efficiency of cell analysis are enhanced. In 2013, the Muse™ Cell Analyzer was presented with the renowned silver R&D Magazine 100 Award (Stevie Award), as well as the Good Design Award of the Chicago Athenaeum: Museum of Architecture and Design.

→ *Research and Development at Merck*

Collaborations: Efficiency and innovation through partnerships

It is not always possible to precisely plan the process of researching and developing new products and solutions. Nevertheless, we aim to improve the efficiency of our R&D activities in this respect, which is why we are constantly enhancing our organization and also engaging in new types of collaborative partnerships.

Through our collaboration activities, we constantly maintain contact with leading scientists at universities and institutes worldwide. For example, Merck is a partner in the Industrial Liaison Program of the Massachusetts Institute of Technology (MIT) in the United States, and we cooperate with the University of Heidelberg. In addition, we collaborate within the scope of initiatives and joint projects funded, for instance, by the European Union or German federal ministries.

Further collaborations formed in 2013:

- In April 2013, Merck inaugurated its "New Business R&D and Application Lab" in Taiwan. The aim of the laboratory is to work with customers locally to develop materials and first-rate services for the development of OLED panels, LED lighting, 3D technology and flexible displays. This will make it possible to considerably shorten new product development lead times.
- In May 2013, Merck announced the launch of a project sponsored by the German Federal Ministry of Education and Research (BMBF) to develop high-efficiency cobalt-based dye-sensitized solar cells. Merck, the consortium leader, is participating in the research project together with 3GSolar from Jerusalem, Israel, and Color Synthesis Solutions Ltd. (CSS) from Manchester, United Kingdom. The partners to the project are pursuing the goal of significantly increasing the efficiency and stability of dye-sensitized solar cells.
- In July 2013, Merck entered into a partnership with the Kymeta Corporation, a company headquartered in the United States. Kymeta is developing ultra-thin antennae for satellite communication that are based on liquid crystal technology. Liquid crystals allow these antennae to be made in such a way that they can someday be used for satellite communication in moving objects such as cars, planes, and trains.
- In November 2013, Merck announced the start of the POPUP research project funded by the German Federal Ministry of Education and Research (BMBF). This aims to help achieve the breakthrough of organic photovoltaics (OPV). The research consortium coordinated by Merck consists of ten technology leaders working in various areas of OPV. The objectives of POPUP are to develop significantly more efficient and stable OPV materials for cost-effective industrial printing and coating processes.

→ *Research and Development at Merck*

→ In December 2013, Merck joined forces with market-leading partners from the automobile industry to launch a project sponsored by the German Federal Ministry of Education and Research (BMBF). This initiative aims to develop liquid crystal-based headlight systems with components that can be selectively turned on or off to provide optimal illumination, for instance during complex traffic situations.

MS Ventures is a strategic corporate venture capital fund that makes early-stage investments in innovative biotech firms. The investments focus on Merck Serono's fields of research and therapy. The fund was set up in 2009. In order for Merck Serono to be able to invest more in early innovation, in 2013 the size of MS Ventures was increased to € 100 million. In addition, MS Ventures also manages the € 10 million MS Israel Bioincubator Fund as well as spin-off companies funded through the € 30 million Entrepreneur Partnership Program.

Open Innovation: In 2013, a total of 30 students from around the world participated for the third time in the one-week Merck Serono Innovation Cup. The winning team developed a convincing business plan for a new approach to enhance the efficacy of cancer vaccines. Internal R&D experts are currently looking at ways to advance the idea. Apart from competitions, Merck also offers attractive open innovation opportunities to talented future scientists, for example via the University of Heidelberg and MIT in the United States.

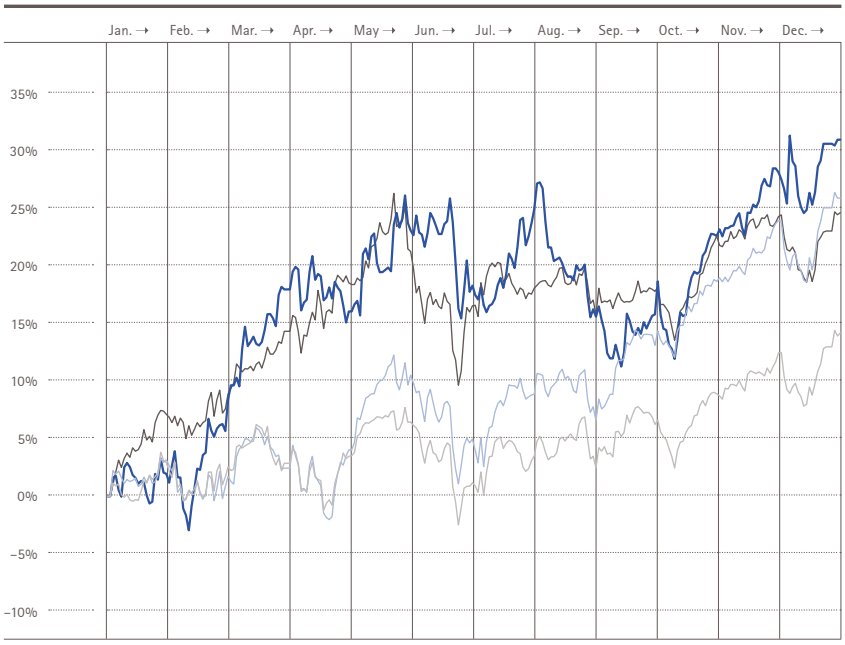
Merck Shares

At a glance

In 2013, the Merck share price rose by more than 30%, thus outperforming the DAX® by five percentage points. Merck shares were six percentage points stronger than the relevant pharmaceutical industry index and also outperformed the relevant chemical industry index by nearly 17 percentage points. Reaching an annual high of € 130.50 at the beginning of December 2013, Merck shares also hit a new all-time high, closing not far from this level at € 130.25 at the end of December 2013.

The average daily trading volume decreased by 25%, from around 300,000 in 2012 to more than 230,000 shares in 2013. The North America region continued to dominate with around 43% of shares in free float, slightly down compared to 51% in 2012. By investor type, GARP (growth at reasonable price) and value investors dominated, as in 2012. At the end of 2013, the top five investors held around 28% of the free float*.

Share price development from January 1, 2013 to December 31, 2013



Source: Bloomberg (closing rates)

Merck DAX® MSCI European Pharma Index Dow Jones European Chemical Index

*Relative to the Group's net shareholding

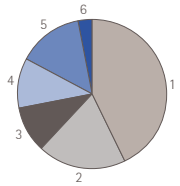
→ *Merck Shares*

Share data [1]

		2013	2012
Dividend	/ €	1.90	1.70
Share price high	/ €	130.50	106.55
Share price low	/ €	97.06	72.37
Year-end share price	/ €	130.25	99.83
Daily average number of Merck shares traded [2]	/ in units	234,308	310,608
Market capitalization [3] (at year-end)	/ € million	28,315	21,702
Market value of authorized shares [4] (at year-end)	/ € million	8,417	6,451

[1] Share-price relevant figures relate to the closing price in XETRA® trading on the Frankfurt Stock Exchange
[2] Based on the floor trading systems of all German exchanges and the regulated market on XETRA®
[3] Based on the theoretical number of shares (217.4 million)
[4] Based on the number of shares in free float (64.6 million)
Source: Bloomberg, Thomson

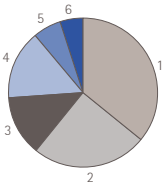
Identified investors by region as of December 2013



1	North America	43%
2	United Kingdom	18%
3	German Retail/Undisclosed	10%
4	Germany	11%
5	Rest of Europe	14%
6	Rest of World	3%

Source: King Worldwide (as of December 2013)
Total number of shares outstanding: 64,621,126

Identified investors by type as of December 2013



1	GARP (Growth at reasonable price)	36%
2	Value	25%
3	Growth	13%
4	Index	15%
5	Hedge	6%
6	Other	5%

Source: King Worldwide (as of December 2013)

Report on Economic Position

Macroeconomic and sector-specific environment

The year 2013 was marked by a strengthening in advanced economies and a slowdown of growth in emerging markets. However, emerging markets continued to account for the bulk of global growth. According to projections by the International Monetary Fund (IMF), global gross domestic product (GDP) increased by 2.9% in 2013. While advanced economies only generated an increase of 1.2%, the GDP of emerging economies and developing countries grew by 4.5%.

The GDP of the United States, the world's largest economy, grew by 1.6% in 2013, a lower rate than expected a year ago. Growth in the United States was hampered by the fiscal consolidation and conflicts over the increasing debt ceiling. For the eurozone, the IMF noted a decline in gross domestic product by 0.4%. While the southern European countries still struggled, the core economies showed signs of recovery. Spurred by fiscal policy changes, Japan also showed signs of economic recovery.

The overall global trends and increased weight of emerging markets are supporting the development at Merck, with the Emerging Markets region contributing around three-quarters of total organic sales growth in 2013.

Pharmaceutical market

Emerging economies main driver of pharmaceutical market growth

IMS Health, a provider of market information for the health care industry, reported a 2.9% increase in pharmaceutical market sales in 2013. This growth was driven by emerging economies; among others the Chinese pharmaceutical market grew by 14.5% and the Latin American market grew by 10.8%. By contrast, due to continued cost-containment measures and patent expiries, the U.S. and EU markets declined slightly. Remarkably, the global market for multiple sclerosis treatments, which includes Merck Serono's top-selling product Rebif®, grew by 10%, which was significantly above the market average, among others spurred by recent launches of new products according to research by Evaluate Pharma.

The pharmaceutical research firm Nicholas Hall reported that the over-the-counter (OTC) drug market grew by 4.7% in the year 2013. The growth was driven by Latin America and Asia, while Europe, where the Consumer Health division generates the largest share of its sales, grew by 3.7% in 2013.

Markets for high-tech materials

LC remains dominant display technology

With its Liquid crystals business Merck is the leading supplier of LC mixtures to the display industry, which experienced a sluggish year in 2013 after years of significant growth. The market analysis provided by Display Search came to the conclusion that only a slight increase of 1.4% in the annual area of flat panel display shipments in 2013 occurred. Notably, with more than 90% of the total market, LC remains the dominant display technology with TV display size as the major growth driver.

→ *Macroeconomic and sector-specific environment*

Cosmetics and automotive coatings represent major markets for Merck's Pigments business. The German Automotive Industry Association (VDA) reported a positive development for global sales of passenger cars, which exceeded expectations and grew by 5% in 2013. The growth was driven by the U.S. (+7%) and China (+21%) with China becoming the world's largest market for passenger cars, while markets in Japan and western Europe slightly declined.

Life science market

Within the life science sector, the Merck Millipore division is a leading supplier of products and services which are used in the research, development and production of biotech and pharmaceutical drugs as well as general laboratory applications.

Modest development in U.S. and European laboratory products market

The market researchers from Frost & Sullivan reported modest growth of 1.2% for the global laboratory products market in 2013, below last year's expectations. Significant differences in growth between regions existed: Markets in Europe (+0.1%) and the United States (+0.3%) remain challenging due to uncertain economic conditions and due to budget sequestration measures in the academic and governmental sectors in the United States. Emerging economies and developing countries grew significantly faster, however, with approximately 11% of the global market volume remaining relatively small in size.

Dependent on the sales and R&D spending of pharmaceutical companies, the market for Process Solutions suffered from a 1.5% decline in industry R&D spending in 2013, as reported by Evaluate Pharma. At the same time, the market was positively influenced by pharmaceutical sales, which grew by 2.9% in 2013.

Review of forecast against actual business developments

At the beginning of 2013 we forecast moderate organic sales growth for the Merck Group driven by the good performance of the Merck Serono and Merck Millipore divisions. As we continued to focus on the implementation of our "Fit for 2018" transformation and growth program, we expected EBITDA pre one-time items to increase further as a result of realized net savings. We forecast a high free cash flow and expected bigger cash-outs for the restructuring cost, while for business free cash flow, Merck's third financial key performance indicator, we expected a moderate decrease compared to 2012, as we had already delivered major working capital reductions in 2012 and as we planned an increase in investments in property, plant and equipment in 2013.

Accelerated implementation of efficiency measures leads to strong improvement in profitability

Based on the successful acceleration of our transformation process, which led to faster implementation of the cost-savings initiatives, we were able to announce in spring 2013 that we would deliver our mid-term financial targets for 2014 one year earlier than originally expected. The good operational development of our Consumer Health and Performance Materials divisions further contributed to this, which led to the fact that we further upgraded our view on the financial performance of Merck with the announcement of our third-quarter results.

When assessing the results of 2013 versus the original projections, it can be stated that we have achieved our strategic objectives of the "Fit for 2018" transformation and growth program to realize efficiencies and to deliver organic growth of the business in 2013. Merck's actual business figures for 2013 confirmed our forecast. As forecast in the Annual Report for 2012, we achieved organic sales growth of 4.2% and we increased our EBITDA pre one-time items by € 288 million. Thereby, the Merck Serono and Merck Millipore divisions developed positively in line with the expected development. Sales and EBITDA pre one-time items of the Consumer Health division increased more than expected due to the strong development of core brands and the substantial progress in driving the turnaround of the business. A favorable Liquid Crystals mix and leaner Pigments & Cosmetics organization led to higher EBITDA pre one-time items of the Performance Materials division. Driven by the significant increase of EBITDA pre one-time items and further reduction of working capital, we exceeded our expectations and delivered business free cash flow at the previous year's level for the Merck Group as well as the Merck Serono and Performance Materials divisions.

→ *Review of forecast against actual business developments*

Review of forecast against actual business developments in 2013

	Actual results 2012 € million	Forecast 2013 in Annual Report 2012	Guidance for 2013 provided in: Q1/2013 Interim Report	Q2/2013 Interim Report	Q3/2013 Interim Report	Actual results 2013 € million
Merck Group						
Sales	10,740.8	moderate organic growth	€ 10.7 – 10.9 billion	€ 10.7 – 10.9 billion	€ 10.7 – 10.9 billion	10,700.1 +4.2% org.
EBITDA pre one-time items	2,964.9	increase	€ 3.1 – 3.2 billion	€ 3.1 – 3.2 billion	€ 3.2 – 3.25 billion	3,253.3 +9.7%
Business free cash flow	2,969.3	moderate decrease	–	–	–	2,960.0 –0.3%
Merck Serono						
Sales	5,995.8	moderate organic growth	moderate organic growth	moderate organic growth	moderate organic growth	5,953.6 +3.9% org.
EBITDA pre one-time items[1]	1,824.7	improvement	€ 1.9 – 2.0 billion	€ 1.9 – 2.0 billion	€ 1.9 – 2.0 billion	1,955.0 +7.1%
Business free cash flow[1]	1,880.2	moderate decrease	–	–	–	1,875.7 –0.2%
Consumer Health						
Sales	472.6	stable	stable	stable	moderate organic growth	476.9 +5.6% org.
EBITDA pre one-time items[1]	66.8	slight increase	€ 70 – 75 million	€ 70 – 75 million	€ 73 – 77 million	72.5 +8.5%
Business free cash flow[1]	88.8	moderate decrease	–	–	–	83.9 –5.5%
Performance Materials						
Sales	1,674.2	slight organic decline	stable	stable	stable	1,642.1 +3.0% org.
EBITDA pre one-time items[1]	741.9	remain on high level	€ 700 – 740 million	€ 730 – 750 million	€ 750 – 770 million	779.7 +5.1%
Business free cash flow[1]	798.1	moderate decrease	–	–	–	787.8 –1.3%
Merck Millipore						
Sales	2,598.2	moderate organic growth	moderate organic growth	moderate organic growth	moderate organic growth	2,627.5 +5.5% org.
EBITDA pre one-time items[1]	614.4	growth in line with sales	€ 620 – 640 million	€ 620 – 640 million	€ 620 – 640 million	642.8 +4.6%
Business free cash flow[1]	511.3	moderate decrease	–	–	–	493.8 –3.4%
Corporate and Other						
EBITDA pre one-time items[1]	–282.9	improvement	€ –210 million	€ –210 million	€ –210 million	–196.7 –30.5%

[1] The actual figures for 2012 have been adjusted. More information can be found in Note (52) of the consolidated financial statements.

Course of business and economic position Merck Group

Overview of 2013

- → Sales stable – solid organic growth of 4.2% almost fully offsets negative foreign exchange effects of –4.7%
- → Accelerated implementation of efficiency measures within the scope of the "Fit for 2018" transformation and growth program
- → EBITDA pre one-time items increased by 10% to around € 3.25 billion – Key drivers are the positive business performance of all four divisions and the successful implementation of restructuring measures
- → Earnings per share pre one-time items up 15% to € 8.78
- → Business free cash flow again reaches the high previous year's level of around € 3.0 billion
- → Net financial debt lowered considerably to € 0.3 billion as of December 31, 2013
- → Merck's long-term credit ratings upgraded to "A" (Standard & Poor's) and "A3" (Moody's)

Merck Group | Key figures

€ million	2013	2012	Change in %
Total revenues	11,095.1	11,172.9	–0.7
Sales	10,700.1	10,740.8	–0.4
Operating result (EBIT)	1,610.8	963.6	67.2
Margin (% of sales)	15.1	9.0	
EBITDA	3,069.2	2,360.2	30.0
Margin (% of sales)	28.7	22.0	
EBITDA pre one-time items	3,253.3	2,964.9	9.7
Margin (% of sales)	30.4	27.6	
Earnings per share pre one-time items (€)	8.78	7.61	15.4
Business free cash flow	2,960.0	2,969.3	–0.3

Development of total revenues and sales as well as results of operations

In 2013, Merck performed well in a challenging market environment. Despite adverse exchange rate movements, strong earnings improvements were achieved, thanks mainly to the accelerated implementation of the efficiency measures within the scope of the "Fit for 2018" transformation and growth program. In 2013, total revenues of the Merck Group declined slightly by –0.7% to € 11,095 million (2012: € 11,173 million). Organic growth increased total revenues by 3.8%. Negative foreign exchange effects lowered total revenues by –4.6%. Apart from the negative exchange rate movements of Latin American currencies and the U.S. dollar, this decline was mainly due to the exchange rate development of the Japanese yen. Acquisitions contributed 0.1% to the increase. Royalty, license and commission income, which is disclosed as part of total revenues, decreased by –8.6% to € 395 million (2012: € 432 million). This was mainly the result of the expiration of two license agreements in the Merck Serono division.

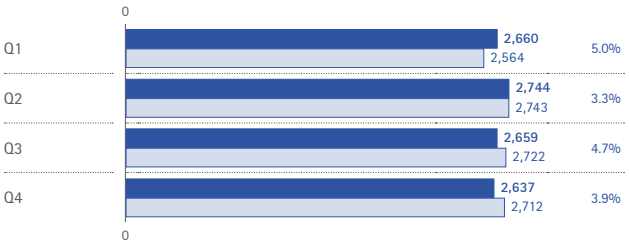
→ *Course of business and economic position*

Sales (total revenues less royalty, license and commission income) saw solid organic growth of 4.2% in 2013 but the increase was outweighed by foreign exchange effects of –4.7%. Acquisitions increased sales by 0.1%. Overall, sales decreased slightly by € 41 million to € 10,700 million in 2013 (2012: € 10,741 million).

The development of sales in the individual quarters in comparison with 2012 as well as the respective organic growth rates are presented in the following table:

Merck Group | Sales and organic growth by quarter[1]

€ million/organic growth in %



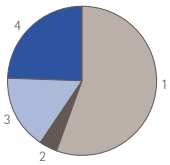
[1] Quarterly breakdown unaudited

2013 2012

As regards the distribution of sales across the four operating divisions of the Merck Group, no significant changes occurred in 2013 compared with 2012. Merck Serono once again generated 56% of Group sales, remaining the largest division in terms of sales. Merck Millipore and Performance Materials followed, contributing 25% (2012: 24%) and 15% (2012: 16%) to Group sales, respectively. As in 2012, the Consumer Health division accounted for 4% of Group sales.

