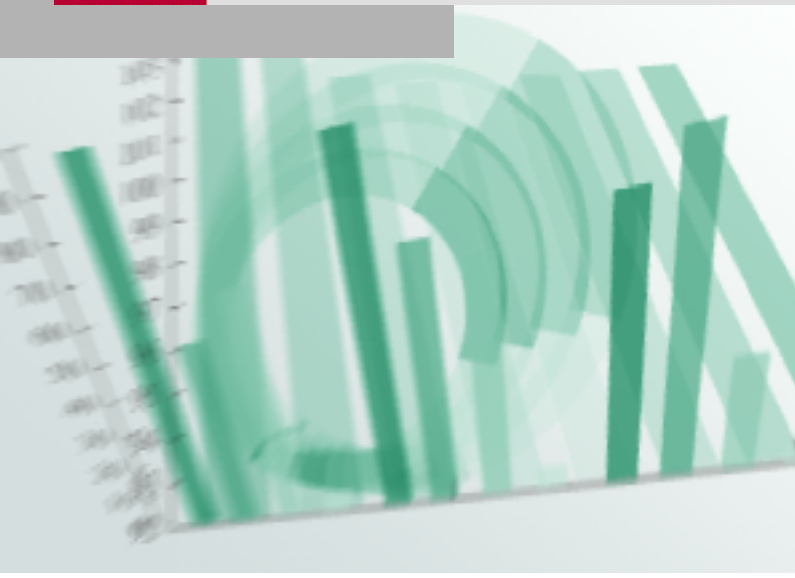
Pharma-Data 2009

BPI



Pharma-Data 2009

German
Pharmaceutical
Industry Association

BPI

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Preface

Pharmaceutical drugs play a central role in the health care system, as well as the national economy of the Federal Republic of Germany. From the patient's point of view, quick access to pharmaceutical drug constitutes an important aspect in the treatment, prevention and diagnosis of diseases. The innovativeness and competitive capacity of the pharmaceutical industry contributes significantly to the creation of value in the German economy. This industry primarily employs a high proportion of highly-qualified staff. Generally, the pharmaceutical industry is subject to pressures from health, social, economic and industrial policies.

Despite the significance of pharmaceutical drugs for our health, the public image of the pharmaceutical industry is mostly negative. Manufacturers of pharmaceuticals must meet manifold expectations: On one hand, they are to meet health- and sociopolitical goals and comply with high ethical standards in the fields of research, production and sales. On the other hand, they must also secure their own viability as businesses. The last point in particular tends to lead to public discrediting, even in the context of political debates.

The impact of the 2007 reform package was not felt until the subsequent years. In the field of pharmaceutical rebate contracts, for instance, there were grave consequences, especially for companies without contracts, caused by the preferential treatment of rebate contracts associated with the sales of pharmaceutical drugs. The courts of law, also, had a difficult task, in dealing with the continuing problems with calls for tender. The focus of the procedures and the specialist public discussions was on questions concerning applicability of the anti-trust law – with the associated requirement for European-wide calls for tender – as well as the applicable legal route when it came to checking rebate / discount contracts (Social Courts or ordinary jurisdiction). The above-mentioned discussions were precipitated by the calls for tender by the AOKs (Allgemeine Ortskrankenkassen; German public health insurance companies).

Furthermore, the instrument of second opinion was further specified. The debate about the methods of benefit and/or cost-benefit analysis was sometimes highly controversial in order to prevent Germany from implementing a purely national solution.

In order to maintain the position of the pharmaceutical industry in Germany, which significantly fosters growth and employment, it needs to be accepted that the pharmaceutical industry's contribution cannot be restricted mere cost reduction. Rather, the focus should shift to the value of pharmaceutical drugs from a general economic perspective. Pharmacotherapy, for instance, can reduce sick leave, shorten hospital stays and prevent aggravation of illnesses, while preventive therapy can also reduce suffering. Hence, aside from increasing quality of life, pharmaceutical drugs also make a positive public economic contribution. In general, one should not forget that the consequences of any kind of government intervention will, in the long run, have an impact on the citizens' supply of pharmaceutical drugs. In this context, it should be noted that, in Germany, research with already known substances must once again be lucrative. The advantages for patient care must not be sacrificed to rigid, or increasingly missing, reimbursement options.

What has, by now, become a very high degree of regulation in the field of pharmaceutical drugs, with a number of control instruments that simultaneously exist or actually void each other, must be subjected to systematic evaluation and then, with the consent of those involved, be reduced to some few instruments.

The general conditions of the health care policy ought to secure, for those involved in the health care system and for the public, for all types of therapies, a high degree of freedom when it comes to selecting quality-assured, individual therapeutic as well as preventative options.

The present issue, of the “Pharma-Data”, issue no. 39, once more supplies facts and background information about the pharmaceutical market, with the objective of bringing to a factual level the discussion surrounding this field, which is partially being conducted in a controversial manner.

Sector structure

According to the company register, in Germany, there are 878 pharmaceutical companies* registered at the Federal Office for Statistics. Over the course of the last few years, ascertaining the number of companies has become more difficult through changing reporting groups at the Federal Office for Statistics on one hand, and, on the other hand, through methodical differences. Additionally, there may be corporations that consist of several different companies, which, in turn, can be composed of individual firms and specialist business units

Owing to this, it would make sense to determine the number of specialist business units – as a core element of pharmaceutical production – as well as of contract manufacturers. This data, however, is only partially recorded by the Federal Office for Statistics.

Companies according to size in 2007 in %

Source: Calculation of the BPI, based on data of the Federal Office for Statistics 2009.

* In the “cost structure statistics”, the Federal Office for Statistics shows 265 companies (reporting category 20+). There are an additional 380 companies with a staff of less than 20. The large number of companies registered can further be explained with the existence of many marketing authorization holders that are considered pharmaceutical companies.

The pharmaceutical companies include medium-sized companies, as well as companies under owner-management, and also German branches of multinational corporations. Furthermore, companies with biotechnological processes are to be considered. These companies primarily develop and/or produce pharmaceutical drugs and diagnostic products, and are partially included in the 878 companies named. It is still true that around 93 % of companies manu-facturing pharmaceutical drugs in Germany employ a staff of less than 500.

The German Pharmaceutical Industry Association [Bundesverband der Pharmazeutischen Industrie e. V. (BPI)] is the only association in Germany that represents the entire spectrum of the pharmaceutical industry – on a national, as well as on an international level. Small and medium-sized companies, as well as internationally active corporations are represented in the BPI. Its members include researching pharmaceutical companies, generic companies, companies from the fields of biotechnology, phytopharmaceuticals, homeopathic / anthroposophical medicine, as well as pharmaceutical service providers. With more than 50 years of experience in the field of pharmaceutical drug research, development, approval, manufacture and marketing, the BPI offers integrative solutions for the entire pharmaceutical market.

Almost two-thirds of the BPI member companies are owner-managed. Some 90 % of the companies are active on a national, as well as on an international level. Although the proportion of export activities is constantly on the rise, many companies generate the greater proportion of their turnover on the German market. The health care policy framework conditions in Germany are particularly important for the future of these nationally oriented companies.

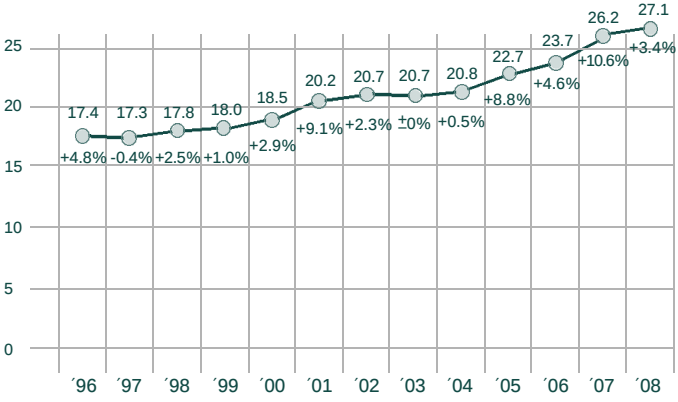
Production

In 2008, the pharmaceutical industry in Germany produced pharmaceuticals valued at 27.1 billion Euros.