Merck Group | Sales by division – 2013

€ million/change in %



1	Merck Serono	5,953.6	56%
2	Consumer Health	476.9	4%
3	Performance Materials	1,642.1	15%
4	Merck Millipore	2,627.5	25%

→ *Course of business and economic position*

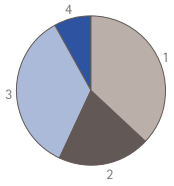
Merck Group | Sales components by division – 2013

€ million/change in %	Sales	Organic growth	Exchange rate effects	Acquisitions/ divestments	Total change
Merck Serono	5,953.6	3.9	–4.6	–	–0.7
Consumer Health	476.9	5.6	–4.7	–	0.9
Performance Materials	1,642.1	3.0	–4.9	–	–1.9
Merck Millipore	2,627.5	5.5	–4.8	0.5	1.1
Merck Group	**10,700.1**	**4.2**	**–4.7**	**0.1**	**–0.4**

All four divisions of the Merck Group posted organic sales increases with growth rates between 3.0% and 5.6% as well as negative exchange rate effects of around –5% in each division. Achieving organic sales growth of 3.9%, which corresponded to an absolute increase of € 235 million, Merck Serono made the strongest contribution to organic sales growth, followed by Merck Millipore with organic sales growth of € 142 million and a growth rate of 5.5%, as well as Performance Materials with € 51 million, or 3.0%. With an organic sales growth rate of 5.6%, the Consumer Health division reported the highest percentage increase, corresponding to an absolute sales increase of € 26 million.

Merck Group | Sales by region – 2013

€ million/% of sales



1	Europe	3,984.6	37%
2	North America	2,078.0	19%
3	Emerging Markets	3,795.6	36%
4	Rest of World	841.9	8%

From a regional perspective, the dynamic business performance in the Emerging Markets region, which encompasses Latin America and Asia with the exception of Japan, contributed first and foremost to the organic growth of the Merck Group. At 9.3%, which corresponded to an absolute organic sales increase of € 347 million, the region delivered very strong organic growth, which was primarily driven by the Merck Serono division. Including currency headwinds of –7.1%, Group sales in the Emerging Markets region totaled € 3,796 million (2012: € 3,712 million). In 2013, the region thus increased its contribution to Group sales by two percentage points to 36%.

→ *Course of business and economic position*

In Europe, organic sales growth of 1.4% was partially cancelled out by negative foreign exchange effects of –0.7%. Acquisitions contributed 0.3% to the increase in sales. Overall, sales in Europe increased slightly by 1.1% to € 3,985 million € (2012: € 3,943 million). Europe's percentage contribution to Group sales thus remained unchanged at 37%.

The North America region posted sales amounting to € 2,078 million. (2012: € 2,128 million), which represents a year-on-year decrease of –2.4%. With a slight organic increase in sales of 0.6% coupled with negative exchange rate effects of –3.0%, North America's contribution to Group sales was 19% (2012: 20%). Higher demand from customers of the Process Solutions and Lab Solutions business units of the Merck Millipore division made up for the slight organic sales decline incurred by Merck Serono in the region.

The Rest of World region, i.e. Japan, Africa and Australia/Oceania, generated € 842 million (2012: € 958 million) or 8% of Group sales (2012: 9%). The decline in sales was largely the outcome of a substantial foreign exchange impact of –16.0% mainly attributable to the Japanese yen. Organic growth of 3.9% in this region was primarily generated by the Merck Serono division.

Merck Group | Sales components by region – 2013

€ million/change in %	Sales	Organic growth	Exchange rate effects	Acquisitions/ divestments	Total change
Europe	3,984.6	1.4	–0.7	0.3	1.1
North America	2,078.0	0.6	–3.0	–	–2.4
Emerging Markets	3,795.6	9.3	–7.1	–	2.2
Rest of World	841.9	3.9	–16.0	–	–12.1
Merck Group	**10,700.1**	**4.2**	**–4.7**	**0.1**	**–0.4**

Cost of sales of the Merck Group fell by –5.2% to € 2,993 million (2012: € 3,158 million). Despite lower royalty, license and commission income as well as negative foreign exchange effects, gross profit increased by 1.1% to € 8,103 million (2012: € 8,015 million). Gross margin, i.e. gross profit as a percentage of sales, grew by around one percentage point to 75.7% (2012: 74.6%). This improvement was primarily due to efficiency increases in connection with the "Fit for 2018" transformation and growth program as well as to a more favorable product mix, especially in the Liquid Crystals business unit.

Group marketing and selling expenses declined by –3.5% to € 2,326 million in 2013 (2012: € 2,411 million). Foreign exchange effects, yet also the faster achievement of the savings targets as part of the "Fit for 2018" program initiated in 2012 were primarily responsible for this. The decline in marketing and selling costs was mainly attributable to the Merck Serono division. Consequently, for the Merck Group the proportion of these expenses to sales declined to 21.7% (2012: 22.4%). Administration expenses of the Merck Group increased slightly to € 562 million (2012: € 552 million).

→ *Course of business and economic position*

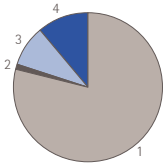
Royalty, license and commission expenses amounted to € 567 million in 2013 (2012: € 580 million), declining by –2.2%, which was largely the result of lower Rebif® co-marketing expenses in the United States.

In 2013, other operating expenses (net) declined by € –408 million to € 718 million (2012: € 1,126 million). This sharp drop in the net expense balance primarily reflects the level of one-time items recorded here. During 2013, one-time items, including impairments, fell by € –277 million to € 387 million (2012: € 664 million). In connection with "Fit for 2018", € 166 million consisting of restructuring charges of € 130 million and impairments of € 36 million were incurred in 2013. In 2012, one-time expenses amounting € 538 million consisting of restructuring charges of € 504 million and impairments of € 34 million were recorded in this context. In 2013, other operating expenses included an impairment of € 127 million on the intangible asset for Humira® in the Merck Serono division which was classified as a one-time item. The impairment loss resulted from an out-of-court settlement with AbbVie Biotechnology Ltd., Bermudas, and Abbott GmbH & Co. KG, Germany (together referred to as "AbbVie"). Under this settlement, Merck will receive no further royalty payments for this product from AbbVie as of the second half of 2014. Further reasons for the decline in other operating expenses included lower litigation expenses and impairments on receivables as well as gains from operational currency hedges. A detailed presentation of the development of other operating expenses and income can be found in the consolidated financial statements under Note [28].

Research and development (R&D) expenses decreased slightly by –0.5% compared to 2012, amounting to € 1,504 million (2012: € 1,511 million) and thus continued to represent 14.1% of sales. As in 2012, 79% of Group research and development expenses were attributable to the Merck Serono division. The Merck Millipore division accounted for 11%, the second-highest share of Group research and development expenses.

Merck Group | Research and development expenses by division – 2013

€ million/change in %



1	Merck Serono	1,182.8	79%
2	Consumer Health	17.1	1%
3	Performance Materials	143.0	9%
4	Merck Millipore	159.8	11%

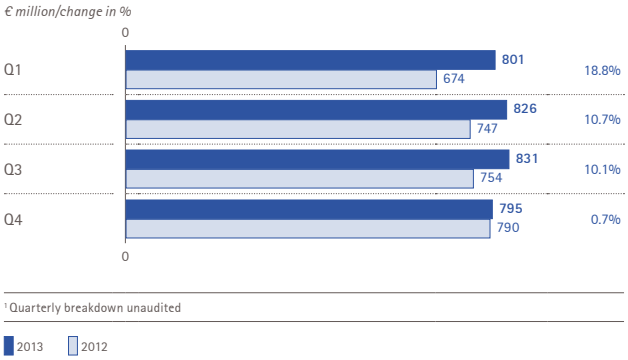
Amortization of intangible assets, which resulted primarily from the purchase price allocations for the acquisitions of Serono SA and the Millipore Corporation, decreased by –6.7% to € 813 million (2012: € 872 million). The decline was mainly due to the expiration of the amortization periods for the two intangible assets Avonex® and Enbrel®, which were acquired within the scope of the Serono SA acquisition.

→ *Course of business and economic position*

In 2013, the Merck Group delivered a significant increase in the operating result (EBIT), which soared by 67.2% to € 1,611 million (2012: € 964 million), as well as in EBITDA (operating result before depreciation and amortization), which rose by 30.0% to € 3,069 million (2012: € 2,360 million). This was due on the one hand to the good performance of operating business and on the other hand to the sharp decline in the very high level of one-time items incurred in 2012. Adjusted for one-time expenses (excluding impairments) totaling € 184 million (2012: € 605 million), EBITDA pre one-time items, the key financial indicator used to steer operating business, grew 9.7% to € 3,253 million (2012: € 2,965 million). The resulting EBITDA pre margin thus increased from 27.6% to 30.4%. The profitability improvement of nearly three percentage points stemmed mainly from the organic sales growth achieved in 2013 as well as strict cost management. Above all, the faster implementation of the efficiency measures within the scope of the "Fit for 2018" transformation and growth program had a positive effect on profitability.

The development of EBITDA pre one-time items in the individual quarters in comparison with 2012 is presented in the following table:

Merck Group | EBITDA pre one-time items and change by quarter[1]



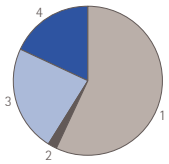
All divisions contributed to the increase in EBITDA pre one-time items and the EBITDA pre margin. With an improvement of € 130 million in EBITDA pre to € 1,955 million, Merck Serono achieved the strongest absolute increase of all the operating divisions. Consequently, at 57% (2012: 56%) the division's contribution to EBITDA pre was the highest among all the operating divisions (excluding the decline in Group EBITDA pre by € –197 million due to Corporate and Other). Contributing 23% of EBITDA pre as in 2012, the Performance Materials division reported EBITDA pre one-time items of € 780 million (2012: € 742 million). Owing to its good business performance, the division increased this key indicator by € 38 million or 5.1%. At 18%,

→ *Course of business and economic position*

Merck Millipore's percentage share of EBITDA pre one-time items declined slightly (2012: 19%, excluding Corporate and Other), although this division also posted earnings growth of 4.6% or € 28 million. With EBITDA pre one-time items of € 72 million (2012: € 67 million), the Consumer Health division once again contributed 2% to the EBITDA pre one-time items of all operating divisions.

Merck Group | EBITDA pre one-time items by division – 2013

€ million/change in %



1	Merck Serono	1,955.0	57%
2	Consumer Health	72.5	2%
3	Performance Materials	779.7	23%
4	Merck Millipore	642.8	18%

Not presented: Decline in Group EBITDA pre one-time items by € –197 million due to Corporate and Other

The financial result of the Group improved by 12.7% to € –222 million (2012: € –255 million). This mainly reflects the lower interest expense on borrowed capital following the sharp drop in net financial debt as well as the decline in net interest expense for pension provisions. More information on the financial result can be found in the consolidated financial statements under Note [31].

Income taxes amounted to € –180 million (2012: € –130 million) and led to a tax ratio of 12.9% (2012: 18.3%). The low tax ratio in 2013 resulted mainly from one-time deferred tax income owing to changes in the applicable tax rates. More information on income taxes can be found in the consolidated financial statements under Note [32].

Owing to this development of expenses and income, profit after tax more than doubled, totaling € 1,209 million (2012: € 579 million). Net income, i.e. profit after tax attributable to Merck shareholders, for 2013 was € 1,202 million (2012: € 567 million), yielding earnings per share of € 5.53 (2012: € 2.61). Adjusted for one-time items, earning per share (EPS adjusted by net of tax effect of one-time items and amortization of purchased intangible assets) increased by 15.4% to € 8.78 (2012: € 7.61).

→ *Course of business and economic position*

Net assets and financial position

Merck Group | Balance sheet structure

	Dec. 31, 2013		Dec. 31, 2012		Change	
	€ million	in %	€ million	in %	€ million	in %
Current assets	7,384.5	35.5	6,626.1	30.6	758.4	11.4
of which:						
Cash and cash equivalents	980.8		729.7		251.1	
Current financial assets	2,410.5		1,797.9		612.6	
Trade accounts receivable	2,021.4		2,114.6		–93.2	
Inventories	1,474.2		1,533.9		–59.7	
Other current assets	497.6		450.0		47.6	
Non-current assets	13,434.1	64.5	15,017.2	69.4	–1,583.1	–10.5
of which:						
Intangible assets	9,867.2		10,944.5		–1,077.3	
Property, plant and equipment	2,647.2		2,953.6		–306.4	
Other non-current assets	919.7		1,119.1		–199.4	
Total assets	**20,818.6**	**100.0**	**21,643.3**	**100.0**	**–824.7**	**–3.8**
Current liabilities	3,898.8	18.7	4,561.6	21.1	–662.8	–14.5
of which:						
Current financial liabilities	440.4		1,091.4		–651.0	
Trade accounts payable	1,364.1		1,288.3		75.8	
Current provisions	494.7		684.3		–189.6	
Other current liabilities	1,599.6		1,497.6		102.0	
Long-term liabilities	5,850.6	28.1	6,666.9	30.8	–816.3	–12.2
of which:						
Non-current financial liabilities	3,257.5		3,362.1		–104.6	
Non-current provisions	1,011.1		891.7		119.4	
Provisions for pensions and other post-employment benefits	910.9		1,211.7		–300.8	
Other non-current liabilities	671.1		1,201.4		–530.3	
Equity	11,069.2	53.2	10,414.8	48.1	654.4	6.3
Total liabilities and equity	**20,818.6**	**100.0**	**21,643.3**	**100.0**	**–824.7**	**–3.8**

→ *Course of business and economic position*

The total assets of the Merck Group declined in 2013 by € –825 million or –3.8% to € 20,819 million (2012: € 21,643 million). This decline was due, among other things, to the repayment of a bond with a nominal volume of € 750 million as well as the cash transfer of € 200 million to plan assets to cover pension obligations in Germany. Total assets decreased in 2013 because plan assets were netted with pension obligations. Exchange rate changes also lowered total assets. Whereas current assets increased by € 758 million, non-current assets declined by € –1,583 million. The increase in current assets resulted mainly from the development of cash and cash equivalents, which increased by € 251 million, as well as of liquid financial assets, which increased by € 613 million, despite the bond repayment and the cash transfer to the plan assets. This reflects the excellent liquidity position of the Merck Group. The decline in non-current assets was due mainly to depreciation and amortization of intangible assets as well as property, plant and equipment. Goodwill included in intangible assets amounted to € 4,583 million (2012: € 4,696 million) and was thus approximately at the same level as in 2012. The ratio of non-current assets to total assets (asset ratio) declined from 69.4% to 64.5%.

On the liabilities side, equity increased by € 654 million to € 11,069 million (2012: € 10,415 million). The main driver of this increase was profit after tax of € 1,209 million in 2013. The increase was counterbalanced mainly by negative exchange rate changes as well as dividend payments for 2012. As of December 31, 2013, the equity ratio increased by more than five percentage points to 53.2% (2012: 48.1%). Owing to the increase in equity on the one hand and the decrease in non-current assets on the other hand, asset coverage as of December 31, 2013 improved significantly to 82.4% (2012: 69.4%). Asset coverage indicates to what extent non-current assets are covered by equity. Current liabilities declined mainly owing to the repayment of the bond with a nominal volume of € 750 million that matured in 2013. The decline in non-current liabilities was largely the result of lower pension provisions as well as the decline in deferred tax liabilities. The sum of current and non-current liabilities declined by € –1,479 million to € 9,749 million from € 11,228 million. This excellent decline of –13.2% strengthened the consolidated balance sheet further. The financing structure (ratio of current liabilities to total liabilities) also improved. As of December 31, 2013, short-term liabilities were 40.0% of total liabilities (2012: 40.6%).

→ *Course of business and economic position*

Merck Group | Net financial debt

	Maturity	Interest rate (%)	Financial Covenant	Book value Dec. 31, 2013 € million	Book value Dec. 31, 2012 € million	Change € million	Change in %
Eurobond 2009/2013 (Nominal volume € 750 million)	Sep. 2013	4.875	No	–	749.1	–	–
Eurobond 2010/2015 (Nominal volume € 1,350 million)	March 2015	3.375	No	1,348.2	1,346.7	1.5	0.1
Eurobond 2009/2015 (Nominal volume € 100 million)	Dec. 2015	3.615	No	100.0	100.0	–	–
Eurobond 2006/2016 (Nominal volume € 250 million)	June 2016	5.875	No	222.4	228.2	–5.8	–2.5
Eurobond 2009/2016 (Nominal volume € 60 million)	Nov. 2016	4.000	No	60.0	60.0	–	–
Eurobond 2009/2019 (Nominal volume € 70 million)	Dec. 2019	4.250	No	69.0	68.8	0.2	0.3
Eurobond 2010/2020 (Nominal volume € 1,350 million)	March 2020	4.500	No	1,343.1	1,342.2	0.9	0.1
Total bonds				**3,142.7**	**3,895.0**	**–752.3**	**–19.3**
Other financial liabilities			No	555.2	558.5	–3.3	–0.6
Total financial liabilities				**3,697.9**	**4,453.5**	**–755.6**	**–17.0**
less							
Cash and cash equivalents				980.8	729.7	251.1	34.4
Current financial assets				2,410.5	1,797.9	612.6	34.1
Net financial debt				**306.6**	**1,925.9**	**–1,619.3**	**–84.1**

Financial liabilities were reduced by € –756 million in 2013, amounting to € 3,698 million as of December 31, 2013 (2012: € 4,454 million). Owing to the increase in cash and cash equivalents, the decrease in net financial debt was even greater than that of financial liabilities. In 2013, net financial debt decreased by € –1,619 million or –84.1% to € 307 million (2012: € 1,926 million). Expected future cash flows such as repayments and interest from financial liabilities are presented in the consolidated financial statements under Note [57] "Management of financial risks".

→ *Course of business and economic position*

Merck Group | Working capital

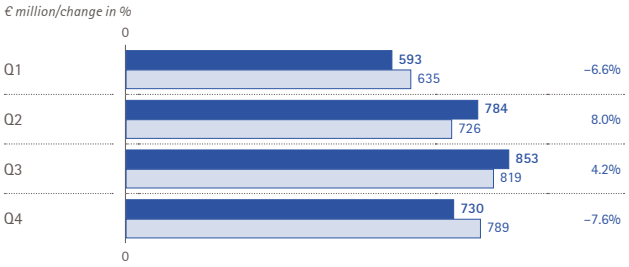
€ million	Dec. 31, 2013	Dec. 31, 2012	Change in € million	Change in %
Trade accounts receivable	2,021.4	2,114.6	–93.2	–4.4%
Inventories	1,474.2	1,533.9	–59.7	–3.9%
Trade accounts payable	–1,364.1	–1,288.3	–75.8	–5.9%
Working capital	**2,131.5**	**2,360.2**	**–228.7**	**–9.7%**
% of sales (last 12 months)	19.9%	22.0%		

Following a sharp reduction in working capital in 2012, a further substantial decrease of –9.7% to € 2,132 million was achieved in 2013. Consequently, working capital decreased to 19.9% of sales (2012: 22.0%).

Business free cash flow of the Merck Group in 2013 amounted to € 2,960 million (2012: € 2,969 million), thus remaining at the previous year's high level. The composition of this figure is presented in the Group management report under "Internal Management System".

The distribution of business free cash flow across the individual quarters as well as the percentage changes in comparison with 2012 were as follows:

Merck Group | Business free cash flow and change by quarter[1]



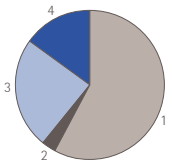
[1] Quarterly breakdown unaudited

2013 2012

→ *Course of business and economic position*

Merck Group | Business free cash flow by division – 2013

€ million/change in %



1	Merck Serono	1,875.7	58%
2	Consumer Health	83.9	3%
3	Performance Materials	787.8	24%
4	Merck Millipore	493.8	15%

Not presented: Decline in Group business free cash flow by € –281 million due to Corporate and Other

The Merck Serono division generated business free cash flow amounting to € 1,876 million (2012: € 1,880 million), thus raising its contribution to Group business free cash flow to 58% (2012: 57%). This excludes the decline of € –281 million due to Corporate and Other. Performance Materials contributed € 788 million (2012: € 798 million) to Group business free cash flow, which once again represented 24%. Taken together, the Merck Millipore and Consumer Health divisions contributed 18% (2012: 19%) to Group business free cash flow.