The production of this sector is therefore 3.4 % higher than in 2007. Domestic production significantly depends on prices, pharmaceutical drugs imports as well as export demand.

Pharmaceutical Production* from 1996 - 2008

(Production value in billion Euros, changes compared to the previous year in %)



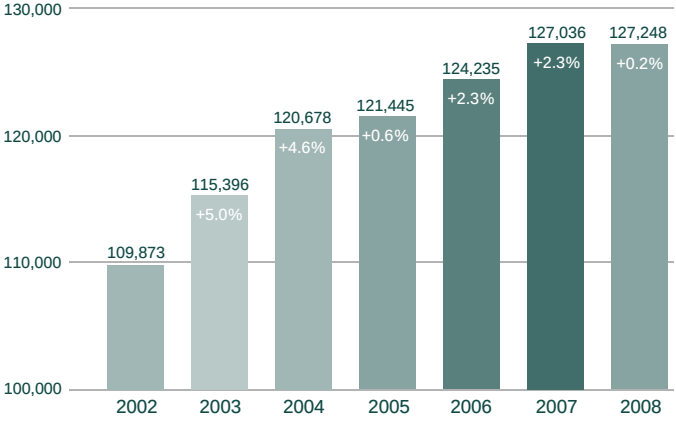
* Industrial sector 24.4, production of pharmaceutical drugs

Source: Calculation of the BPI, based on data of the Federal Office for Statistics 2009.

Employees

In 2008, 127,248 persons were employed in companies producing pharmaceuticals.

Development of staff numbers* in companies pertaining to the pharmaceutical industry 2002-2008 (changes compared to the previous year in %)



* The data refers to companies (reporting category 20+). Up to 2007, there was a change from specialist operating sectors to the level of "companies" in respect to the previous data of the Pharma-Data, since the report circle 20+ for specialist operating sectors was discontinued by the Federal Office for Statistics as part of the bureaucracy reduction law.

Source: Calculation of the BPI, based on data of the Federal Office for Statistics 2009.

External trade

In 2008, pharmaceuticals valued at 47.5 billion Euros were exported from the Federal Republic of Germany. This corresponds to an increase of 13.5 % compared to the previous year of 2007. At the same time, pharmaceuticals valued at 34.1 billion Euros were imported into the Federal Republic of Germany in 2008. This constitutes an increase of 4.1 % compared to 2007. The main supplier of pharmaceuticals to Germany is Ireland, followed by the USA, Switzerland and France. Great Britain comes in 5th place, followed by Italy and Belgium.

Import and export of pharmaceutical drugs*

(in million Euros, and change compared to the previous year in %)

Year	Import		Export**	
	million Euros	+/- %	million Euros	+/- %
2000	10,353.47	+25.9	15,177.47	+5.9
2001	12,051.17	+16.4	20,478.36	+34.9
2002	19,284.83	+60.0	18,835.18	-8.0
2003	19,327.83	+0.2	22,230.11	+18.0
2004	22,221.42	+15.0	28,681.63	+29.0
2005	25,585.17	+15.1	31,758.85	+10.7
2006	28,366.72	+10.9	36,474.52	+14.8
2007	32,706.83	+15.3	41,908.34	+14.9
2008	34,063.16	+4.1	47,549.32	+13.5

* Industrial sector 24.4, production of pharmaceutical drugs

** Due to statistical peculiarities and different methods of data collection, the production statistics and external trade statistics cannot be compared to each other.

Source: Illustration of the BPI, based on data of the Federal Office for Statistics 2009.