Investments in property, plant, equipment and software included in the calculation of business free cash flow as well as advance payments for intangible assets increased in 2013 by 21.7% to a total of € 446 million (2012: € 367 million). In 2013, investments in property, plant and equipment included in this figure amounted to € 408 million (2012: € 329 million), corresponding to an increase of € 79 million or 24.0% compared with 2012. Investments in property, plant and equipment, which totaled € 408 million, included € 248 million in numerous smaller investment projects (total volume of each project below € 2 million). At the beginning of 2013, Merck acquired six office buildings in Darmstadt, which the company had previously leased. The buildings also house the headquarters of the Merck Serono division. In addition, major projects to expand production were also approved in 2013. Special mention is made here of an investment by Merck Serono in a new production plant in China with a total volume of € 80 million. The new facility will become Merck Serono's second-largest pharmaceutical production site worldwide. Commercial production is scheduled to begin in 2017. In December 2013, work began on a major investment project for the Allergopharma unit in Reinbek near Hamburg. The estimated investment of around € 40 million will, in particular, serve to expand production capacities for products to diagnose and treat type 1 allergies. Within the scope of "Fit for 2018", extensive investment projects to raise efficiency, particularly in the Merck Millipore and Performance Materials divisions were approved that relate to sites in Germany, the United States as well as Ireland and Spain.

In 2013, the two credit rating agencies Moody's and Standard & Poor's upgraded Merck's credit rating as an issuer of long-term and senior unsecured bonds. Moody's raised Merck's long-term issuer rating to "A3" with stable outlook, and in May 2013, Standard & Poor's upgraded Merck's rating to "A" with stable outlook. An overview of the development of Merck's rating for the period from 2008 to 2013 is presented in the Report on Risks and Opportunities. Both ratings ensure that Merck will be able to benefit in the future from attractive financing terms.

Due to the reduction in debt as well as strong cash flows from operating activities, the ratio of net financial debt to cash flows from operating activities decreased from 0.8 on December 31, 2012 to 0.1 on December 31, 2013.

→ *Course of business and economic position*

In September 2013, Merck increased the volume of its Debt Issuance Program to € 15 billion. The Debt Issuance Program forms the contractual basis for issuing bonds, thus giving the company flexibility in its issuing activities. It therefore represents an important element of the Group's financing activities.

The development of key balance sheet figures is as follows:

Merck Group | Key balance sheet figures

in %		Dec. 31, 2013	Dec. 31, 2012	Dec. 31, 2011	Dec. 31, 2010	Dec. 31, 2009
Equity ratio	Equity / Total assets	53.2	48.1	47.4	46.3	56.9
Asset ratio	Non-current assets / Total assets	64.5	69.4	71.1	74.7	66.9
Asset coverage	Equity / Non-current assets	82.4	69.4	66.7	62.0	85.1
Finance structure	Current liabilities / Liabilities (total)	40.0	40.6	37.5	28.0	39.2

Overall assessment of business performance and economic situation

In 2013, Merck once again performed well in a market environment that remained challenging. The robust organic growth achieved almost fully offset the adverse exchange rate effects that impacted the development of total revenues and sales. The good operating business performance along with the accelerated implementation of the efficiency measures within the scope of the "Fit for 2018" transformation and growth program led to a strong increase in EBITDA pre. The EBITDA pre margin was 30.4% (2012: 27.6%), reflecting the high profitability of the Merck Group. In 2013, the business free cash flow of the Merck Group amounted to € 2,960 million (2012: € 2,969 million), thus reaching the previous year's excellent level.

The solid accounting and finance policy of the Merck Group is reflected by the very good key balance sheet figures, which improved even further in 2013 owing to good business performance. For example, the strong equity ratio of 48.1% in 2012 rose further to 53.2%. Following the sharp reduction in working capital in 2012, another notable improvement was achieved in 2013. Taken together with the successful performance of operating business, this led to a high inflow of funds. Among other things, this cash flow was used to repay financial liabilities, making it possible to lower net financial debt to € 307 million (2012: € 1,926 million).

Against the backdrop of the superb liquidity position and financing base as well as the excellent business development, the economic position of the Merck Group can be assessed positively overall. It offers an ideal starting basis for the further execution of the successfully commenced "Fit for 2018" transformation and growth program, the focus of which is now shifting to organic and inorganic growth. In this connection, special reference is made to the announcement made in December 2013 of the intention to acquire AZ Electronic Materials S.A., Luxembourg, in 2014.

→ *Merck Serono*

Merck Serono

Overview of 2013

→ Solid organic sales growth unable to prevent slight decline in sales due to currency headwinds
→ Rebif® achieves stable full-year organic growth despite increasing competition
→ Erbitux® delivers good organic growth thanks to registration in Japan in head and neck cancer indication as well as healthy demand in Emerging Markets
→ Restructuring program within the scope of "Fit for 2018" successfully continued in 2013
→ Significant increase of 2.4 percentage points in EBITDA pre margin despite negative foreign exchange effects and lower royalty income

Merck Serono | Key figures

€ million	2013	2012	Change in %
Total revenues	6,325.8	6,405.2	–1.2
Sales	5,953.6	5,995.8	–0.7
Operating result (EBIT)	893.0	547.7	63.1
Margin (% of sales)	15.0	9.1	
EBITDA	1,886.5	1,480.0	27.5
Margin (% of sales)	31.7	24.7	
EBITDA pre one-time items	1,955.0	1,824.7	7.1
Margin (% of sales)	32.8	30.4	
Business free cash flow	1,875.7	1,880.2	–0.2

Development of total revenues and sales as well as results of operations

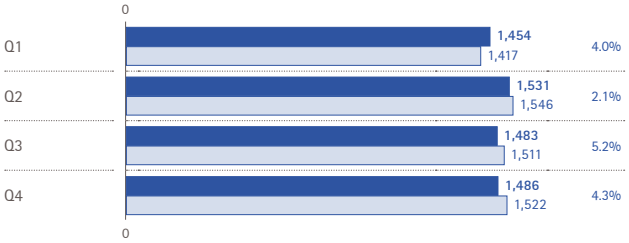
In 2013, total revenues of the Merck Serono division grew organically by 3.2%. Owing to negative foreign exchange effects amounting to –4.5%, total revenues of the division nevertheless declined by –1.2% to € 6,326 million (2012: € 6,405 million). Despite solid organic growth of 3.9%, sales decreased by –0.7% to € 5,954 million (2012 : € 5,996 million). This slight decline was attributable to strong currency headwinds of –4.6%, which stemmed mainly from Latin American currencies, the Japanese yen as well as the U.S. dollar. All the division's franchises contributed to the organic sales growth, with the highest absolute organic sales increases coming from the General Medicine franchise (including CardioMetabolic Care) and the oncology drug Erbitux®. In geographic terms, the Emerging Markets region and Japan fueled organic sales growth in 2013, posting increases of 12.2% and 16.9%, respectively. Royalty, license and commission income declined by –9.1% to € 372 million (2012: € 409 million). This was primarily the result of the termination of two licensing agreements owing to the expiration of a patent for Avonex® (as of May 2013) and one for Enbrel® (as of November 2013) and adverse foreign exchange effects. The agreement reached with Bristol-Myers Squibb on the co-promotion of Glucophage in China started to positively impact commission income in the third quarter of 2013.

→ *Merck Serono*

The development of sales in the individual quarters in comparison with 2012 as well as the respective organic growth rates are presented in the following table:

Merck Serono | Sales and organic growth by quarter[1]

€ million/organic growth in %

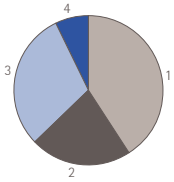


[1] Quarterly breakdown unaudited

2013 2012

Merck Serono | Sales by region – 2013

€ million/% of divisional sales



1	Europe	2,481.8	42%
2	North America	1,279.8	21%
3	Emerging Markets	1,784.6	30%
4	Rest of World	407.4	7%

From a geographic perspective, organic sales growth in the Merck Serono division was bolstered by the Emerging Markets and Rest of World regions, which generated sales increases of 12.2% and 9.9%, respectively.

Europe, Merck's top-selling region, posted a slight organic decline in sales of –0.1%, with a negative foreign exchange impact of –0.6%, thereby generating sales of € 2,482 million (2012: € 2,502 million). While Russia, Turkey, Germany, and eastern European countries in particular delivered organic sales growth, France as well as countries in southern Europe suffered sales declines. Overall, the division continued to feel the

→ *Merck Serono*

negative effects of the budget constraints in several European countries as well as the resulting health care cost containment measures. At 42%, Europe continued to account for the largest proportion of the division's sales, as in 2012.

Emerging Markets, the division's second-largest region by sales, posted very strong organic growth of 12.2%, which was offset by a negative foreign exchange impact of –9.5%. Consequently, sales increased from € 1,737 million to € 1,785 million. All of Merck Serono's franchises in this region contributed to organic growth. The main drivers were products to treat cardiovascular diseases, diabetes and thyroid disorders. The share of divisional sales generated by the Emerging Markets region increased by one percentage point to 30%, which reflects the growing importance of this region to Merck Serono.

In 2013, sales in North America amounted to € 1,280 million, declining by –4.1% compared to 2012 (€ 1,335 million), which comprised an organic sales decrease of –1.1% and unfavorable foreign exchange effects of –3.0%. This slight organic decline is primarily attributable to the Fertility franchise. The North America region contributed 21% (2012: 22%) to the division's sales.

In the Rest of World region, sales grew organically by 9.9%, mainly powered by the good sales performance of Erbitux® and strong demand for products from the Fertility franchise. Including strong currency headwinds of –13.4%, which were primarily attributable to the Japanese yen, sales totaled € 407 million (2012: € 422 million). Once again, the Rest of World region contributed 7% to divisional sales.

Merck Serono | Sales components by region – 2013

€ million/change in %	Sales	Organic growth	Exchange rate effects	Acquisitions/ divestments	Total change
Europe	2,481.8	–0.1	–0.6	–	–0.8
North America	1,279.8	–1.1	–3.0	–	–4.1
Emerging Markets	1,784.6	12.2	–9.5	–	2.7
Rest of World	407.4	9.9	–13.4	–	–3.5
Merck Serono	**5,953.6**	**3.9**	**–4.6**	**–**	**–0.7**

In 2013, sales of the key products of the Merck Serono division developed as follows:

Merck's top-selling drug Rebif®, which is used to treat relapsing forms of multiple sclerosis, achieved slight organic growth of 1.4% in 2013. This was especially attributable to its good performance in the first half of 2013, during which sales grew organically by 4.7%. Yet in the second half of 2013, Rebif® suffered an organic decline in sales, primarily in North America. Taking adverse foreign exchange effects of –2.9% into account, Rebif® sales decreased by –1.5% to € 1,865 million (2012: € 1,893 million). In North America, which generated 51% of Rebif® sales (2012: 52%) and is the largest market for this product, sales saw slight organic growth of 0.3% to € 956 million (2012: € 983 million). In particular, this was the result of a tougher competitive environment in North America in the second half of 2013, where lower sales volumes could not be completely compensated for by price increases. In Europe, sales of Rebif® grew organically by 2.8%, totaling

→ *Merck Serono*

€ 745 million (2012: € 731 million). Including a foreign exchange impact of –0.9%, sales grew by a total of 1.9%. Consequently, Europe accounted for 40% of total Rebif® sales (2012: 39%). The Emerging Markets and the Rest of World regions posted organic increases in Rebif® sales of 1.1% and 5.4%, respectively, with adverse foreign exchange effects of –11.5% and –5.8%, respectively. Overall, this resulted in Emerging Markets sales declining by –10.4% to € 130 million (2012: € 145 million). In the Rest of World region, Merck Serono generated sales of € 34 million, as in 2012. At around 9%, the combined contribution of these two regions to Rebif® sales remained comparatively low.

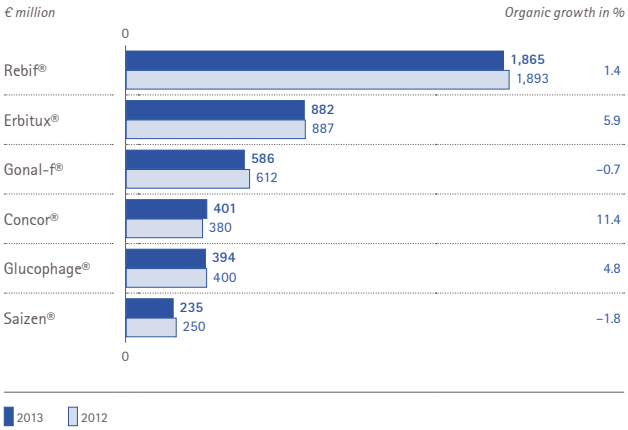
In 2013, sales of the oncology drug Erbitux® showed organic growth of 5.9%. Including a foreign exchange impact of –6.5%, which primarily stemmed from the Japanese yen and Latin American currencies, sales declined slightly by € –5 million to € 882 million (2012: € 887 million). Merck Serono achieved organic growth in all three regions in which it holds the marketing rights. In 2013, 57% of Erbitux® sales were generated in Europe (2012: 56%), making it the top-selling region for this product. Erbitux® sales in this region grew organically by 0.5% in 2013, thereby totaling € 501 million, which includes adverse foreign exchange effects of –0.4% (2012: € 500 million). Despite strong organic growth of 8.9%, sales in Emerging Markets declined slightly to € 232 million (2012: € 236 million) as a result of currency headwinds of –10.3%. This region contributed 26% (2012: 27%) of total Erbitux® sales. At 18.8%, the Rest of World region generated the strongest organic growth for this oncology drug, delivering sales of € 149 million (2012: € 152 million). Posting organic growth of 22.1%, business in Japan performed well. However, this was canceled out by adverse exchange rate effects stemming from the weak Japanese yen against the euro. In particular, the approval of Erbitux® in head and neck cancer as well as higher market shares in other Erbitux® indications were the main drivers of the increase in organic sales.

Merck Serono | Sales and organic growth of Rebif® and Erbitux® by region – 2013

		Total	Europe	North America	Emerging Markets	Rest of World
Rebif®	€ million	1,864.7	744.8	956.1	130.2	33.6
	Organic growth in %	1.4	2.8	0.3	1.1	5.4
	% of sales	100	40	51	7	2
Erbitux®	€ million	882.2	500.9	–	232.4	148.9
	Organic growth in %	5.9	0.5	–	8.9	18.8
	% of sales	100	57	–	26	17

→ *Merck Serono*

Merck Serono | Sales and organic growth of key products – 2013



Sales of Gonal-f®, the leading recombinant hormone used in the treatment of infertility, totaled € 586 million in 2013 (2012: € 612 million). This decline was largely attributable to adverse foreign exchange effects of –3.5%. Gonal-f® sales saw a slight organic decrease of –0.7%. Strong organic growth in the Emerging Markets and Rest of World regions could not offset the weaker sales performance in Europe and North America, where the correlation between economic developments and the demand for fertility products remained visible. However, other products from the Fertility franchise achieved strong organic growth, thereby generating total organic sales growth of 2.4% for the franchise and, including adverse foreign exchange effects, sales of € 807 million (2012: € 817 million).

At € 394 million (2012: € 399 million), sales by the Endocrinology franchise, which mainly consists of products to treat metabolic and growth disorders, decreased slightly by –1.3% since organic growth of 2.1% was more than offset by an adverse foreign exchange impact of –3.4%. Sales of the growth hormone Saizen® saw an organic decline of –1.8% as well as negative foreign exchange effects of –4.0%. As a result, sales declined by a total of –5.8% to € 235 million. Merck Serono achieved double-digit organic growth rates with Serostim® for HIV-associated wasting, as well as with Kuvan® for the treatment of hyperphenylalaninemia, a metabolic disorder.

→ *Merck Serono*

The General Medicine franchise (including CardioMetabolic Care), which commercializes Merck Serono's products to treat cardiovascular diseases and diabetes, among others, generated organic sales growth of 6.5%. Including negative foreign exchange effects, sales amounted to € 2,005 million (2012: € 1,998 million). Overall, sales volumes in this business franchise developed well. This reflected the performance of the three leading product franchises, namely Glucophage® for the treatment of diabetes, the beta-blocker Concor®, and Merck's portfolio for the treatment of thyroid disorders, all of which achieved high organic growth rates. However, negative exchange rate effects were registered here as well. Sales of Glucophage®, which grew organically by 4.8% primarily due to sales in the Emerging Markets region, totaled € 394 million (2012: € 399 million). Thanks mainly to strong demand in Emerging Markets and Europe, Concor® and thyroid products generated organic growth of 11.4% and 21.0%, respectively, posting sales of € 401 million (2012: € 380 million) and € 275 million, respectively (2012: € 234 million).

At € 1,106 million, the division's cost of sales declined by –7.3% (2012: € 1,193 million), with the decline exceeding the percentage decrease in sales. This was primarily due to higher yields in the manufacture of biotech products as well as strict cost control, which had a positive effect on the division's gross profit. Overall, however, gross profit improved only slightly by € 8 million to € 5,220 million (2012: € 5,212 million) as it was countered by the € 37 million decline in royalty, license and commission income. Accordingly, gross margin (in percent of sales) rose slightly to 87.7% (2012: 86.9%).

Both the resolute implementation of cost reduction measures and currency translation effects lowered the division's marketing and selling expenses as well as administration expenses. Marketing and selling expenses fell by –6.0% to € 1,289 million (2012: € 1,371 million) and administration expenses decreased by –2.5% to € 211 million (2012: € 217 million). In 2013, royalty, license and commission expenses totaled € 548 million (2012: € 562 million). This slight decline was primarily the result of currency translation effects as well as lower Rebif® co-marketing expenses in the United States. The significant decrease in other operating expenses (net) from € 669 million in 2012 to € 499 million in 2013 was largely due to the one-time items reported in this line. Whereas in 2012, one-time items (including impairments) amounted to € 391 million and were mainly incurred in connection with "Fit for 2018", one-time items (including impairments) in 2013 were only € 258 million. In 2013, other operating expenses included an impairment loss on intangible assets classified as a one-time item, of € 127 million, for Humira® in the Merck Serono division. The impairment loss resulted from an out-of-court settlement with AbbVie Biotechnology Ltd., Bermudas, and Abbott GmbH & Co. KG, Germany (together referred to as "AbbVie"). Under this settlement, Merck will receive no further royalty payments for this product from AbbVie as of the second half of 2014.

Research and development expenses were only slightly lower than in 2012, totaling € 1,183 million (2012: € 1,187 million). The ratio of R&D spending to sales thus remained at a high level of 19.9% (2012: 19.8%). The long-term development of the Merck Serono division and the pipeline continues to be a top priority.

Since the useful lives of the two intangible assets capitalized as part of the Serono SA purchase price allocation, namely Avonex® and Enbrel®, have expired, amortization of intangible assets declined significantly by –9.5% to € 597 million (2012: € 659 million).

→ *Merck Serono*

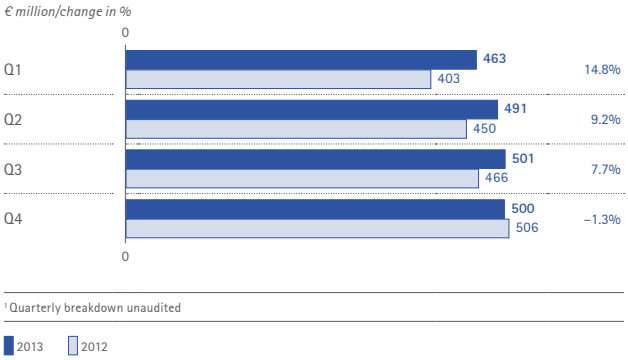
The presented development of income and expenses resulted in a very sharp increase in the division's operating result (EBIT) in 2013, of 63.1% to € 893 million (2012: € 548 million). After eliminating depreciation and amortization, and adjusted for one-time effects, EBITDA pre one-time items rose by 7.1% to € 1,955 million (2012: € 1,825 million), corresponding to a margin of 32.8% of sales (2012: 30.4%).

Merck Serono | Reconciliation EBIT to EBITDA pre one-time items

€ million	2013	2012	Change in %
Operating result (EBIT)	**893.0**	**547.7**	**63.1**
Depreciation/Amortization/Reversals of impairments	993.5	932.3	6.6
EBITDA	**1,886.5**	**1,480.0**	**27.5**
One-time items	68.5	344.7	–80.1
EBITDA pre one-time items	**1,955.0**	**1,824.7**	**7.1**

The development of EBITDA pre one-time items in the individual quarters in comparison with 2012 is presented in the following table:

Merck Serono | EBITDA pre one-time items and change by quarter[1]



[1] Quarterly breakdown unaudited

→ *Merck Serono*

Development of business free cash flow

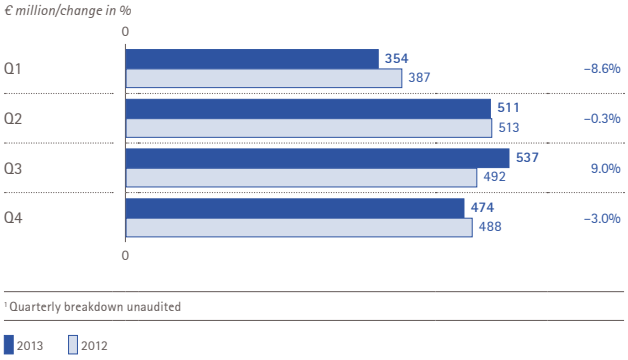
In 2013, the Merck Serono division's business free cash flow amounted to € 1,876 million, which represents only a slight decline compared with the very high level of € 1,880 million in 2012. The increase in EBITDA pre one-time items by € 130 million, or 7.1%, positively affected the business free cash flow. However, the changes in trade accounts receivable achieved in 2012 could not be reached in 2012. In 2013, receivables declined by only € –43 million, whereas in 2012 this balance sheet item was significantly reduced by € –180 million.

Merck Serono | Business free cash flow

€ million	2013	2012	Change in %
EBITDA pre one-time items	1,955.0	1,824.7	7.1
Investments in property, plant and equipment, software as well as advance payments for intangible assets	–164.3	–160.5	2.4
Changes in inventories	41.7	35.8	16.3
Changes in trade accounts receivable	43.3	180.2	–75.9
Business free cash flow	**1,875.7**	**1,880.2**	**–0.2**

The development of business free cash flow in the individual quarters in comparison with 2012 is presented in the following table:

Merck Serono | Business free cash flow and change by quarter[1]



[1] Quarterly breakdown unaudited

Consumer Health

Overview of 2013

→ Successful turnaround achieved in 2013
→ EBITDA pre one-time items increases by 8.5% to € 72 million following the implementation of efficiency measures
→ EBITDA pre margin moves toward industry average thanks to profitability improvements
→ Solid base for development in future years established

Consumer Health | Key figures

€ million	2013	2012	Change in %
Total revenues	479.6	475.2	0.9
Sales	476.9	472.6	0.9
Operating result (EBIT)	62.2	7.6	–
Margin (% of sales)	13.0	1.6	
EBITDA	71.1	29.8	138.6
Margin (% of sales)	14.9	6.3	
EBITDA pre one-time items	72.5	66.8	8.5
Margin (% of sales)	15.2	14.1	
Business free cash flow	83.9	88.8	–5.5

Development of total revenues and sales as well as results of operations

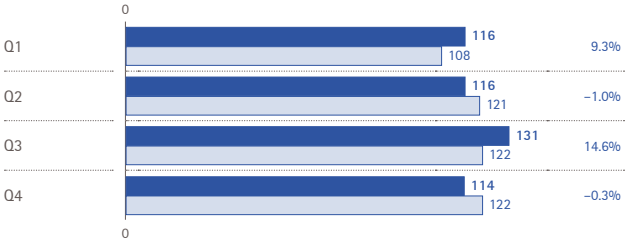
In 2013, the Consumer Health division reported a slight 0.9% increase in sales to € 477 million (2012: € 473 million). Strong organic growth of 5.6% was countered by a negative foreign exchange impact of –4.7%. Europe and Emerging Markets, the two largest regions in terms of sales, were the main drivers of the strong organic increases and the division's overall positive development. Four of the eight strategic brands (Cebion®, Sangobion®, Kytta® and Femibion®) delivered double-digit organic growth rates and gained market share in the division's key regions while the Bion®, Nasivin® and Sedalmerck® brands all posted growth rates in the mid-to-high single digits. The negative foreign exchange impact was broad-based, but particularly strong with respect to Latin American currencies, the British pound, the Indonesian rupiah, and the South African rand.

→ *Consumer Health*

The development of sales in the individual quarters in comparison with 2012 as well as the respective organic growth rates are presented in the following table:

Consumer Health | Sales and organic growth by quarter [1]

€ million/organic growth in %

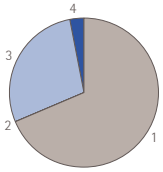


[1] Quarterly breakdown unaudited

2013 2012

Consumer Health | Sales by region – 2013

€ million/% of divisional sales



1	Europe	328.1	69%
2	North America	1.1	0%
3	Emerging Markets	131.9	28%
4	Rest of World	15.8	3%

From a geographic perspective, all of the division's key regions delivered strong organic sales growth while suffering from negative foreign exchange effects. Europe, which accounts for 69% of sales (2012: 67%) and is the division's largest region, posted organic sales growth of 5.0% lowered by a foreign exchange impact of –0.9%. The resulting 4.1% growth in this region thus generated sales of € 328 million (2012: € 315 million). Notable organic sales increases were achieved particularly in Germany, France and Russia, more than offsetting the weaker performance of the British subsidiary Seven Seas. In Germany, robust demand for Femibion® as well as the market launch of an odorless version of Kytta® had a visibly positive effect. France benefited in particular from the market launch of Bion® Energie Continue as well as from very good demand for cough and cold treatments in early 2013. Russia achieved strong growth with Nasivin® and Femibion®.

→ *Consumer Health*

In the Emerging Markets region, the division registered strong organic growth of 6.9%, which was mainly attributable to Cebion®, Sangobion®, Bion®3 and Nasivin®. Taking substantial foreign exchange headwinds of –12.3% into account, sales declined overall by –5.3% to € 132 million (2012: € 139 million). Good organic sales growth was achieved, for example, in India, Indonesia and Brazil. The share of divisional sales accounted for by the Emerging Markets region declined to 28% (2012: 29%), owing to negative foreign exchange effects that stemmed mainly from Latin American currencies.

With organic sales growth of 5.7% and significant currency headwinds of –12.2%, the Rest of World region generated sales of € 16 million (2012: € 17 million). The proportion of divisional sales accounted for by this region therefore also declined to 3% (2012: 4%).

Consumer Health | Sales components by region – 2013

€ million/change in %	Sales	Organic growth	Exchange rate effects	Acquisitions/ divestments	Total change
Europe	328.1	5.0	–0.9	–	4.1
North America	1.1	–1.1	–0.8	–	–1.9
Emerging Markets	131.9	6.9	–12.3	–	–5.3
Rest of World	15.8	5.7	–12.2	–	–6.5
Consumer Health	**476.9**	**5.6**	**–4.7**	**–**	**0.9**

Cost of sales increased slightly by 1.9%, totaling € 161 million in 2013 (2012: € 158 million). Gross profit amounted to € 318 million (2012: € 317 million), remaining at the previous year's level and leading to a gross margin of 66.7% (2012: 67.0%).

Marketing and selling expenses declined by –2.5% to € 213 million (2012: € 218 million) since activities directed to consumers, pharmacies and health care professionals were focused on higher-return opportunities. Administration expenses dropped by –8.7% to € 18 million (2012: € 20 million) and R&D expenses fell by –12.2% to € 17 million (2012: € 19 million) as the division continued to sharpen the focus of its R&D activities.

The net decline in other operating expenses to € 4 million (2012: € 46 million) was due mainly to the drop in one-time items to € 1 million (2012: € 37 million). Furthermore, impairments of property, plant and equipment as well as intangible assets, which totaled € 11 million in 2012, did not reoccur in 2013. The high level of one-time items in 2012 was attributable to the restructuring measures within the scope of the "Fit for 2018" transformation and growth program.

The reported operating result (EBIT) of the Consumer Health division increased by around € 54 million to € 62 million (2012: € 8 million) and EBITDA more than doubled, climbing to € 71 million (2012: € 30 million). Adjusted for one-time items, EBITDA pre one-time items rose by 8.5% to € 72 million, or 15.2% of sales (2012: € 67 million or 14.1% of sales).

→ *Consumer Health*

The implementation of the measures initiated as part of the "Fit for 2018" transformation and growth program as well as better resource allocation improved the division's cost structure, leading to a visible increase in profitability and the aforementioned organic top-line growth. In particular, the division's strategic brands, which benefited most from more focused investment in marketing, sales and R&D activities, showed a strong improvement in this respect.

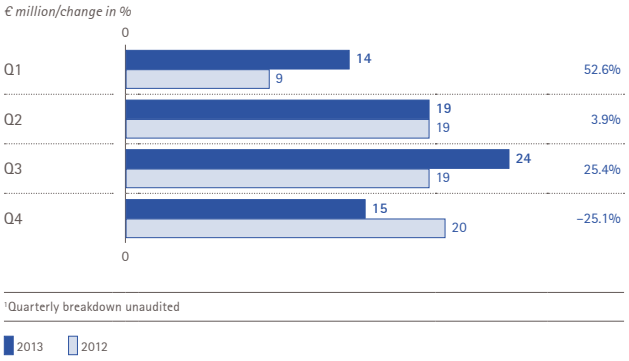
Structural adaptations, for example changes to the product portfolio and the exit from unprofitable markets, also resulted in a more profitable base for the division's business. Consumer Health thus established a good foundation and achieved a high profitability level, which should form a solid starting base for developments in the coming years.

Consumer Health | Reconciliation EBIT to EBITDA pre one-time items

€ million	2013	2012	Change in %
Operating result (EBIT)	**62.2**	**7.6**	**–**
Depreciation/Amortization/Reversals of impairments	8.9	22.2	–59.9
EBITDA	**71.1**	**29.8**	**138.6**
One-time items	1.4	37.0	–96.2
EBITDA pre one-time items	**72.5**	**66.8**	**8.5**

The development of EBITDA pre one-time items in the individual quarters in comparison with 2012 is presented in the following table:

Consumer Health | EBITDA pre one-time items and change by quarter[1]



[1]Quarterly breakdown unaudited

→ *Consumer Health*

Development of business free cash flow

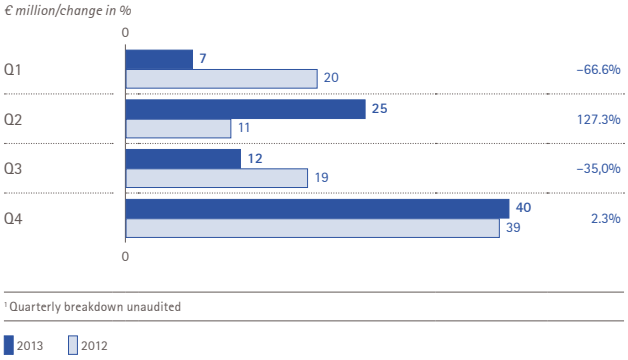
In 2013, business free cash flow of the Consumer Health division declined by € –5 million or –5.5% to € 84 million (2012: € 89 million). This decrease was primarily due to changes in trade accounts receivable. The reduction in this balance sheet item by € –13 million in 2013 compares with an even higher reduction of € –23 million in 2012. The increase in EBITDA pre one-time items mitigated this impact on business free cash flow.

Consumer Health | Business free cash flow

€ million	2013	2012	Change in %
EBITDA pre one-time items	72.5	66.8	8.5
Investments in property, plant and equipment, software as well as advance payments for intangible assets	–4.1	–4.4	–7.7
Changes in inventories	2.1	3.2	–33.7
Changes in trade accounts receivable	13.4	23.2	–42.2
Business free cash flow	**83.9**	**88.8**	**–5.5**

The development of business free cash flow in the individual quarters in comparison with 2012 is presented in the following table:

Consumer Health | Business free cash flow and change by quarter[1]



[1] Quarterly breakdown unaudited

Performance Materials

Overview of 2013

→ Slight decline in sales due to strong currency headwinds that outweighed organic growth
→ Strong market position of the Liquid Crystals business unit confirmed due to further development of existing products and high degree of innovation
→ Trend toward larger and higher-resolution television displays has a positive impact on the product mix of Liquid Crystals
→ EBITDA pre margin rises sharply by more than three percentage points due to structural improvements in the Pigments & Cosmetics business unit and a favorable product mix in Liquid Crystals

Performance Materials | Key figures

€ million	2013	2012	Change in %
Total revenues	1,644.4	1,675.6	–1.9
Sales	1,642.1	1,674.2	–1.9
Operating result (EBIT)	653.3	609.7	7.2
Margin (% of sales)	39.8	36.4	
EBITDA	765.8	734.6	4.3
Margin (% of sales)	46.6	43.9	
EBITDA pre one-time items	779.7	741.9	5.1
Margin (% of sales)	47.5	44.3	
Business free cash flow	787.8	798.1	–1.3

Development of total revenues and sales as well as results of operations

For the Performance Materials division, 2013 was another very successful year. In comparison with 2012, a record year, sales increased organically by a further 3.0%. Taking into account currency headwinds of –4.9%, divisional sales decreased by –1.9% to € 1,642 million (2012: € 1,674 million), thus remaining at a high level. The adverse foreign exchange impact stemmed mainly from the Japanese yen, the Taiwanese dollar and the U.S. dollar.

The Liquid Crystals business unit, which accounts for more than 70% of divisional sales, increased its high market share, thus defending its market leadership in liquid crystal materials by continuously improving its flagship technologies. The Liquid Crystals business unit benefited from the shift in demand toward technically more complex liquid crystals. These include materials based on polymer-stabilized vertical alignment (PS-VA) technology, which are primarily used in large-sized, high-quality television displays.

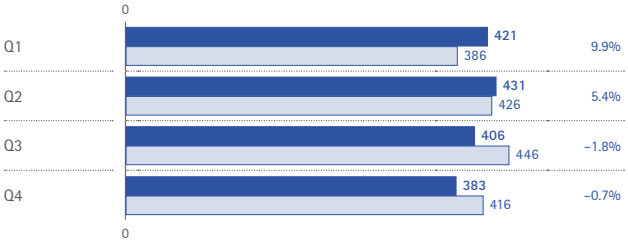
In 2013, the Pigments & Cosmetics business unit achieved good organic sales growth thanks to higher demand for decorative pigments, above all the Xirallic® product family, which is used in particular in automotive coatings. The business unit recorded a slight increase in organic sales of functional materials.

→ *Performance Materials*

The development of sales in the individual quarters in comparison with 2012 as well as the respective organic growth rates are presented in the following table:

Performance Materials | Sales and organic growth by quarter[1]

€ million/organic growth in %

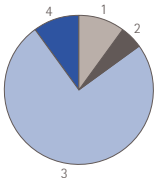


[1] Quarterly breakdown unaudited

2013 2012

Performance Materials | Sales by region – 2013

€ million/% of divisional sales



1	Europe	164.3	10%
2	North America	85.6	5%
3	Emerging Markets	1,236.6	75%
4	Rest of World	155.6	10%

In geographic terms, the Emerging Markets region accounted for 75% (2012: 73%) of sales by the Performance Materials division. This two percentage-point increase was attributable to good organic sales growth of 4.9%. The high share of sales generated by this region is due to the concentration of liquid crystal customers in Asia. Including a negative foreign exchange impact of –3.4%, sales increased by 1.5% to € 1,237 million (2012: € 1,218 million).

With sales of € 164 million (2012: € 160 million, Europe generated 10% (2012: 10%) of divisional sales. Organic growth of 2.9% was achieved with both decorative pigments and functional materials.

The Rest of World region, which is dominated by Japan, recorded an organic sales decrease of –6.2%. Along with strong currency headwinds of –18.3%, this resulted in sales of € 156 million (2012: € 206 million). The Rest of World region's share of sales declined from 12% in 2012 to 10% in 2013.

→ *Performance Materials*

The North America region, where almost all sales are attributable to the Pigments & Cosmetics business unit, contributed 5% to divisional sales (2012: 5%). Including the negative foreign exchange impact, the slight decline in organic sales of –1.6% led to a total decline in sales of –4.4% to € 86 million (2012: € 90 million). The Xirallic® pigments business achieved high organic sales increases that could not compensate, however, for the weak demand for cosmetic active ingredients.

Performance Materials | Sales components by region – 2013

€ million/change in %	Sales	Organic growth	Exchange rate effects	Acquisitions/ divestments	Total change
Europe	164.3	2.9	–0.4	–	2.5
North America	85.6	–1.6	–2.7	–	–4.4
Emerging Markets	1,236.6	4.9	–3.4	–	1.5
Rest of World	155.6	–6.2	–18.3	–	–24.5
Performance Materials	**1,642.1**	**3.0**	**–4.9**	**–**	**–1.9**

In 2013, the division's cost of sales decreased by –14% to € 616 million (2012: € 716 million). This decline was primarily attributable to a more favorable product mix in liquid crystal materials as well as to efficiency improvements in the Pigments & Cosmetics business unit achieved within the scope of the "Fit for 2018" transformation and growth program. In comparison with 2012, gross profit thus grew by 7.2% to € 1,028 million (2012: € 959 million). This led to a significantly higher gross margin as a percentage of sales, which rose by more than five percentage points to 62.6% (2012: 57.3%).

Marketing and selling expenses declined slightly by –1.6% to € 141 million (2012: € 143 million), and administration expenses dropped by –10.7% to € 28 million (2012: € 31 million). R&D expenses rose by 4.1% to € 143 million (2012: € 137 million). The Liquid Crystals business unit, which maintained its market position thanks to innovations and the further development of existing technologies, accounted for the vast majority of research and development spending. As a percentage of sales, R&D expenses therefore increased to 8.7% (2012: 8.2%). In 2013, the net rise in other operating expenses to € 48 million (2012: € 32 million) was mainly due to the disposal of intangible assets as well as to an increase in one-time items.

The aforementioned development of income and expenses led to a 7.2% increase in the reported operating result (EBIT) to € 653 million (2012: € 610 million). Without the depreciation and amortization included in EBIT, EBITDA rose by 4.3% to € 766 million (2012: € 735 million). Adjusted for one-time effects, EBITDA pre one-time items rose by 5.1% to € 780 million (2012: € 742 million). Despite negative foreign exchange effects,

→ *Performance Materials*

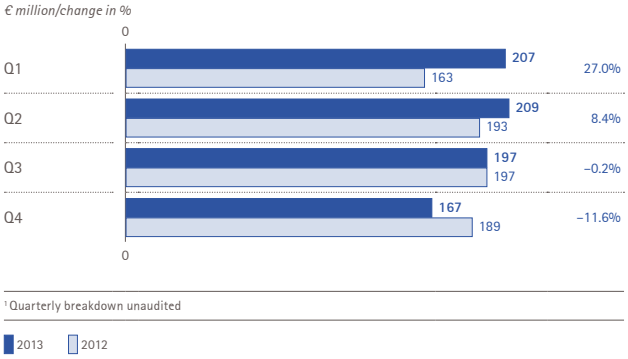
the division's profitability, i.e. the EBITDA pre margin, rose to 47.5% of sales (2012: 44.3% of sales). This profitability increase of more than three percentage points was primarily attributable to changes in the product mix of the Liquid Crystals business unit; it was also the result of cost structure improvements in the Pigments & Cosmetics business unit achieved through efficiency measures under the "Fit for 2018" transformation and growth program.

Performance Materials | Reconciliation EBIT to EBITDA pre one-time items

€ million	2013	2012	Change in %
Operating result (EBIT)	**653.3**	**609.7**	**7.2**
Depreciation/Amortization/Reversals of impairments	112.5	124.9	–9.9
EBITDA	**765.8**	**734.6**	**4.3**
One-time items	13.9	7.3	90.4
EBITDA pre one-time items	**779.7**	**741.9**	**5.1**

The development of EBITDA pre one-time items in the individual quarters in comparison with 2012 is presented in the following table :

Performance Materials | EBITDA pre one-time items and change by quarter[1]



[1] Quarterly breakdown unaudited

→ *Performance Materials*

Development of business free cash flow

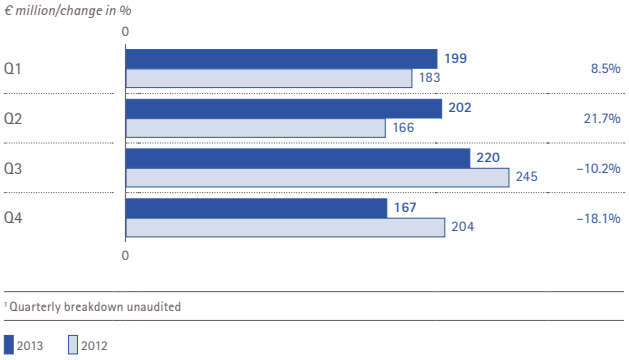
In 2013, the Performance Materials division generated business free cash flow of € 788 million (2012: € 798 million). Despite a € 38 million increase in EBITDA pre one-time items and the decrease in trade accounts receivable, business free cash flow declined slightly by –1.3% due to higher capital spending and a smaller reduction in working capital. Although the two relevant balance sheet items were further reduced by € –80 million in 2013, this total nevertheless fell short of the exceptionally high reduction of € –114 million achieved in 2012.