Main suppliers of pharmaceuticals* for Germany (in million Euros)

	2003	2004	2005	2006	2007	2008
Ireland**	6,410.09	7,217.43	7,388.86	8,283.95	8,626.71	8,985.03
USA	3,003.22	4,083.77	4,857.61	5,027.26	5,931.85	6,501.50
Switzerland	1,416.41	1,697.06	2,153.74	2,729.90	4,502.61	4,333.46
France	1,327.32	1,392.87	1,804.79	2,034.73	1,897.93	1,842.35
Great Britain	1,062.83	1,382.29	1,786.18	1,815.59	1,847.81	1,682.74
Italy	712.60	716.80	1,180.83	1,193.98	1,367.09	1,415.20
Belgium	770.84	743.47	1,081.82	1,027.49	1,204.81	1,318.56
The Netherlands	1,023.75	1,177.82	951.24	952.55	1,369.03	1,224.94
Spain	559.44	580.64	668.87	829.72	990.18	1,038.00
Sweden	777.63	783.24	908.04	998.17	990.65	1,029.17
Others	2,263.43	2,446.03	2,803.19	3,473.39	3,872.57	4,692.22
Total	19,327.56	22,221.42	25,585.17	28,366.72	32,601.23	34,063.16

* Industrial sector 24.4, production of pharmaceuticals

** Due to generous EU subsidies, Ireland's economy has developed very well over the recent years. Many chemical corporations also utilize the good location conditions of Ireland, and produce a significant proportion of their preliminary products there (in particularly preliminary pharmaceuticals), and subsequently export them for further processing. Over the past years, this work sharing has led to an enormous increase of external trade with Ireland.

Source: Illustration of the BPI, based on data of the Federal Office for Statistics 2009.

Main clients for pharmaceuticals* from Germany (in million Euros)

	2003	2004	2005	2006	2007	2008
Belgium**	3,543.96	7,624.16	9,092.61	10,076.72	11,070.24	11,616.23
USA	3,531.70	3,793.20	3,742.55	4,222.33	4,330.88	5,752.41
The Netherl.	1,168.48	1,774.05	1,755.23	2,497.69	3,526.56	4,367.44
France	1,352.60	1,495.02	1,520.30	1,576.24	1,903.22	2,249.68
Great Britain	1,235.70	1,384.94	1,528.72	1,806.50	2,229.93	2,443.45
Switzerland	1,993.31	2,063.10	1,917.03	2,320.16	2,488.89	2,419.29
Italy	1,150.83	1,343.80	1,579.71	1,687.55	1,991.34	2,045.26
Spain	769.06	826.36	930.57	1,013.97	1,196.50	1,207.85
Austria	751.50	773.30	966.12	955.55	1,069.27	1,161.28
Russ. Federat.	335.34	423.02	573.48	798.62	840.27	1,099.05
Others	5,960.69	6,801.47	7,850.23	9,480.71	11,236.87	13,361.96
Total	22,230.11	28,681.63	31,758.85	36,474.52	41,908.34	47,549.32

* Industrial sector 24.4, production of pharmaceutical products

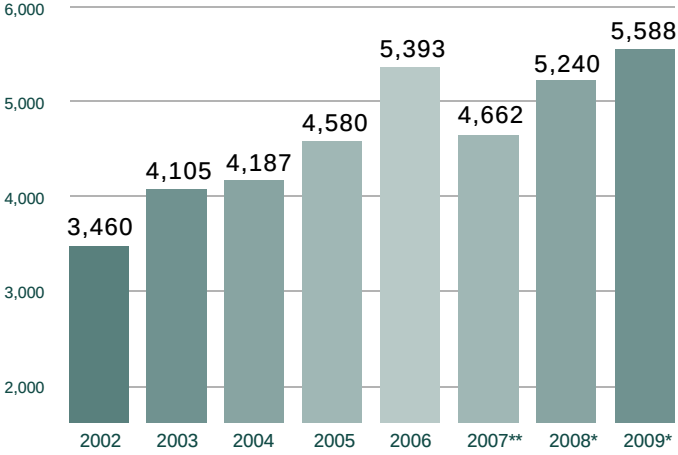
** The VCI (German Chemical Industry Association) explains the extraordinarily high figure of exports with special effects

Source: Illustration of the BPI, based on data of the Federal Office for Statistics 2009.

Research and development

In 2008, the pharmaceutical industry, invested about 5.2 billion Euros total into research and development (R&D) in Germany. With this, investments significantly rose above the level of the previous year of 2007(4.6 billion Euros).

Investment for research and development by the pharmaceutical industry 2002 - 2009 (in million Euros)



* Projected data from the R&D survey 2007 ** Data preliminary

Source: Illustration of the BPI based on data of the Stifterverband Wissenschaftsstatistik 2008 and 2009.

Hence, the R&D costs of the pharmaceutical industry, constitute some 9.2 % (previous year: 8.7 %) of the total R&D costs of the German economy (56,780 million Euros) and, as far as overall figures are concerned, are in third place behind the automotive industry and the electronics industry. In contrast to the increases of 2006, the information based on the projected data for the years 2007 (5,672 million Euros) and 2008 (5,773 million Euros) had to be markedly adjusted downward. This development shows that the pharmaceutical industry was forced to adapt its planning to the changed market conditions, and that the cost reduction trends in the health care sector resulted in reduced spending for R&D in comparison to what was planned.

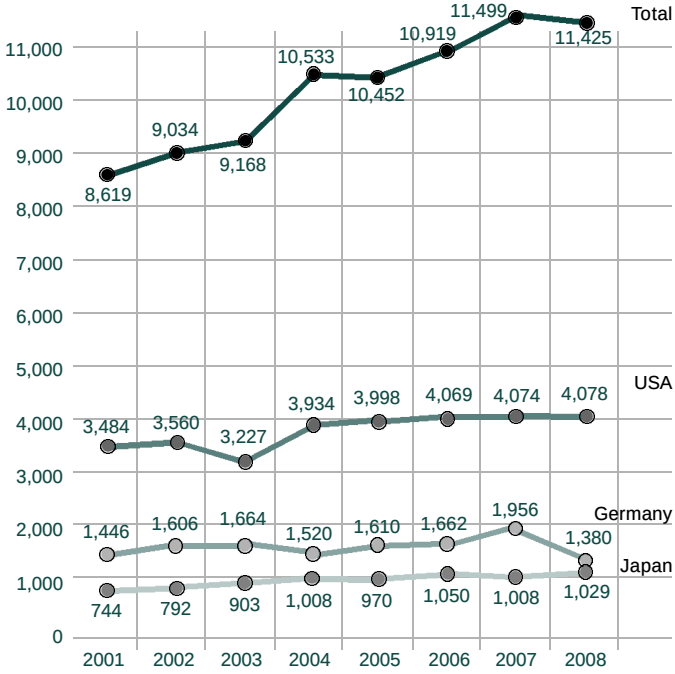
The data provided is based on the data available at the time of editorial deadline of the German Stifterverband Wissenschaftsstatistik which, for the past year, is always based on projected data. In this context, it is noteworthy that the previous year saw the figures of 2006 being clearly adjusted upward on the basis of the actual figures. Therefore, the downward correction required for this year concerning the years 2007 and 2008, is all the more significant.

Relatively speaking, the pharmaceutical industry is one of the most research-intense sectors, with a share of the R&D costs versus turnover amounting to about 18%, and thus securing future jobs in Germany. In this, the ratio of R&D expenditures versus turnover continually declined between 1999 and 2005. The development of the total R&D costs between 2004 and 2006 is reflected in the development of the numbers of people employed. The number of people employed in R&D in 2006 rose to 18,795 compared to 17,998 in 2005. This means that the time period of 2003 to 2006 in this sector saw an 11% increase in numbers of people employed, while it saw a 10 % decrease in the numbers of people employed in the other chemical sectors. At a cost of 194,100 Euros per R&D employee, the pharmaceutical industry is at the top also in regards to this parameter.

Patents

In Germany, for 2008, 11,425 patent registrations were published for pharmaceutical drugs. In comparison to the previous year of 2007, this corresponds to a slight decline of 0.6 %. The proportion of German registrations in regards to the total figure is 12 % for 2008 (compared to 17 % in the previous year of 2007). It is a concern that, between 2007 and 2008, patent registrations of German registrants declined nearly 30 % and, hence, following the continuous increase over the last years, have now dropped back to below the level of 2001. In international comparison, the leader in patent applications is the USA, leading by a broad margin, with Germany rating as second highest.