Performance Materials | Business free cash flow

€ million	2013	2012	Change in %
EBITDA pre one-time items	779.7	741.9	5.1
Investments in property, plant and equipment, software as well as advance payments for intangible assets	–71.7	–57.9	23.8
Changes in inventories	37.2	117.9	–68.4
Changes in trade accounts receivable	42.6	–3.8	–
Business free cash flow	**787.8**	**798.1**	**–1.3**

The development of business free cash flow in the individual quarters in comparison with 2012 is presented in the following table:

Performance Materials | Business free cash flow and change by quarter[1]



[1] Quarterly breakdown unaudited

2013 2012

Merck Millipore

Overview of 2013

→ Robust portfolio and solid organic growth counterbalance difficult market environment and negative foreign exchange effects
→ All business units contribute to organic growth, especially in Emerging Markets
→ Profitability increases by approximately one percentage point owing to strong business performance and strict cost control

Merck Millipore | Key figures

€ million	2013	2012	Change in %
Total revenues	2,645.3	2,616.9	1.1
Sales	2,627.5	2,598.2	1.1
Operating result (EBIT)	262.0	251.7	4.1
Margin (% of sales)	10.0	9.7	
EBITDA	589.8	560.9	5.2
Margin (% of sales)	22.4	21.6	
EBITDA pre one-time items	642.8	614.4	4.6
Margin (% of sales)	24.5	23.6	
Business free cash flow	493.8	511.3	–3.4

Development of total revenues and sales as well as results of operations

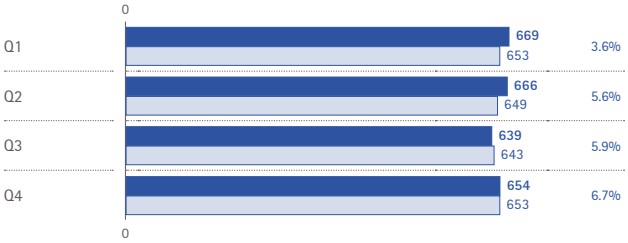
In 2013, the Merck Millipore division generated strong organic sales growth of 5.5% despite a challenging market environment. Biochrom AG, Berlin, which was acquired in 2012, contributed 0.5% to the increase in sales in 2013. Taking into account a negative foreign exchange impact of –4.8%, divisional sales increased by 1.1% to € 2,628 million (2012: € 2,598 million). Currency headwinds stemmed mainly from the Japanese yen, the U.S. dollar, and the Indian rupee. At € 18 million, the royalty, license and commission income recorded by the Bioscience and Process Solutions business units remained at the previous year's level.

→ *Merck Millipore*

The development of sales in the individual quarters in comparison with 2012 as well as the respective organic growth rates are presented in the following table:

Merck Millipore | Sales and organic growth by quarter[1]

€ million/organic growth in %

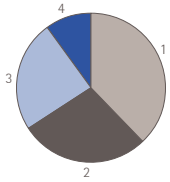


[1] Quarterly breakdown unaudited

2013 2012

Merck Millipore | Sales by region – 2013

€ million/% of divisional sales



1	Europe	1,010.5	39%
2	North America	711.5	27%
3	Emerging Markets	642.4	24%
4	Rest of World	263.1	10%

In 2013, the Merck Millipore division achieved positive organic growth rates in all regions. However, negative foreign exchange effects were registered in all regions as well.

As the division's largest geographic market accounting for 39% of divisional sales (2012: 37%), Europe generated sales of € 1,010 million (2012: € 966 million), representing organic sales growth of 4.2%. The rise in sales was driven by all three business units: Process Solutions, Lab Solutions and Bioscience.

→ *Merck Millipore*

In North America, sales grew organically by 4.1%, largely offset by negative foreign exchange effects. Reported growth was 1.2%, which represents an increase in sales to € 711 million (2012: € 703 million). The organic increase in sales in this region mainly came from products from the Process Solutions and Lab Solutions business units, offsetting weaker demand for laboratory materials from the Bioscience business unit.

The Emerging Markets region registered organic sales growth of 10.5% and a negative foreign exchange impact of –6.6%. Including acquisition effects of 0.1%, sales rose to € 642 million (2012: € 617 million). The strong organic sales development was fueled by good demand for products from all the division's business units. The share of divisional sales generated by the Emerging Markets region remained at the previous year's level of 24%.

As a result of significant currency headwinds of –18.2%, especially relative to the Japanese yen, sales in the Rest of World region declined to € 263 million (2012: € 312 million). With slight organic growth of 2.4%, this region's share of divisional sales declined to 10% (2012: 12%).

Merck Millipore | Sales components by region – 2013

€ million/change in %	Sales	Organic growth	Exchange rate effects	Acquisitions/ divestments	Total change
Europe	1,010.5	4.2	–0.7	1.2	4.6
North America	711.5	4.1	–2.9	–	1.2
Emerging Markets	642.4	10.5	–6.6	0.1	4.1
Rest of World	263.1	2.4	–18.2	–	–15.8
Merck Millipore	**2,627.5**	**5.5**	**–4.8**	**0.5**	**1.1**

All three business units contributed to the organic growth of the division in 2013. In particular, Lab Solutions and Process Solutions, the two top-selling business units, generated good growth rates owing to price increases and higher sales volumes. Lab Solutions, which accounted for an unchanged 42% share of divisional sales, delivered good organic sales growth of 5.4% with its broad range of products for researchers and scientific laboratories. However, negative foreign exchange effects of – 5.4% completely canceled out this growth. The business unit's sales thus remained on par with 2012, amounting to € 1,097 million. Organic growth was mainly driven by elevated demand for biomonitoring solutions, particularly from customers in the pharmaceutical industry, as well as by price increases.

→ *Merck Millipore*

The Process Solutions business unit, which markets products and services for the pharmaceutical production value chain, generated organic sales growth of 7.7%, which was the highest rate within the Merck Millipore division. Taking into account a negative foreign exchange effect of –4.1% as well as the increase in sales of 1.1% due to the acquisition of Biochrom AG, sales amounted to € 1,096 million in 2013 (2012: € 1,046 million). Process Solutions thus accounted for 42% of divisional sales (2012: 40%). The increase was driven by higher demand from the pharmaceutical industry for products used in biopharmaceutical manufacturing, especially in Asia and the United States.

The Bioscience business unit, which primarily markets products and services for pharmaceutical, biotechnology and academic research laboratories, recorded a slight increase in organic sales of 0.3%. Including an adverse foreign exchange impact of –4.8%, sales amounted to € 434 million (2012: € 455 million). In particular, across-the-board health care spending cuts in the United States softened demand. The share of divisional sales accounted for by Bioscience in 2013 was 16% (2012: 18%).

Merck Millipore | Sales components by business unit – 2013

€ million/change in %	Sales	Organic growth	Exchange rate effects	Acquisitions/ divestments	Total change
Bioscience	434.2	0.3	–4.8	–	–4.5
Lab Solutions	1,097.4	5.4	–5.4	–	–
Process Solutions	1,095.9	7.7	–4.1	1.1	4.8

In 2013, cost of sales amounted to € 1,104 million (2012: € 1,086 million) and rose by 1.7% compared with 2012. Nevertheless, this yielded a slightly higher gross profit of € 1,541 million (2012: € 1,531 million). Despite negative foreign exchange effects, gross margin, as a percentage of sales, remained virtually unchanged at 58.6% (2012: 58.9%).

Marketing and selling expenses increased by 1.1% to € 683 million (2012: € 676 million). In 2013, the division recorded a decline of –2.1% in administration expenses to € 99 million (2012: € 101 million). The net increase in other operating expenses from € 117 million to € 121 million was mainly due to one-time items (including impairments) of € 70 million (2012: € 54 million).

Merck Millipore's R&D expenses fell as a result of foreign exchange effects, among other things, to € 160 million (2012: € 166 million). In 2013, the ratio of R&D spending to sales was therefore 6.1% (2012: 6.4%). In order to ensure a steady stream of product innovations, R&D expenses will remain at a high level going forward. The Process Solutions business unit accounts for the vast majority of the R&D budget.

→ *Merck Millipore*

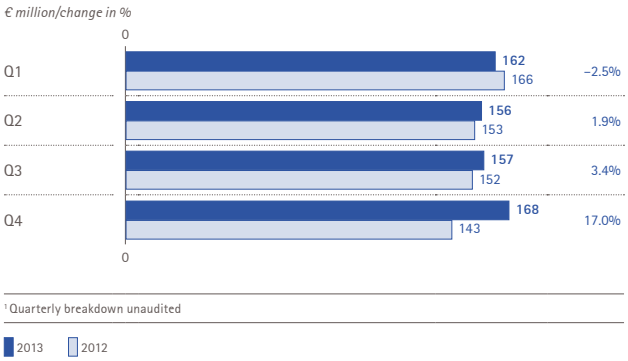
Currency translation effects were mainly responsible for the decline in amortization of intangible assets from € 204 million to € 200 million. Including these effects, the division's operating result (EBIT) rose by 4.1% to € 262 million (2012: € 252 million). After eliminating depreciation and amortization, EBITDA rose by 5.2% to € 590 million (2012: € 561 million). Adjusted for one-time charges, EBITDA pre rose by 4.6% to € 643 million, or 24.5% of sales (2012: € 614 million, 23.6% of sales). Despite unfavorable foreign exchange developments and the difficult market situation in North America, Merck Millipore increased its EBITDA pre margin, reflecting strong organic growth, a resilient portfolio, and strict cost control.

Merck Millipore | Reconciliation EBIT to EBITDA pre one-time items

€ million	2013	2012	Change in %
Operating result (EBIT)	**262.0**	**251.7**	**4.1**
Depreciation/Amortization/Reversals of impairments	327.8	309.2	6.0
EBITDA	**589.8**	**560.9**	**5.2**
One-time items	53.0	53.5	–0.9
EBITDA pre one-time items	**642.8**	**614.4**	**4.6**

The development of EBITDA pre one-time items in the individual quarters in comparison with 2012 is presented in the following table:

Merck Millipore | EBITDA pre one-time items and change by quarter[1]



[1] Quarterly breakdown unaudited

→ *Merck Millipore*

Development of business free cash flow

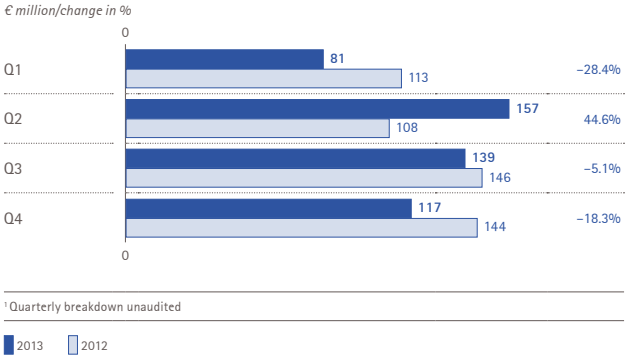
In 2013, the Merck Millipore division generated business free cash flow of € 494 million (2012: € 511 million). The –3.4% decline was largely due to the change in working capital. Whereas the total decrease of € –15 million in working capital had a positive impact on business free cash flow in 2012, the increase in the relevant balance sheet items by € 27 million in 2013 lowered this key figure accordingly. This effect was partially offset by the increase in EBITDA pre one-time items.

Merck Millipore | Business free cash flow

€ million	2013	2012	Change in %
EBITDA pre one-time items	642.8	614.4	4.6
Investments in property, plant and equipment, software as well as advance payments for intangible assets	–121.7	–118.0	3.1
Changes in inventories	–21.3	0.2	–
Changes in trade accounts receivable	–6.0	14.7	–
Business free cash flow	**493.8**	**511.3**	**–3.4**

The development of business free cash flow in the individual quarters in comparison with 2012 is presented in the following table:

Merck Millipore | Business free cash flow and change by quarter[1]



[1] Quarterly breakdown unaudited

Corporate and Other

Corporate and Other comprises Group administration expenses for Group functions that cannot be directly allocated to the divisions, such as Finance, Procurement, Legal, Communications, and Human Resources. Corporate costs additionally encompass expenses for central, non-allocated IT functions, including expenses related to the expansion and harmonization of IT systems within the Merck Group. Accordingly, Corporate and Other has no sales to report. Gains or losses on currency hedging are also disclosed in Corporate and Other.

Corporate and Other | Key figures

€ million	2013	2012	Change in %
Operating result (EBIT)	–259.7	–453.1	–42.7
EBITDA	–244.0	–445.1	–45.2
EBITDA pre one-time items	–196.7	–282.9	–30.5
Business free cash flow	–281.2	–309.1	–9.0

In 2013, administration expenses recorded under Corporate and Other increased to € 206 million (2012: € 183 million). "Other operating income and expenses" showed net expenses of € 47 million (2012: € 262 million) for Corporate and Other. The sharp decline in net expenses compared with 2012 was mainly attributable to one-time items as well as to the foreign currency result from operating activities. Expenses classified as one-time items amounted to € 47 million in 2013 (2012: € 162 million). The significant decrease in comparison with 2012 resulted mainly from the reduced restructuring charges for the "Fit for 2018" transformation and growth program as well as from gains/losses from businesses already divested. In 2013, the foreign currency result showed income of € 32 million, whereas a loss of € –58 million was posted in 2012.

Overall, the aforementioned effects improved EBIT by 42.7% to € –260 million (2012: € –453 million) and EBITDA by 45.2% to € –244 million (2012: € –445 million). Adjusted for one-time effects, EBITDA pre totaled € –197 million in 2013 (2012: € –283 million). The business free cash flow reported under Corporate and Other amounted to € –281 million in 2013 (2012: € –309 million).

Report on Risks and Opportunities

Risks and opportunities are inherent to entrepreneurial activity. Merck has put systems and processes in place to identify risks at an early stage and to counteract them by taking appropriate action. At Merck, opportunity management is an integral component of internal decision-making processes such as short- and medium-term operational planning and intra-year business plans. We are pursuing the goal of exploiting opportunities and thereby enhancing the benefit to the Merck Group.

Risk and opportunity management

Merck is part of a complex, global business world and is exposed to a multitude of external and internal influences. Every business decision is therefore based on the associated risks and opportunities.

In our internal risk reporting, risks are defined as possible future events or developments that could lead to a negative deviation from our (financial) targets. In parallel, opportunities are defined as possible events or developments that imply a positive deviation from our planned (financial) targets.

Risk management process

The objective of our risk management activities is to recognize, assess and manage risks early on and to implement appropriate measures to minimize them. The responsibilities, objectives and process of risk management are described in our internal risk management guideline. Group Controlling & Risk Management forms the organizational framework for risk management and reports directly to the Group Chief Financial Officer.

Within the context of the Group-wide risk management process, the division heads, managing directors of Merck subsidiaries and heads of Group functions are specified as employees with responsibility for risk. The group of consolidated companies for risk reporting purposes is the same as the group of consolidated companies for the consolidated financial statements. Every six months, the risk owners assess their risk status and report their entire risk portfolio to Risk Management. In addition to presenting risks, this also includes reporting on measures to minimize risk. Merck uses special risk management software in the context of these activities.

Internal Auditing conducts regular reviews

Risks are assessed in the internal risk management process on the basis of their possible negative effect on the forecast financial targets and their anticipated probability of occurrence. If risk-mitigating measures can be taken, their impact on risk is also assessed. The residual risk after the implementation of mitigation measures is presented in the internal risk report as net risk. The planned timeframe for implementation and the assumed mitigation effect are tracked by Group Risk Management.

Group Risk Management uses the information reported to determine the current risk portfolio for the Merck Group, presenting this in a report to the Executive Board, the Supervisory Board and the Finance Committee with detailed explanations twice per year. Furthermore, significant changes in the assessment of the risks already known and new significant risks can be reported at any time and are communicated to the corporate bodies on an ad hoc basis.

For the standard process, a lower limit for risk reporting is set at a value of € 5 million, and for the ad hoc process at a value of € 25 million. Risks below these limits are managed independently in the units. The relevant timeframe for internal risk reporting is five years. The effect of risks is presented as an annual value.

→ *Report on Risks and Opportunities*

The assessment of the risks presented relate to December 31, 2013. There were no relevant changes after the end of the reporting period that would have necessitated an amended presentation of the risk situation of the Group.

Within the scope of audits, Group Internal Auditing regularly reviews the performance of risk management processes within the units and, at the same time, the communication of relevant risks from the operating units to Group Risk Management.

In addition to these bottom-up processes, Group Risk Management addresses potential risks and risk areas on a top-down basis. This process is based on independent analyses of both internal and external information.

Opportunity management process

Selective investments in growth markets are part of the Group opportunity management process

The risk management system described concentrates on business risks, and not on opportunities at the same time. The Merck Group's opportunity management process is integrated into our internal controlling processes and carried out in the operating units on the basis of the Group strategy. The divisions analyze and assess potential market opportunities as part of strategy and planning processes. In this connection, investment opportunities are examined and prioritized in terms of their potential value proposition to Merck in order to ensure an effective allocation of resources. Thereby, Merck selectively invests in growth markets to leverage the opportunities of dynamic development and customer proximity at a local level.

If the occurrence of the identified opportunities is rated as likely, they are incorporated into the business plans and the medium-term forecasts. Trends going beyond this or events that could lead to a positive development in the net assets, financial position and results of operations are presented in the following report as opportunities. These could result in a positive deviation from forecasts and Merck's medium-term prospects.

Risk and opportunity assessment

Risks

The significance of risks to Merck is calculated on the basis of their possible negative impact on the forecast financial targets in conjunction with the probability of occurrence of the respective risk. In line with these two factors, risks are classified as "high", "medium" or "low".

The underlying scales for measuring these factors are shown below:

Probability of occurrence

Probability of occurrence	Explanation
< 20%	Unlikely
20 – 50%	Possible
51 – 80%	Likely
> 80%	Very likely

→ *Report on Risks and Opportunities*

Degree of impact

Degree of impact	Explanation
> € 50 million	Critical negative impact on the net assets, financial position and results of operations
€ 20 – 50 million	Substantial negative impact on the net assets, financial position and results of operations
€ 5 – 20 million	Moderate negative impact on the net assets, financial position and results of operations
< € 5 million	Insignificant negative impact on the net assets, financial position and results of operations

In our process, individual risks are quantified as specifically as possible and the probability of occurrence of the risk is estimated. The combination of the two factors results in the risk matrix below, which shows the individual risks and their significance to Merck.

Risk matrix

Impact	Risk matrix			
> € 50 million	Medium	Medium	High	High
€ 20 – 50 million	Medium	Medium	Medium	High
€ 5 – 20 million	Low	Medium	Medium	Medium
< € 5 million	Low	Low	Low	Low
Probability of occurrence	< 20%	20 – 50%	51 – 80%	> 80%

Opportunities

Opportunities are assessed in their respective specific business environment. Marketing measures for operational planning are usually quantified in relation to sales and EBITDA. Net present value, the return on capital employed (ROCE) and the amortization period of the investment are used to assess and prioritize investment opportunities. Similarly, scenarios are frequently set up to simulate the influence of possible fluctuations and changes in the respective factors on results. There is no overarching, systematic classification of the probability of occurrence and impact of opportunities.

→ *Report on Risks and Opportunities*

Internal control system for the Group accounting process

The objective of the internal control system for the accounting process is to implement controls that provide assurance that the financial statements are prepared in compliance with the relevant accounting laws and standards. It covers measures designed to ensure the complete, correct and timely transfer and presentation of information that is relevant to the preparation of the consolidated financial statements and the management report of the Merck Group.