Published patent applications and patents granted concerning pharmaceutical drugs with effect in Germany.

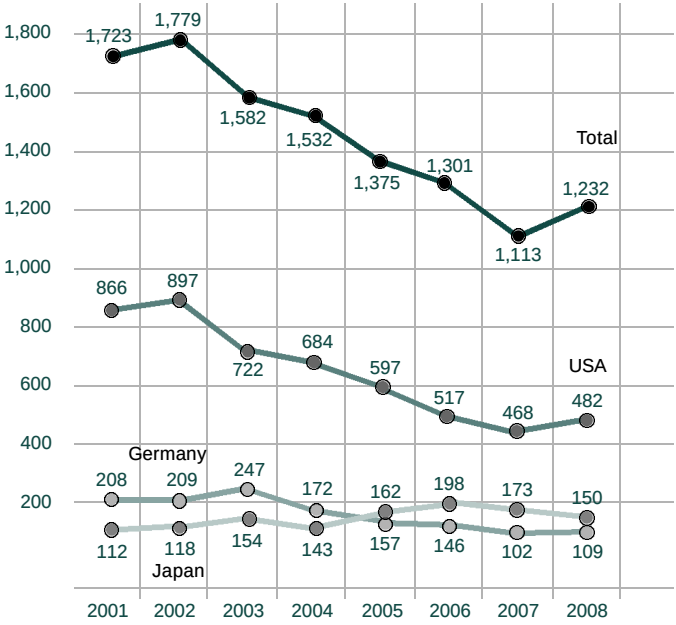


Data is based on the online searchable database PATDPA with the patent applications and/or patent grants published in the respective year. Patent applications and/or patent grants were counted at the German and European Patent Office. Duplicates are not counted.

Source: Illustration of the BPI based on data of the German Patent and Trademark Office 2009.

For patent applications for pharmaceutical drugs with biotechnological reference, the number of German patent applications amounted to 109 for the year 2008 (2007: 102, 2006: 146, 2005: 157) and, following the decreases of the previous years, seems to stagnate at a low level. In international comparison, the total number of applications with biotechnological reference has risen to 1,232 for 2008 (previous year: 1,113).

Patent applications in the sector of pharmaceutical drugs with biotechnological reference



Data is based on the data bank PATDPA with the patent publications and/or patent grants published in the respective year. Counted were patent registrations and/or patent grants at the German and European Patent Office. Registration is undertaken under avoidance of dual counting.

Source: Illustration of the BPI based on data of the German Patent and Trademark Office 2009.

Patents represent an incentive for innovation by compensating for a relatively economically risky development phase with marketing exclusivity for a limited time. This applies equally to all industrial sectors. For the pharmaceutical industry, the duration of a patent is of special significance for the development of new active ingredients (NCE / NBE = New Chemical and/or New Biological Entities), where the development times are particularly long (about eight to twelve years), hence, development costs are particularly high.

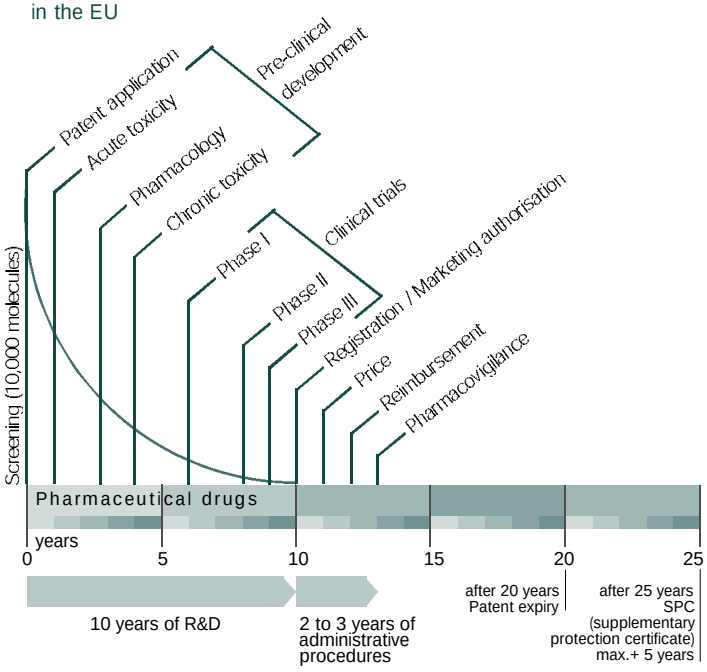
Research and development of pharmaceutical drugs

In 2003, costs for the development of a new active ingredient were estimated to amount to nearly 900 million US-Dollars (USD) and, in 2006, to almost 1.3 billion USD. These assessments are based on the data regarding the development costs for novel chemical or biological compounds, in relation to actual newly-approved pharmaceutical drugs. Therefore, this average value also includes costs for the very high number of unsuccessful developments and so-called opportunity costs, i.e. the profits that one would have been able to achieve with the capital invested during the development time. Estimates assume that, out of 5,000 to 10,000 new substances that are tested during the development of new pharmaceutical drugs, only one or two will eventually hit the market as an approved product – and even then, not every product will actually attain economic success on the market. It is obvious that the figures listed above are being controversially discussed in public. If you look at the pure expenses ("out of pocket expenses"), there are still costs of a magnitude of 540 million USD, and even critics arrive at estimates that, for the development of new active ingredients, are somewhere in the range of several 100 million Euros. Hence, aside from the discussion surrounding the method of calculation, nothing changes concerning the following core statement: the development of innovative pharmaceutical drugs is a very elaborate process [Sources: DiMasi (2003); DiMasi & Grabowski (2006)].

Often, these high costs are interpreted in such a manner as to say that smaller companies would not stand a chance in the innovation process since turnovers, that do not approach the billions, would not cover the required costs. One must not overlook, however, that significant innovations are possible at much lower cost, especially when it is possible to fall back on known data. This concerns, for instance, the improvement of pharmaceutical drugs through the development of new administration forms or opening up new indications for already known active ingredients.

Pharmaceutical companies often have less than ten years to introduce a new product to the market and to recover its run-up costs, as well as to generate the profits required for investments in R&D and/or to compensate for any losses associated with the developments. This is often only possible if the product is introduced onto as many international markets as possible, in the shortest time possible.

Phases of the pharmaceutical drug research and development process in the EU

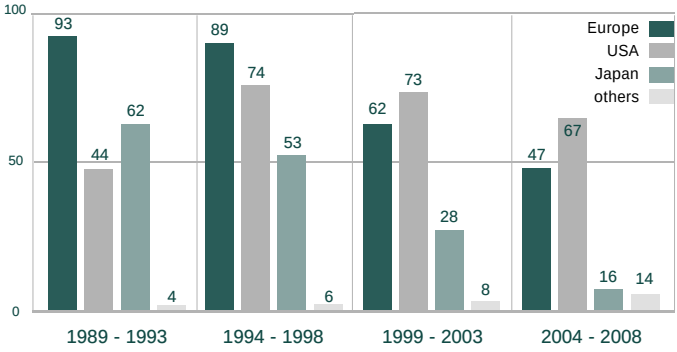


Source: European Pharmaceutical Industries Associations (EFPIA) 2008.

This association of high development costs and brief market exclusivity, compared to the proportionate costs, forces global market launches and, hence, favors multi-national major corporations with the respective capital power. The formation of such corporations has been observed through countless fusions over the past years, and the trend continues.

Despite all of these trends and rising development costs of pharmaceutical companies in Europe, the number of newly introduced innovative pharmaceutical drugs has significantly declined. The EFPIA outlines an increase of 2.3 billion Euros to 27 billion Euros between 1980 and 2008 (prognosis).

Innovative medical substances (New Chemical or Biological Entities - NCE/NBE) 1989-2008, sorted by invention countries worldwide



Source: Illustration of the BPI based on data of the EFPIA 2008.