The control system is subject to continuous further development and is an integral component of the accounting and financial reporting processes in all relevant local units and Merck Group functions.

With respect to the accounting process, the measures of the internal control system are intended to minimize the risk of a material misstatement in the consolidated accounting process of the Merck Group.

Key tools

The internal control system is geared to ensuring the accuracy of the consolidated accounting process and the implementation of internal controls for the preparation of compliant financial statements with reasonable assurance. The Group Accounting function centrally steers the preparation of the consolidated financial statements of Merck KGaA as the parent company of the Merck Group. This Group function defines the reporting requirements that all Merck subsidiaries must meet as a minimum requirement. At the same time, this function steers and monitors the scheduling and process-related requirements of the consolidated financial statements. The Group-wide accounting guidelines form the basis for the preparation of the statutory financial statements of the parent company as well as of the German and foreign subsidiaries; the guidelines are adapted to reflect changes in the financial regulatory environment and are updated in accordance with internal reporting requirements. One of the requirements of the Group-wide guidelines is to present internal business processes as the basis for proper settlement of intercompany balances. Additional controls have been implemented in the consolidation process.

Group Accounting also ensures the timely central management of changes to the equity holding structure and correspondingly adapts the Merck Group's scope of consolidation. The individual companies have a local internal control system. Where financial processes are handled by a Shared Service Center, the internal control system of the Shared Service Center is additionally applied. They ensure that accounting complies with IFRS (International Financial Reporting Standards) and with the Merck Group accounting guidelines.

Group Accounting provides support to the local contacts and ensures a consistently high quality of reporting throughout the entire reporting process.

The accounting process is designed at all levels to ensure a clearly defined segregation of duties and assignment of responsibilities to the units involved in the accounting process at all times within the scope of continuous dual control.

For the assessment of balance sheet items, Group Accounting closely cooperates with Group Risk Management in order to correctly present potential balance sheet risks. For special issues, such as the measurement of intangible assets and pension obligations, external experts are additionally involved where necessary. For the Group accounting process, Merck uses in most countries a standard SAP software tool. Via a detailed authorization concept to limit user rights on a need-to-have basis, and in line with the principles of the separation of duties, the system contains both single-entity reporting and the consolidated financial statements.

→ *Report on Risks and Opportunities*

The effectiveness of Merck's internal control system with regard to accounting and the compliance of financial reporting by the individual companies is confirmed by both the local managing director and the local chief financial officer when they sign the single-entity reporting. All the structures and processes described are subject to regular review by Group Internal Auditing based on an annual audit plan set out by the Executive Board. The results of these audits are dealt with by the Executive Board, the Supervisory Board and the Finance Committee.

The internal control system at Merck makes it possible to lower the risk of material misstatements in accounting to a minimum. However, no internal control system – regardless of its design – can entirely rule out a residual risk.

Business-related risks and opportunities

Changes in customer demand or new political conditions can impact the forecast results

Merck integrates its risk management into its ongoing business planning processes. Identified risks and opportunities are taken into account in internal planning provided that it can be assumed that these risks and opportunities are probable in the planning period. The risks and opportunities presented in the risk and opportunities report below are those possible future events that could respectively lead to a further negative or positive deviation from planning.

Potential extraordinary negative developments, such as changes in customer demand or new political conditions, are identified, described and assessed as part of the internal risk management process. We can therefore take countermeasures early on if any events lead to deviations from planning. Risks in connection with investment decisions are mitigated by the use of detailed guidelines.

During the planning processes, potential business opportunities are also analyzed and discussed alongside risks. As part of its Group strategy, Merck actively pursues the opportunities that arise, investing selectively in, for example, growth markets. Furthermore, deviations from the macroeconomic conditions assumed in planning, such as economic growth and expected segment-specific developments, e.g. change in the demand for key products of the Merck Serono division, can lead to positive deviations from the planned results.

Political and regulatory risks and opportunities

As a global company, Merck faces political and regulatory changes in a large number of countries and markets.

Risk of more restrictive regulatory requirements regarding drug pricing, reimbursement and approval

In its Pharmaceuticals business, Merck faced increasingly restrictive requirements in 2013 in terms of drug pricing, reimbursement and approval, a trend familiar in many countries. These requirements can negatively influence the profitability of Merck's products and jeopardize the success of market launches and new approvals. Close communication with health and regulatory authorities serves as a preventive measure to avert risks. The risks are classified on a market- and product-specific basis; overall this is rated as a medium risk to Merck.

→ *Report on Risks and Opportunities*

Merck is subject to the European chemicals regulation REACH

Risk of stricter regulations for the manufacture, testing and marketing of products

In its Chemicals business, Merck must adhere to a multitude of regulatory specifications regarding the manufacture, testing and marketing of many of its products. More stringent regulations worldwide can have a negative impact on Merck's production costs and product portfolio. Specifically in the European Union, Merck is subject to the European chemicals regulation REACH, which is designed to ensure a high level of protection for people and the environment. It demands comprehensive tests for chemical products. Test procedures can be costly and time-intensive, and lead to a rise in production costs. Moreover, the use of chemicals in production could be restricted, which would make it impossible to continue manufacturing certain products. As Merck is constantly pursuing research and development in substance characterization, and in the possible substitution of critical substances, the occurrence of this risk is thought unlikely. Nevertheless, it is still classified as a medium risk given its potential impact on the net assets, financial position and results of operations.

Risk of destabilization of political systems and the establishment of trade barriers

Like changes in monetary policy, the destabilization of political systems and the possible establishment of trade barriers can lead to declines in sales in certain countries and regions. Diversification in terms of products, industries and regions enables the mitigation of potential negative effects. The effects of corresponding risks are taken into account to the best of ability in the business plans for the countries and regions concerned. In particular, our business can furthermore be affected by macroeconomic developments in, for example, Venezuela and Argentina. Corresponding sales strategy measures have been introduced in these countries to minimize the impact on business. Nevertheless, the residual net risk could have a substantial effect on the net assets, financial position and results of operations and its occurrence is considered possible. Merck rates this as a medium risk overall.

Opportunity of positive benefit/risk assessment of Erbitux® for patients with metastatic colorectal cancer (mCRC)

At the end of 2013, the European Commission approved the updated labeling for one of the main products of the Merck Serono division, Erbitux® (cetuximab) for metastatic colorectal cancer, to include patients with RAS wild-type tumors. In doing so the European Commission followed the positive opinion from the Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA) also issued at the end of 2013, which advocated the amendment of product information. The exact effect of the updated approval status can be quantified only with difficulty, but it could lead to slight additional increases in the sales assumed for Erbitux®.

Market risks and opportunities

Merck competes with numerous companies in the pharmaceutical, chemical and life science sectors. Rising competitive pressure can have a significant impact on the quantities sold and prices possible for Merck products and services.

→ *Report on Risks and Opportunities*

Market risks at Merck Serono due to increasing competitive pressure, especially with respect to Rebif®

Risk and opportunity of a changing market environment for multiple sclerosis products in the EU

In 2014, the Merck Serono division will face tougher competition as a result of significant changes in the market environment for multiple sclerosis products in the EU. Several new competitors to our product Rebif® are expected to enter the market. Strategies for defending market share have been launched and their impact as well as the development of the market, are being monitored on an ongoing basis. The Merck Serono division has made assumptions to this effect in its planning, however there could probably be an additional moderate impact nevertheless on the net assets, financial position and results of operations. This is rated as a medium risk. If there are delays in the market entry of competitors, a slight improvement in the sales situation for Rebif® compared to planning is possible.

Risk of greater competitive pressure due to biosimilars

Furthermore, biological products from the Merck Serono division could come under greater competitive pressure from biosimilars. Specific regulatory directives apply to the development and approval of competing biosimilars that use the reference data of biological products already approved. Frameworks have been drawn up in both the EU and the United States to enable biosimilars to enter the markets as soon as the exclusive rights of the original products expire. The products Rebif® and Gonal-f® could be affected in particular. The effects of corresponding risks are taken into account as far as possible in the plans for the countries and regions concerned.

Market opportunities offered by partnership with Dr. Reddy's Laboratories Ltd. in India and economic recovery in Europe

Opportunity due to the existing partnership in the field of biosimilars

The prospects of the development and approval of biosimilars also entail opportunities for Merck. Over nearly the past two years, Merck has taken its first steps in this direction and, among other courses of action, has entered into a partnership with Dr. Reddy's Laboratories Ltd., Hyderabad, India, for the joint development of a portfolio of biosimilars in oncology. The cost of development has been taken into account in Merck's plans, while a significant contribution to sales development is not to be expected until the medium to long term.

Opportunity due to unexpectedly strong economic recovery in Europe and the United States

A stronger economic recovery in Europe and the United States than forecast by Merck, and the associated rise in investment activity by the private and public sectors is an opportunity for the Merck Millipore division in particular, as well as for the other divisions. Both public spending on academic institutions and the research costs of pharmaceutical companies recently came under heavy pressure as a result of the financial crisis and the high sovereign debt of many key countries. However, the probability of a more rapid recovery is low, and a possible effect is therefore also rated as immaterial.

Opportunity due to screen size growth in the display market

The development in the display market is currently being driven by growing screen sizes in particular. In addition, major events such as the FIFA World Cup 2014 in Brazil could stimulate consumer demand for the latest TVs. Therefore, we by all means see the possibility of a somewhat more positive development in the display market than forecast for 2014. However, the effect on sales and EBITDA pre one-time items in the Performance Materials division would be rather marginal in such a case as the market is dominated by other effects such as price pressure and continuing competition.

→ *Report on Risks and Opportunities*

Opportunity due to positioning of core strategic brands in the Consumer Health division

Initiative launched to improve the positioning of Consumer Health

There is the opportunity for the Consumer Health division in particular to further consolidate the position of its core strategic brands and to expand its presence in the emerging markets. An initiative has been launched for this purpose that can sustainably contribute to growth in sales and EBITDA pre one-time items. The transfer of the products Neurobion® and Floratil® to the division as of January 1, 2014 could provide additional impetus since this will enable Consumer Health to expand its focus on strategic brands.

Risks and opportunities of research and development

For Merck, innovation is a major element of the Group strategy. Research and development projects can experience delays, expected budgets can be exceeded, or targets remain unmet. Research and development are of special importance to the Pharmaceuticals business. Therefore, research and development projects are constantly monitored by the internal portfolio management system. In the course of portfolio management, we regularly evaluate and, if necessary, refocus research areas and all R&D pipeline projects.

Risks of discontinuing development projects and regulatory approval of developed medicines

Sometimes development projects are discontinued at a late phase of clinical development after high levels of investment. Decisions – such as those relating to the transition to the next clinical phase – are taken with a view to minimizing risk. Furthermore, there is the risk that the regulatory authorities either do not grant or delay approval, which can have an impact on earnings. Additionally, there is the danger that undesirable side effects of a pharmaceutical product could remain undetected until after approval or registration, which could result in a restriction of approval or withdrawal from the market.

Merck is currently not aware of any risks beyond general development risks that could significantly affect the net assets, financial position and results of operations.

Opportunities due to new initiatives in research and development

Implementation of a new organizational structure and strengthening external research

Merck has made major changes to pharmaceutical research and development in the past two years. A new organizational structure was implemented and the level of external research was raised. For example, the company's own strategic venture capital fund MS Ventures was increased to € 100 million and research collaborations in Israel were intensified. The Merck Serono pipeline was redesigned and new development agreements were entered into, for example with Threshold Pharmaceuticals Inc. Similarly, Merck is pursuing an innovative approach in the development and performance of clinical trials, and has entered into a strategic alliance with Quintiles, the world's largest service provider for biopharmaceutical development and marketing. Owing to the relatively long cycles in active ingredient development, Merck expects that the effects of these changes will not be reflected in the results of the Merck Serono division until some point in the medium to long term, but feels that there are excellent prospects for future sales and profitability.

→ *Report on Risks and Opportunities*

Risks and opportunities of product quality and availability

Risk of a temporary ban on products/production facilities or of non-registration of products due to non-compliance with quality standards

Internal inspections and external audits to ensure compliance with quality standards

Merck is required to comply with the highest standards of quality in the manufacture of pharmaceutical products (Good Manufacturing Practice). In this regard Merck is subject to the supervision of the regulatory authorities.

Conditions imposed by national regulatory authorities could result in a temporary ban on products/production facilities, and possibly affect new registrations with the respective authority. Merck takes the utmost efforts to ensure compliance with regulations, regularly performs its own internal inspections and carries out external audits. Despite these quality assurance processes, the occurrence of a risk cannot be wholly ruled out, however it is considered unlikely. Depending on the product concerned and the severity of the objection, such a risk could have a critical negative impact on the net assets, financial position and results of operations. Therefore, Merck rates this as a medium risk.

Risk of an import ban on products to the United States due to an FDA warning letter

On December 15, 2011, Merck received a warning letter from the United States Food and Drug Administration (FDA) in connection with inspections of production facilities in Tiburtina (Italy) as well as Aubonne and Vevey (Switzerland). Rebif® and other products intended for sale in the United States are manufactured at these sites. Above all, the letter referred to various procedures in conjunction with the manufacture of Rebif® that, in the opinion of the FDA, were not fully in compliance with the standards of Good Manufacturing Practice. Over the past two years, Merck has worked closely with the FDA to eliminate these concerns. Corrective action was coordinated with the FDA and implemented in a timely manner. The FDA conducted follow-up inspections in 2013. The procedure had not yet been formally closed out by the FDA on the reporting date. However, in the successful follow-up inspections of all three production sites concerned, it was confirmed in writing that the action taken was considered adequate. Given the corrective action taken, the probability of occurrence of a possible import ban on the products concerned to the United States has been downgraded to unlikely. On the basis of the potentially damaging effect on the net assets, financial position and results of operations until the procedure is closed out by the FDA, Merck rates this as a medium risk.

Risks of dependency on suppliers

Quality controls along the entire value chain minimize the risks related to product quality and availability. This begins with the qualification of our suppliers and continues with comprehensive quality requirements for raw materials, purchased semi-finished goods and facilities as well as long-term strategic alliances for precursor products critical to supply and price. Merck is dependent on individual suppliers of precursor products for some of its main products. In the event that one of these suppliers curtails or discontinues production, or supply is disrupted, this would possibly have a critical impact on the Merck operations concerned. With long-term strategic alliances for precursor products critical to supply and price as well as alternative sourcing strategies, Merck minimizes the probability of occurrence of these risks and rates them as unlikely. Overall, these are classified as medium risks.

→ *Report on Risks and Opportunities*

Damage and product liability risks

Further risks include the risk of operational failures due to force majeure, for example natural disasters such as floods or earthquakes, which could lead to a substantial interruption or restriction of business activities. Insofar as it is possible and economical to do so, the Group limits its damage risks with insurance coverage, the nature and extent of which is constantly adapted to current requirements. Although the occurrence of these risks is considered unlikely, an individual event could have a critical effect on the net assets, financial position and results of operations and is therefore classified as a medium risk.

Danger of product liability risks

Companies in the chemical and pharmaceutical industries are exposed to product liability risks in particular. Product liability risks can lead to considerable claims for damages and costs to avert damages. Merck has taken out the liability insurance that is standard in the industry for such risks. However, it could be that the insurance coverage available is insufficient for individual cases. Although the occurrence of product liability claims in excess of the existing insurance coverage is considered unlikely, individual cases could still have a critical effect on the net assets, financial position and results of operations. Merck therefore rates potential product liability risk as a medium risk.

Risks due to product-related crime and espionage

Merck Anti-Counterfeiting Operational Network in place to fight product-related crime

As a manufacturer and supplier of high-quality pharmaceuticals and chemicals, Merck – like other companies in the chemical and pharmaceutical industries – faces certain risks due to crime. These include, among others, theft, misuse and counterfeiting of products (including attempts at these crimes). This often goes hand in hand with an infringement of trademark rights. The professionalism and complexity of product-related crime has increased significantly in recent years. In the relevant cases, Merck works closely and trustfully with the competent prosecution authorities in the countries concerned. To combat product-related crime, several years ago Merck established an internal coordination network covering all functions and divisions ("Merck Anti-Counterfeiting Operational Network") headed by Group Security, which provides a reliable interface to authorities, associations and partner companies. Particularly with regard to the unknown number of cases in the area of product-related crime, the material damage to Merck cannot be estimated. Its influence on business activities depends on the individual case in question as well as factors specific to regions and products. Product-related crime is therefore categorized as a medium risk at Merck.

At Merck, the undesirable loss of information by any possible form of offence is subsumed under the risk category "espionage". Above all, particular importance is attached in this regard to the protection of sensitive business information, data protection and the protection of tangible and intangible expertise. On the one hand this intersects with risks resulting from digital data processing and communication, but it also covers threats that are not IT-based. With the aim of preventing unwanted diversion of information, a high-ranking Intellectual Property Management Committee (IPMC) was established in one division at Merck as a pilot scheme. Spearheaded by Group Security, it applies a holistic protection concept that, in addition to technical IT security, information and data protection measures, also comprises further targeted security measures. The risk of an unwanted loss of information due to espionage is classified as possible despite the measures taken and could significantly impact the net assets, financial position and result of operations.

→ *Report on Risks and Opportunities*

Opportunities due to local presence in high-growth markets
In the coming years, Merck is still anticipating strong growth in the emerging markets in all divisions. In order to further enable this growth, Merck has initiated several investment projects, such as the construction of new production facilities for liquid crystals and the establishment of a new Merck Serono site in China. The greater local presence and customer proximity can lend Merck a key competitive edge and, in the medium to long term, offers the opportunity for significant additional growth in sales and EBITDA pre one-time items.

Financial risks and opportunities

As a corporate group that operates internationally and due to its presence in the capital market, Merck is exposed to various financial risks and opportunities. Above all, these are liquidity and counterparty risks, market opportunities and risks, risks of fluctuations in the market values of operational tangible and intangible assets, as well as risks and opportunities from pension obligations.

Risk and opportunity management in relation to the use of financial instruments
In the area of financial risks and opportunities, Merck uses an active management strategy to reduce the effects of fluctuations in exchange and interest rates. The management of financial risks and opportunities by using derivatives in particular is regulated by extensive guidelines. Speculation is prohibited. Derivative transactions are subject to constant risk controls. A strict separation of functions between trading, settlement and control functions is ensured.

Liquidity risks

Merck has a central Group-wide liquidity management process

In order to ensure its continued existence, a company must be able to fulfill its commitments from operating and financial activities at all times. Merck therefore has a central Group-wide liquidity management process to reduce potential liquidity risks. Furthermore, Merck has a multi-currency revolving credit facility of € 2 billion with a term of five years and two extension options of one year each that, above and beyond the Group's positive operating cash flow, ensures continuing solvency if any liquidity bottlenecks occur. As our loan agreements do not contain any financial covenants, these agreed lines of credit can be accessed even if Merck's credit rating should deteriorate. In addition, in fiscal 2009 Merck set up a debt issuance program that forms the contractual basis for the issue of bonds. In 2013, the volume of this program was increased from € 10 billion to € 15 billion. The liquidity risk is rated as unlikely overall.

Counterparty risks
Counterparty risks arise from the potential default by a partner in connection with financial investments, loans and financing commitments on the one hand and receivables in operating business on the other.

As for counterparty risks from financial transactions, Merck reviews all positions relating to trading partners and their credit ratings on a daily basis. Merck manages financial risks of default by diversifying its financial positions and thereby by the active management of its trading partners. Significant financial transactions involving credit risk are entered into with banks and industrial companies that have a good credit rating. Moreover, Merck's large banking syndicate – the multi-currency revolving credit facility of € 2 billion was syndicated by 19 banks – reduces possible losses in the event of default.

→ *Report on Risks and Opportunities*

The solvency and operational development of trading partners is regularly reviewed as part of the management of operational counterparty risks. Sovereign risks are also analyzed; this focuses in particular on Italy, Spain, Greece, and Portugal. The volume of receivables of each customer is capped in line with their credit ratings. Risk-mitigating measures, such as credit insurance, are utilized as appropriate. Nevertheless, defaults by isolated trading partners, even those with outstanding credit ratings, cannot be entirely ruled out, although rated as unlikely (further information can be found in "Credit risks" under "Management of financial risks" in the notes to the consolidated financial statements). Counterparty risk is classified as a medium risk overall.

Market opportunities and risks

As a result of its international business activities and global corporate structure, Merck is exposed to risks and opportunities from fluctuations in exchange rates. These result from financial transactions, operating receivables and liabilities, forecast future cash flows from sales and costs in foreign currency. Merck uses derivatives to manage and reduce the above risks and opportunities. The exchange rates for transactions already recognized, such as operating receivables and liabilities in foreign currency, are essentially hedged. In certain cases, the exchange rate for forecast sales and future costs in foreign currency are hedged up to 36 months in advance (further information can be found in "Derivative financial instruments" in the notes to the consolidated financial statements).

Future refinancing and cash investments are exposed to the risks and opportunities of interest rate fluctuations. These are also managed and reduced using derivatives. Currency risks are rated as possible and after hedging are classed as a medium risk; interest rate risks are considered unlikely and are classed as a low risk.

Risks of impairment on balance sheet items

The carrying amounts of individual balance sheet items are subject to the risk of changing market and business conditions and thus to changes in fair values as well. If required, impairment losses can result in significant non-cash reductions in earnings and affect the accounting ratios. This applies in particular to the high level of intangible assets including goodwill, which have become significantly more important in the consolidated financial statements as a result of the acquisitions of Serono SA in 2007 and the Millipore Corporation in 2010, and the associated purchase price allocation (further information can be found under "Intangible assets" in the notes to the consolidated financial statements). All relevant risks were assessed during the preparation of the consolidated financial statements and taken into account accordingly. Merck rates risks beyond this as low.

Risk and opportunities from pension obligations

Merck has commitments in connection with pension obligations. The present value of defined benefit obligations can be significantly increased or reduced by changes in the relevant valuation parameters, e.g. the interest rate or future salary increases. Pension obligations are regularly assessed as part of annual actuarial reports. Some of these obligations are covered by the pension provisions reported in the balance sheet, while other obligations are externally funded (further information can be found under "Provisions for pensions and other post-employment benefits" in the notes to the consolidated financial statements). To the extent that pension obligations are covered by plan assets consisting of interest-bearing securities, shares, real estate, and other financial assets, decreasing or negative returns on these assets can adversely affect the fair value

→ *Report on Risks and Opportunities*

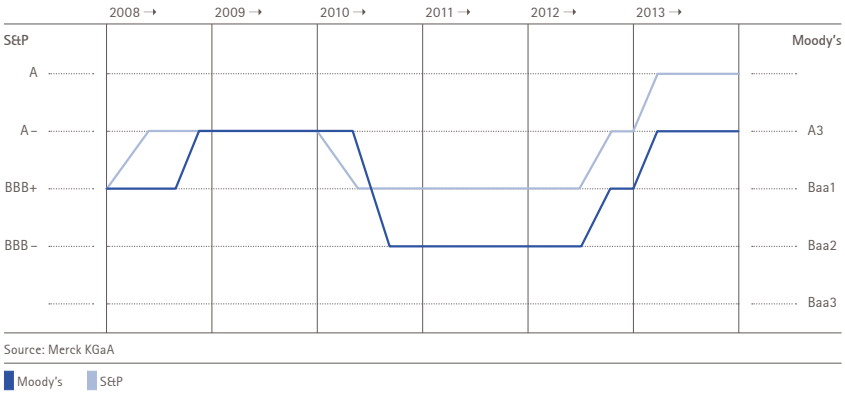
of plan assets and thus result in further additions to pension provisions. By contrast, rising returns increase the value of plan assets, thereby resulting in excess cover of plan liabilities. Merck increases the opportunities of fluctuations in the market value of plan assets on the one hand and reduces the risks on the other by using a diversified investment strategy. The risk of pension liabilities is considered possible and is classed as a medium risk.

Assessments by independent rating agencies

Credit rating is the best in Merck's history

The capital market uses the assessments published by rating agencies to help lenders to assess the risks of a financial instrument. Merck is currently rated by Standard & Poor's and Moody's, and its ratings from these agencies rose in 2013 to the best level in the history of the Merck Group: While Standard & Poor's issued a long-term rating of A with a stable outlook, Moody's issued it an A3 rating with a stable outlook. In line with market procedures, Merck's financing conditions are closely tied to its rating. The better a rating, the more favorably Merck can generally raise funds on the capital market or from banks.

Overview of rating development:



Source: Merck KGaA

Legal risks

The Merck Code of Conduct helps to control legal risks

Merck generally strives to minimize and control its legal risks. Merck has taken the necessary precautions to identify threats and defend our rights where necessary. A compliance program for our employees is in place around the world which requires them to comply with laws and guidelines, and which provides them with the relevant training and support. At the heart of this program is the Merck Code of Conduct, which sets out guidelines for ethical behavior. This program helps to reduce the risk of major legal violations, for example of the regulations defined by antitrust or anticorruption law.

Nevertheless, Merck is still exposed to litigation risks or legal proceedings. In particular, these include risks in the areas of product liability, competition and antitrust law, pharmaceutical law, patent law, tax law, and environmental protection. As a research-based company, Merck has a valuable portfolio of industrial

→ *Report on Risks and Opportunities*

property rights, patents and brands that can become the target of attacks and infringements. The outcome of future proceedings or those currently pending is difficult to foresee. Court or official rulings or settlements can lead to expenses with a significant impact on our business and earnings.

Tax risks are reviewed regularly and systematically by Group Tax. Corresponding standards and guidelines are used in order to identify tax risks at an early stage as well as to review, evaluate and correspondingly minimize them. Risk minimization measures are coordinated by Group Tax together with the subsidiaries abroad.

In our opinion, the lawsuits described below constitute the most significant legal risks. This should not be seen as an exhaustive list of all legal disputes currently ongoing. Generally, it is not possible to rule out that Merck will face third-party claims arising from the same issue despite the conclusion of legal proceedings.

Risks from product-related and patent law disputes

Rebif®: In Israel, Merck is party to three legal disputes with Israel Bio-Engineering Project Limited Partnership ("IBEP"). IBEP is asserting claims for intellectual property rights and the payment of license fees. The legal disputes are connected to the financing of the development of Rebif®, a drug for the treatment of multiple sclerosis, and other products in the early 1980s. Merck has taken appropriate accounting measures. In the liquidity assessment, Merck rates this risk high as potential critical negative effects cannot be ruled out.

Merck is also involved in a patent dispute in the United States with Biogen IDEC Inc. (Massachusetts, USA) ("Biogen"). Biogen claims that the sale of Rebif® in the United States infringes on a Biogen patent. The disputed patent was granted to Biogen in 2009 in the United States. Subsequently, Biogen sued Merck and other pharmaceutical companies for infringement of this patent. Merck defended itself against all allegations and brought a countersuit claiming that the patent was invalid and not infringed on by Merck's actions. A "Markman hearing" was held in January 2012. The parties are now engaged in court-ordered mediation proceedings. Merck has taken appropriate accounting measures. Given the potential critical negative effects of the dispute in the liquidity assessment, Merck nevertheless classifies this as a high risk.

Risks from antitrust law proceedings

Raptiva®: In December 2011, the Brazilian federal state of São Paulo sued Merck for damages owing to alleged collusion between various pharmaceutical companies and an association of patients suffering from psoriasis and vitiligo. This collusion is alleged to have been intended to increase sales of the medicines from the companies involved to the detriment of patients and state coffers. Moreover, patients are also suing for damages in connection with the product Raptiva®. Merck has taken appropriate accounting measures for these issues. Risks in excess of this with a substantial negative effect on the net assets, financial position and results of operations cannot be ruled out, but are considered unlikely. This is rated as a medium risk.

Risks from drug pricing by the divested Generics Group

Merck continues to bear the risk of having to defend against certain litigation brought against the Generics Group, which was sold to Mylan, Inc. (USA) in 2007. In this context, Merck remains responsible for risks from cases in the United States concerning drug pricing. Merck has taken appropriate accounting measures on the basis of possible scenarios. Since, in the worst case scenario, this would result in a substantial impact on the net assets, financial position and results of operations, with the possibility of the net risk occurring, Merck rates this as a medium risk.

→ *Report on Risks and Opportunities*

Paroxetine: In connection with the divested generics business, Merck is subject to antitrust investigations by the British Office of Fair Trading ("OFT") in the United Kingdom. In March 2013, the OFT informed Merck of the assumption that a settlement agreement entered into in 2002 between Generics (UK) Ltd. and GlaxoSmithKline in connection with the antidepressant drug paroxetine violates British and European competition law. As the owner of Generics (UK) Ltd. at the time, Merck was allegedly involved in the settlement negotiations and is therefore liable. The investigations into Generics (UK) Ltd. started in 2011, without Merck being aware of this. It is considered likely that the OFT will impose a fine on Merck. Merck has taken appropriate accounting measures. Given the lawsuit's potential substantial negative impact in the liquidity assessment, Merck nevertheless classifies this as a medium risk.

Citalopram: In June 2013, the European Commission imposed a fine on Merck for various agreements between its former subsidiary Generics (UK) Ltd. and the Danish company Lundbeck, which related to the antidepressant citalopram, patented by Lundbeck. Sufficient appropriate accounting measures have been taken for the risk. Merck has filed an appeal with the European Court.

Risks and opportunities in human resources

Retaining employees is one of Merck's declared aims

Merck's future growth is highly dependent on its innovative strength. Therefore, the expertise and engagement of employees in all areas in which Merck operates are crucial to the success of the company.

The markets relevant to Merck are characterized by intensive competition for qualified specialists and by demographic challenges. One of the key priorities for our company is therefore not just recruiting but also retaining specialists and talented employees in the long term. In this context, the focus on highly competitive and rapidly growing markets makes it especially necessary to have engaged employees. Fluctuation risks specific to countries and industries have to be identified ahead of time and specifically addressed in order to keep the skills and expertise critical to success and business within the company.

Merck addresses these challenges firstly with globally implemented talent and succession processes that systematically identify and promote the potential of employees. Furthermore, Merck uses targeted employee development programs to support young and experienced talented employees in their career development, particularly in our strategic markets, as well as to develop and retain expertise crucial to success within the company. These measures are supplemented by competitive compensation packages and attractive benefits that Merck regularly reviews through ongoing peer comparisons and audits, thereby securing and maintaining its financial appeal as an employer.

Sourcing, recruiting and retaining specialists and talent at Merck are among the company's top priorities. Nevertheless, employee-related risks that affect business activities are likely, even though their impact is difficult to assess. Merck rates this as a medium risk.

Increasing Merck's employer appeal in strategic growth markets has great potential for future business performance. Based on the studies and findings available to date, our initial assessment of the opportunities leads to a rating similar to the previously described employee-related risks.

Merck can therefore continue to increase the employer appeal of the "Merck brand" with the selective use of employer branding initiatives in the context of a defined talent sourcing strategy, thereby having a direct positive influence on recruiting and retaining key specialists and talent. Furthermore, Merck intends to hone its talent and succession management even more closely to the requirements of specific markets.

→ *Report on Risks and Opportunities*

Risks and opportunities of information technology

Merck utilizes a wide range of IT systems and processes to provide optimum focus and appropriate support for its globalization. Trends in information technology offer various opportunities for Merck.

Opportunities from the use of mobile platforms and solutions

Mobility offers unique opportunities for reaching and networking employees, partners and customers, and stimulates synergies between value added for the company and individual interests. Mobility not only means the mobile use of online services; it is changing the way people see digital services and bringing business activities closer to employees, customers and partners without limiting them at all. The trend towards mobility suggests that mobile platforms and solutions will become important channels in terms of digital networking.

Opportunities from networked collaboration and digital media

"Connect 15" to improve communication Group-wide

New developments in the field of networked collaboration and digital media are opening up excellent opportunities for contact with employees, partners and customers, and establishing new channels for teamwork, interaction and communication. In R&D at Merck, these developments especially benefit collaboration within the company and with external partners. In addition, socially-driven information technology can also aid interaction in the field of life sciences and thereby foster innovation. Merck has launched a Group-wide program known as "Connect 15". Its objective is to harmonize corresponding IT systems, to simplify communications around the world and to facilitate cooperation between employees, external partners and customers. In the long term, the program offers the opportunity to reduce operating costs and to enhance productivity within the organization.

Opportunities due to further harmonization of IT systems

Harmonized IT systems that map standardized business processes allow management to steer business consistently worldwide. This enables efficient working, the fast and smooth integration of new businesses and the easier leverage of synergy effects. In addition, this trend is being driven by the growth of cloud solutions, which benefits from the use of configurable standard solutions. The effect of this harmonization will be seen firstly in the reduction of operating costs, while secondly the increased transparency will mean the opportunity to make decisions faster and to greater beneficial effect.

The value added by information technology in day-to-day work is countered by potential risks that arise directly from the advantages of the global availability of electronic data storage.

Risk from e-crime and cyber attacks

With the Internet as a means and the abuse of digital technologies as a new type of crime, e-crime as a whole is developing rapidly and poses a major challenge. This is giving rise to threats to Merck such as the failure of central IT systems, the exposure of confidential data from research and business activities, the manipulation of IT systems in chemical process steering, or greater burdens on or impairment of IT systems due to virus attacks. This scenario also includes the temporary takeover of exposed systems by hackers and consequently the possible revocation of drug registrations due to deficient validation of relevant IT systems.

→ *Report on Risks and Opportunities*

Group Security is a member of the Alliance for Cyber Security of the German Federal Office for Information Security

The entire Merck Group has global security guidelines and information protection management for IT and "non-IT" areas, each with organizational and technical standards for access rights as well as information and data protection. Attention in the IT area is focused on hardening the corresponding systems and, for example, identifying cyber attacks. Group Security is a member of the Alliance for Cyber Security of the German Federal Office for Information Security. A pilot data leakage prevention project is currently being introduced at Merck to protect sensitive business information. The effectiveness of internal (IT) protection measures is monitored on an ongoing basis and reviewed by Group Security, Group Internal Auditing and third-party auditors.

The potential losses resulting from e-crime cannot be generally categorized, not least on account of the multitude of different possible ways it can be committed; its impact on the net assets, financial position and results of operations would depend on the individual case. Despite the protective measures already being taken by Merck to great effect, the occurrence of the risk of e-crime is considered possible, with an estimated substantial impact. It is therefore classed as a medium risk.

Risks due to failure of business-critical IT applications or to failure of data center capacity

IT applications used globally in process steering form the basis for the contractual delivery of products and solutions to the customers of the Merck Group around the world. Fluctuations in the quality of internal IT services can lead to the failure of business-critical IT applications, which would have a direct influence on Merck's ability to deliver. Similarly, the failure of a data center can impair service quality or trigger the complete failure of critical applications.

Quality management system certified to ISO 20000:2005 used to ensure consistent quality of IT services

The primary objective of Information Services in the Merck Group is to maintain service quality in keeping with the service levels agreed with the Group functions and divisions. To achieve this objective, Merck uses a quality management system certified to ISO 20000:2005, which comprises steering measures to maintain a consistent standard of quality. In addition to day-to-day operating processes, this also provides directives on how to act in a crisis situation in the form of a regularly tested crisis management plan. As part of this crisis management, Merck operates several redundantly designed data centers so that service quality will be maintained even in the event of the failure of one data center.

Despite the mitigating measures taken, functional continuity plans and the unlikely probability of occurrence, the impact of a failure of business-critical IT applications owing to fluctuations in the quality of internal IT services and its influence on the net assets, financial position and results of operations is considered a medium risk.

Environmental and safety risks

As a company with global production operations, Merck is exposed to risks of possible damage to people, goods and its reputation. Audits, consulting and training on environmental protection and occupational health and safety minimize these risks to people and the environment. In order to ensure the continuity of plant and equipment, Merck monitors these risks both at our own sites as well as at suppliers and contract manufacturers. By adhering to high technical standards, our rules of conduct, and all legal requirements in environmental protection and occupational health and safety, we ensure the preservation of goods and assets. Sufficient appropriate accounting measures have been taken for the environmental risks known to us. Nevertheless, Merck classifies these as a medium risk since a critical negative impact to liquidity cannot be ruled out.

→ *Report on Risks and Opportunities*

Overall view of the risk and opportunity situation and management assessment

Although the number of risks reported is higher than the specific opportunities, Merck considers the distribution of risks and opportunities to be balanced. A balanced overall view within the Group is also supported by the fact that total revenues and business success are built on a diversity of pharmaceutical and chemical products for a variety of industries. As the markets differ in their structure and economic cycles, this diversification helps to lower risk. The overall view of the opportunity and risk profile of the four divisions would also be further balanced by the proposed acquisition of AZ Electronic Materials moving forward. This diversification also reflects Merck's strategy to continue its development as an integrated pharmaceutical and chemical company.

The most significant individual risks in the divisions have been named in the report above, with business-related risks being the most significant to us alongside legal risks.

Although the assessment of the individual risks has altered over the fiscal year as a result of changing external conditions, the risk situation of the Group as a whole is not significantly different compared to 2012. There have been no new additions in the area of high risks in particular. Merck has observed only minor changes in the area of medium risks. Thanks to the mitigating measures taken – such as the consistent implementation of management action (organizational responsibility and process improvements), the increased insurance coverage and accounting precautions – Merck's significant risks in particular have been further minimized in net terms.

The overall view of the risk situation of the Group, which is derived from the summary of the risks described on the basis of their impact and probability of occurrence, leads Merck to the assessment that the risks are not of a nature to threaten the existence of the Group as a going concern, either individually or collectively. Merck is confident that it will continue to successfully master the challenges arising from the above risks in the future as well.

In terms of opportunities, we feel that the greatest potential lies in the business-related topics of the operational areas. Thanks in particular to the expansion of our business in emerging markets, the optimization of the Merck Serono R&D organization, the newly founded biosimilars initiative and other activities as part of the "Fit for 2018" transformation and growth program, Merck has launched changes that hold significant opportunities in the medium to long term beyond the underlying forecast period.

Merck pursues the opportunities that arise and shows their expected effects in the forecast development of its key performance indicators – sales, EBITDA pre one-time items and business free cash flow. Merck will actively seek out opportunities beyond this and move ahead their implementation. In the event that opportunities arise in addition to the forecast developments, or that these occur more quickly than anticipated, this could have correspondingly positive effects on Merck's net assets, financial position and results of operations.

Report on Expected Developments

The following report provides a forecast for the development of the Merck Group and its divisions in 2014 focusing on the three most significant financial key performance indicators (KPIs) for the Merck Group and its businesses: sales, EBITDA pre one-time items and business free cash flow. We take into account the company's weighing up of risks and opportunities in accordance with our operational plans and medium-term assumptions.

In December 2013 Merck made an offer to AZ shareholders to acquire AZ Electronic Materials. From today's perspective the acquisition is expected to close in the course of 2014 (the successful completion of the transaction is conditional upon antitrust clearance, among other things). The following report provides on the one hand the expected developments of the Merck Group excluding the impact from a potential acquisition of AZ Electronic Materials. On the other hand, we provide separately a forecast for the Merck Group and for the Performance Materials division, which would be affected by the acquisition of AZ Electronic Materials assuming the first-time consolidation of AZ Electronic Materials in the Merck Group in the second quarter of 2014.

Forecast for the Merck Group

Merck Group | Forecast 2014

€ million	Actual results 2013	Forecast 2014	Key assumptions
			Slight organic growth offset by currency headwinds in all divisions
Sales	10,700.1	slight organic growth	Organic development of the divisions: Merck Serono stable as Rebif® sales decline is offset by Emerging Markets growth, moderate organic growth in Merck Millipore and Consumer Health, volume growth in Performance Materials, which will be offset by price erosion
EBITDA pre one-time items	3,253.3	stable	Positive full-year impact from realized efficiencies offset by major investments in Biosimilars and the loss of royalty income EBITDA pre one-time items of Corporate and Other stable
Business free cash flow	2,960.0	slight decrease	Slight decrease due to higher investments in property, plant and equipment driven by strategic growth projects

We foresee stable sales for the Merck Group in 2014 as slight organic growth is offset by an unfavorable impact from foreign exchange developments, which are anticipated to impact the sales of all divisions. While we expect the U.S. dollar-euro exchange rate to remain at around the 2013 level, an unfavorable foreign exchange development for the Merck Group is expected to stem from Emerging Markets and Japan.

→ *Report on Expected Developments*

Merck Serono sales are expected to remain stable excluding foreign exchange effects. While Rebif® sales are expected to decline, we should see ongoing positive growth momentum from our Emerging Markets region. For the Consumer Health and Merck Millipore divisions, we expect moderate organic growth rates, while the positive volume growth in the Performance Materials division might be offset by price erosion, which is expected to occur next year.

From the second quarter of 2013 onwards, Merck saw the decline in royalty income at Merck Serono, which will fully come through in the course of 2014. The net decrease in EBITDA pre one-time items from expired royalty income and related royalty expenses with respect to Avonex® and Enbrel® amounts to approximately € 75 million. This reduction will be more pronounced due to the settlement agreement on the patent dispute with AbbVie concerning Humira®, which was reached at the beginning of 2014. On the other hand, the commercial agreement reached with Bristol-Myers Squibb in 2012 on the co-promotion of Glucophage® in China is expected to partly mitigate the negative impact.

Despite lower Rebif® sales, significant decline in royalty income and anticipated currency headwinds, the aim is to achieve the 2013 level of EBITDA pre

Despite the Rebif® sales decline, the significant reduction in royalty income and the anticipated unfavorable foreign exchange environment, Merck aims to achieve in 2014 EBITDA pre one-time items at the level of 2013. In the course of 2013 Merck realized most of the efficiencies from the "Fit for 2018" transformation and growth program, which will have a positive incremental effect reducing the cost base on a full-year basis in 2014. EBITDA pre one-time items of Corporate and Other is expected to remain stable. Restructuring costs on the current portfolio are planned to decrease from € 166 million in 2013 to approximately € 100 million in 2014. We expect an underlying improved tax ratio of 23% to 25% in 2014.

As publicly stated over the last two years, Merck has embarked on a transformation journey that will last several years. The focus of this transformation journey will now shift more toward organic and inorganic growth. Therefore, Merck plans to accelerate R&D activities on strategic growth initiatives such as Biosimilars and OLED (organic light-emitting diodes) and to direct marketing and selling resources even more to growth markets. Merck's ambition to take M&A initiatives has become clear through the announcement of the intention to acquire AZ Electronic Materials. Merck's business free cash flow is expected to decrease slightly in comparison with 2013 as higher investments in property, plant and equipment in strategic projects such as the construction of a pharmaceutical production facility in China are planned.

The Merck Executive Board decided to transfer two product groups, Neurobion® (a vitamin B-based analgesic) and Floratil® (a probiotic anti-diarrheal), from the Merck Serono division to the Consumer Health division as of January 1, 2014. This move, which transfers the sales and all related expenses for both product groups, will enable a better strategic focus for both divisions, while fostering synergies in the organization. Consequently, approximately € 265 million in sales, around € 100 million in EBITDA pre one-time items and around € 77 million in business free cash flow will be shifted from Merck Serono to Consumer Health based on 2013 results. Within Consumer Health, we expect these two product groups to grow moderately in line with the existing Consumer Health portfolio in 2014.

→ *Report on Expected Developments*

While the acquisition of AZ Electronic Materials is anticipated to lead to a moderate increase in sales and EBITDA pre one-time items and to a slight increase in business free cash flow of the Merck Group in 2014 compared to 2013, a significant increase is expected in sales, EBITDA pre one-time items as well as business free cash flow for the Performance Materials division.

Forecast for the Merck Serono division

Merck Serono | Forecast 2014

€ million	Actual results 2013	Forecast 2014	Key assumptions
			Balanced product portfolio and solid organic growth in Emerging Markets expected to offset Rebif® decline in the U.S. and Europe and expected biosimilar entries for Fertility in Europe
			Unfavorable impact from foreign exchange development will lead to slight decrease in nominal sales
Sales	5,953.6	organic stable on a comparable basis	Neurobion® and Floratil® transfer to Consumer Health division will reduce sales by ~€ 265 million based on actual 2013 results
			Development in line with sales, tight cost management will help to balance the reduction in royalties from Avonex®, Enbrel® and Humira®
			Higher R&D expenses in Biosimilars unit
EBITDA pre one-time items	1,955.0	slight decrease on a comparable basis	Neurobion® and Floratil® transfer to Consumer Health division will reduce EBITDA pre one-time items by ~€ 100 million based on 2013 actual results
			Initiation of further investments in growth projects and slight decrease of EBITDA pre will lead to lower business free cash flow
Business free cash flow	1,875.7	moderate decrease on a comparable basis	Neurobion® and Floratil® transfer to Consumer Health division will reduce 2013 business free cash flow by ~€ 77 million based on actual 2013 results

Due to the aforementioned decision to transfer two product groups, Neurobion® and Floratil®, from the Merck Serono division to the Consumer Health division as of January 1, 2014, the base for the Merck Serono division will decrease by approximately € 265 million in sales, around € 100 million in EBITDA pre one-time items and around € 77 million in business free cash flow, based on 2013 results of the transferred brands. Accordingly, the 2014 forecast for the Merck Serono division is based on the 2013 results reduced by the transfer.

→ *Report on Expected Developments*

Strong product portfolio and footprint in Emerging Markets help protect Merck Serono sales and balance Rebif® sales decline

Stable organic sales are expected for 2014, while an unfavorable expected impact from foreign exchange development might negatively weigh on the reported numbers. We assume that Rebif®, Merck Serono's top-selling product, will continue to face severe competitive pressure in the United States and that it will also start to lose market share in Europe as a result of the market entry of new products in the multiple sclerosis segment. Sales of the oncology drug Erbitux® are expected to grow moderately fueled by the recent update of the metastatic colorectal cancer labeling to patients with RAS wild-type tumors as well as due to continued good performance in Japan. For Gonal-f®, the largest drug in the Fertility franchise, Merck expects only a marginal improvement in 2014 coming from market expansions in Emerging Markets but offset by expected launches of biosimilar products in Europe. Slight growth is assumed for the CardioMetabolic Care and Endocrinology franchises.

We forecast Merck Serono's EBITDA pre one-time items to decrease slightly compared to 2013 driven by the reduction in royalties from Avonex®, Enbrel® and Humira® amounting to a net EBITDA pre one-time items effect of € 115 million versus 2013.

In the United States, Merck distributes Rebif® under a co-promotion agreement with the pharmaceutical company Pfizer until end of 2015. Based on the agreement Merck pays commission expenses, which are expected to decline in 2014 in line with lower Rebif® sales. From 2016 onwards Merck intends to take over the entire Rebif® distribution in the United States and consequently no longer be subject to commission expenses.

While the worldwide pharmaceutical market is expected to recover and to grow at mid-single-digit rates in 2014 according to IMS Health, geographic growth remains unevenly distributed. Mature markets show tentative signs of recovery, but remain sluggish. Austerity measures are expected to continue to put pressure on the health care industry in Europe, which is still Merck's dominant regional market. By contrast, many Emerging Markets such as China and Brazil will grow at double-digit rates and remain growth drivers for the pharmaceutical industry.

Owing to geographic developments, Merck Serono intends to strengthen its profitability position in Europe and the United States, to further redirect its resources to Emerging Markets and to grow in these developing economies. At the same time cost development will be monitored closely.

Strategic growth projects in Supply and R&D lead to higher investment level

As part of Merck's strategy we will forge ahead with the build-up of Merck Serono's Biosimilars unit and therefore plan an increase in our divisional R&D expenses. Driven by the initiation of further growth projects such as the construction of a production facility in China, Merck Serono's investment in property, plant and equipment will increase in 2014. As a result of the lower EBITDA pre one-time items and these investments, a moderate decrease is expected for Merck Serono's divisional business free cash flow.

→ *Report on Expected Developments*

Forecast for the Consumer Health division

Consumer Health | Forecast 2014

€ million	Actual results 2013	Forecast 2014	Key assumptions
			Moderate organic growth driven by strategic core brands and all geographical markets, slightly offset by unfavorable foreign exchange development
Sales	476.9	moderate increase on a comparable basis	Neurobion® and Floratil® transfer from Merck Serono will increase sales by ~€ 265 million based on actual 2013 results; the two product groups are expected to grow in line with existing portfolio
			Moderate increase in line with sales development
			Slight increase in marketing and selling as well as R&D expenses in order to support growth in Emerging Markets and to invest in other growth projects
EBITDA pre one-time items	72.5	moderate increase on a comparable basis	Neurobion® and Floratil® transfer from Merck Serono will increase EBITDA pre one-time items by ~€ 100 million based on actual 2013 results
			Slight increase driven by EBITDA pre one-time items, Working capital to increase slightly in line with sales increase
Business free cash flow	83.9	slight increase on a comparable basis	Neurobion® and Floratil® transfer from Merck Serono will increase business free cash flow by ~€ 77 million based on actual 2013 results

With the decision by the Merck Executive Board to transfer the two product groups, Neurobion® and Floratil®, from the Merck Serono to the Consumer Health division as of January 1, 2014, the base for the Consumer Health division will increase by approximately € 265 million in sales, around € 100 million in EBITDA pre one-time items and around € 77 million in business free cash flow, based on the actual 2013 results of the transferred brands. Accordingly, the 2014 forecast for the Consumer Health division is based on the combined 2013 result.

Course set for profitable growth based on core strategic brands in key markets

After having set up a new regional operating model and significantly improving its cost structures over the past two years, the Consumer Health division will continue to focus its activities on the development and selective expansion of core strategic brands and on strengthening its position in key markets. The division's goal is to achieve meaningful market shares in all relevant combinations of strategic core brands and focus markets. In doing that, profitable growth is expected from all regions, including Emerging Markets, where Consumer Health is presently underrepresented with its main consumer brands such as Bion®, Nasivin® or Femibion®.

→ *Report on Expected Developments*

As a consequence of a continued effort on focusing the portfolio and marketing efforts on core brands and markets, Merck expects sales of the Consumer Health division to increase moderately in 2014 and to develop in line with the over-the-counter (OTC) drug market in countries where Merck competes.

We expect the EBITDA pre one-time items of the Consumer Health division to increase moderately as marketing and selling expenses will be slightly increased to support growth in Emerging Markets and R&D spending will be raised to invest in developing a robust innovation pipeline beyond 2014. Business free cash flow is expected to be slightly above the level of 2013 as it is assumed that the EBITDA pre one-time items increase will be partly offset by increases in working capital proportionate to higher sales.

Forecast for the Performance Materials division

Performance Materials | Forecast 2014

€ million	Actual results 2013	Forecast 2014	Key assumptions
			Slight organic growth of divisional sales offset by slight contraction due to foreign exchange development
		at best at previous year level	Volume growth but normal price erosion in Liquid Crystals unit for established products
Sales	1,642.1		Pigments & Cosmetics to increase slightly
			Decline in Liquid Crystal product prices may put pressure on the gross margin
		at best at previous year level	EBITDA pre one-time items expected at best at the previous year's level
EBITDA pre one-time items	779.7		Development driven by EBITDA pre one-time items
			Investments in property, plant and equipment in 2014 will be raised to support the "Fit for 2018" transformation and growth program
Business free cash flow	787.8	moderate decrease	

After a strong 2013, the Performance Materials division will be able to maintain its leadership position in the liquid crystals market and to deliver slight growth in the Pigments & Cosmetics business unit in 2014.

→ *Report on Expected Developments*

Volumes in the display industry are expected to increase, but with continued pressure on prices

We expect in 2014 at best stable sales from the Liquid Crystals business unit. Despite volume growth, prices for established products will decline further. Volumes in the display industry are forecast to increase in 2014 after a moderate development in 2013 according to market researchers from Display Search. LC will remain by far the leading technology and display size will remain the main growth driver. New, innovative liquid crystal technologies will continue to strengthen the market. For example, Merck is advancing nicely with the development of SA-VA technology, which is likely to enter the market in 2015. Display production focus will be shifting gradually to China, where Merck's new facility in Shanghai will be inaugurated in 2014 to support growth close to main customers.

For Merck's Pigments & Cosmetics business unit, the markets are assumed to continue to offer attractive growth rates in the future. As in Merck's other divisions, the need for innovative products and the shift in demand to Emerging Markets and thereby in particular to China, can be observed. Sales by the Pigments & Cosmetics business unit are expected to increase slightly driven by Xirallic® effect pigments.

Overall Merck expects at best stable sales for the Performance Materials division in 2014 as stable organic growth might be offset by a slight contraction of reported sales due to an unfavorable foreign exchange development. Lower prices in Liquid Crystals and additional volumes will put some pressure on the divisional gross margin, whereas marketing & selling expenses and administration costs will be maintained largely at the 2013 level. R&D expenses will be slightly increased with a focus on investments in the OLED area and future LC technologies. As a result of this, we forecast for 2014 at best an EBITDA pre one-time items for Performance Materials at the level of 2013. Business free cash flow is expected to decrease moderately as the division raises its investments in property, plant and equipment in 2014 to support the "Fit for 2018" transformation and growth program and to optimize its capacities.

If the acquisition of AZ Electronic Materials takes place, Merck expects a significant increase in sales, EBITDA pre one-time items as well as business free cash flow for the Performance Materials division in 2014 compared to 2013.

Forecast for the Merck Millipore division

Merck Millipore | Forecast 2014

€ million	Actual results 2013	Forecast 2014	Key assumptions
			Moderate organic growth, slightly offset by foreign exchange development
Sales	2,627.5	slight increase	Growth fueled by Process Solutions and Lab Solutions, Bioscience continues to be challenged by sluggish demand
EBITDA pre one-time items	642.8	slight increase	Marginal addition to marketing and selling as well as R&D expenses, improvement driven by slight sales increase
Business free cash flow	493.8	stable	Investments in property, plant and equipment in 2014 raised to support the "Fit for 2018" transformation and growth program, which slightly offsets the EBITDA pre one-time items increase

The Merck Millipore division is expected to remain on a healthy growth path throughout 2014. All business units have been forecast to contribute to a slight increase in sales.

→ *Report on Expected Developments*

Healthy growth of Merck Millipore is driven by the Process Solutions and Lab solutions business units

The pharmaceutical market is expected to recover and to grow at middle single-digit rates compared to 2013 according to IMS Health, strongly driven by sales of biotech products. After two years of decline, R&D spending by the pharmaceutical industry is expected to resume according to Evaluate Pharma. The Process Solutions business unit, which supplies consumables and services to major pharmaceutical and biotech manufacturing companies, is expected to deliver solid organic sales growth fueled by these favorable market dynamics.

Merck expects solid performance in the Lab Solutions business unit in 2014 as the global laboratory products market is expected to grow by +1.5% to +2.0% compared to last year (Frost & Sullivan market research).

The Bioscience business unit, whose main customer groups are academic and government laboratories and institutions as well as pharmaceutical and biotechnological research organizations, is likely to continue to face a challenging economic environment in 2014. Sluggish development is forecast in the major markets of Europe and North America due to budget sequestration measures, while Emerging Markets are expected to drive growth.

Marketing and selling expenses and R&D expenses are planned to develop in line with sales, leading to a further slight improvement of divisional EBITDA pre one-time items. Investments in property, plant and equipment will be at higher levels in 2014 as the division is in the process of enhancing its production and supply network. As a result business free cash flow is projected to remain stable at the level of 2013.

Summary

The Merck Executive Board continues to see neither any major technology shifts in its Chemical businesses nor any major new product launches in the Pharmaceutical business in 2014. Merck will continue with the implementation of the "Fit for 2018" transformation and growth program and enter a phase of continuous improvement. We plan to accelerate our R&D activities on strategic business initiatives such as Biosimilars and OLED and to direct our marketing and selling resources to growth markets.

We forecast slight organic sales growth for the Merck Group driven by the Merck Millipore and Consumer Health divisions for 2014. Despite the Rebif® sales decline, the significant reduction in royalty income and an anticipated unfavorable foreign exchange environment, we aim to achieve the 2013 level of Group EBITDA pre one-time items. Business free cash flow is expected to decrease slightly as several strategic growth projects will require investments in property, plant and equipment.

Report in accordance with Section 315 (4) of the German Commercial Code (HGB)

The following information is provided in accordance with Section 315 (4) of the German Commercial Code and the explanatory report pursuant to Section 176 (1) sentence 1 of the German Stock Corporation Act (AktG).

As of the balance sheet date, the company's subscribed capital is divided into 64,621,125 no-par bearer shares plus one registered share. Each share therefore corresponds to € 2.60 of the share capital. The holder of the registered share is E. Merck Beteiligungen KG. It is entitled and obliged to appoint one-third of the members of the Supervisory Board representing the limited liability shareholders. If the holder of the registered share is a general partner, he or she has no such right of appointment. The transfer of the registered share requires the company's approval. The approval is granted at the sole discretion of the personally liable general partner with an equity interest, namely E. Merck KG.

On December 31, 2013, no shareholders owned direct or indirect investments exceeding more than 10% of the voting rights.

According to the Articles of Association of Merck, the general partners not holding an equity interest who form the Executive Board are admitted by E. Merck KG with the consent of a simply majority of the other general partners. A person may only be a general partner not holding an equity interest if he or she is also a general partner of E. Merck KG. In addition, at the proposal of E. Merck KG and with the approval of all general partners not holding an equity interest, further persons who are not general partners not holding an equity interest may be appointed to the Executive Board.

The Articles of Association can be amended by a resolution by the Annual Meeting that requires the approval of the general partners. The resolutions of the General Meeting are, notwithstanding any statutory provisions to the contrary, adopted by a simple majority of the votes cast. Where the law requires a capital majority in addition to the voting majority, resolutions are adopted by a simple majority of the share capital represented in the vote. The Articles of Association of the company specify the authorized share capital. The Executive Board is authorized, with the approval of the Supervisory Board and of E. Merck KG, to increase the share capital on one or several occasions until April 26, 2018 by up to a total of € 56,521,124.19 by issuing new shares against cash or contributions in kind. The Executive Board is authorized to exclude, with the approval of the Supervisory Board, the statutory subscription right of the limited liability shareholders in the case of capital increases against cash contributions if the issue price of the new shares is not significantly lower than the stock exchange price of already listed shares carrying the same rights, as defined in section 203 (1) and (2) and section 186 (3) sentence 4 of the German Stock Corporation Act (AktG), at the time when the Executive Board finally fixes the issue price, and if the proportion of the share capital represented by the new shares for which the subscription right is excluded does not exceed 10% of the share capital available at the time of the resolution of the Annual General Meeting or – if this amount is lower – of the share capital available at the time of exercising this authorization. This upper limit shall be reduced by the prorated amount of shares that are sold during the term of the authorized capital under exclusion of shareholders' subscription rights pursuant to section 71 (1) no. 8 sentence 5 and section 186 (3) sentence 4 of the German Stock Corporation Act, as well as shares that must be issued to redeem option or convertible bonds, as long as the bonds have been issued during the term of this authorization under exclusion of subscription rights. In addition, with the approval of the Supervisory Board, the subscription right of the shareholders can be excluded in order to enable E. Merck KG to exercise its right pursuant to Article 32 (3) of the Articles of Association to participate in a capital increase by issuing shares or freely transferable share subscription rights and to enable E. Merck KG to exercise its right pursuant to Article 33 of the Articles of Association to convert its equity interest into share capital. Moreover, with the approval of the Supervisory Board, the subscription right of the shareholders can be excluded as far as this is necessary, in order to grant subscription rights for new shares to holders of warrants and convertible bonds issued by the company or its subsidiaries,

to the extent to which they would be entitled after exercising their option and conversion rights or fulfilling their option and conversion obligations. Lastly, with the approval of the Supervisory Board, the subscription right of the shareholders can be excluded in order to exclude fractional amounts from the subscription right.

The Articles of Association also encompass conditional capital. Accordingly, the share capital is contingently increased by up to € 66,406,298.40 divided into 25,540,884 shares. The contingent capital increase serves to grant exchange rights to E. Merck KG in accordance with Article 33 of the Articles of Association to enable the conversion of its equity interest. The company is not authorized to acquire its own shares.

The company has not entered into any material agreements subject to a change of control pursuant to a takeover offer nor has it concluded any compensation agreements with the members of the Executive Board or employees in the event of a takeover offer.

Subsequent Events

Subsequent to the balance sheet date, no events of special importance occurred that could have a material impact on the financial position and results of operations of the Merck Group.