The German pharmaceutical industry can look back on a very long and successful tradition in developing new pharmaceutical drugs – Germany was known for a long time as the “Pharmacy of the World”. This international position has been lost. According to a study by the EU, in 2005, only 6 of 140 newly-approved pharmaceutical drugs were developed in Germany. Therefore, it is no wonder that the German Federal Ministry of Education and Research [Bundesministerium für Bildung und Forschung (BMBF)], with its “Pharmainitiative” and the “BioPharma-Competition”, has started some initiatives that are meant to re-strengthen Germany as a pharmaceutical location.

Today innovations are still a driving force for the successful development of pharmaceutical companies. Hence, new active ingredients, pharmaceutical forms and manufacturing processes secure employment in Germany.

Research and development in the pharmaceutical sector have the objective of expanding options for diagnosis, for curative and/or symptomatic treatment, for the prevention of diseases, to improve treatment, and to close existing gaps in treatment. In the pharmaceutical industry, innovations are generated in a number of areas:

- -> New active ingredients
  Chemically-defined active ingredients, defined natural substances, phytopharmaceuticals, biopharmaceuticals and analog active ingredients (molecule variants of known active ingredients with similar chemical structure)
- -> New pharmaceutical forms and new combinations of pharmaceutical drugs
- -> Expansion of indications of existing active ingredients
- -> Specific improvements of known active ingredients, new forms of application
- -> Other, novel forms of therapy
- -> Improved or novel manufacturing processes of active ingredients

Costs for R&D, testing and approval for all types of innovations are high. Frequently, through minimal changes to the molecular structure of a substance, undesired effects can be reduced, the efficacy of a reduced dosage can be increased or its bioavailability improved. Improvements in administration can increase its benefits, facilitate application and improve dosage. As in other industries, such as the automotive and computer industries, incremental improvements constitute an essential component of pharmaceutical progress.

Novel manufacturing processes frequently contribute to products becoming available at greater quantities, improved quality or decreased costs. These measures can serve to improve availability for the patients and hence decrease costs for the health care systems, especially when it comes to therapies that are very costly due to elaborate production processes.

In order to optimally use all possibilities for therapeutic advancement, working across multiple disciplines, cooperating, and networking with competent partners is imperative. Cooperation between companies of all orders of magnitude and science are therefore an integral part of the development of pharmaceutical innovations.

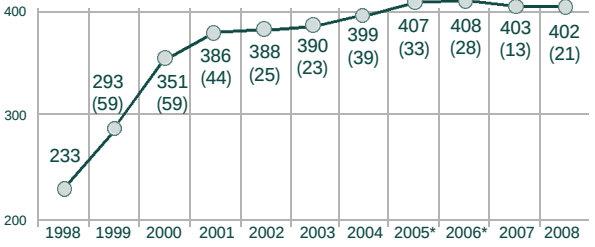
For the development to be calculable for the companies, the regulations and in particular the political framework reimbursement conditions, must be reliable. While the former in Europe is largely regulated centrally, the refund policies are a matter of the respective nation. Planning reliability is one of the essential bases for investment decisions in R&D. Unfortunately, the situation regarding this aspect has not improved within the last few years in Germany, as 19 unsuccessful reform laws in the health sector since 1989 can prove. In continuation of this development, it is hardly foreseeable nowadays how the refund situation and the market environment for a development that started today, would turn out once this reaches the market in ten to twelve years. With this, however, companies that achieve their sales volume mainly in Germany are lacking the economic necessity for innovations.

Therapeutic progress is the only thing offering advantages to patients in comparison to already existing therapies, (e.g. active ingredients against diseases not treatable thus far, improved efficacy, fewer side effects or improved application). At the time of approval, where the relevant criteria are pharmaceutical quality, efficacy and safety, a statement on whether a new product is better than one already available can often not be made with validity since data from the clinical tests alone are not sufficient for these judgments. In medical practice, only if advantages are achieved in diagnostics or therapy (and therefore attaining a higher degree of provable patient benefit), does an innovation actually offer therapeutic progress. The benefit for the patient, as well as all further clinical, economical, and humanitarian results of health measures for the individual, and for populations as a whole, are examined by Outcomes Research (OR).

Bio-engineering and genetic engineering

In 2008, the number of bio-engineering companies remained stable when compared to the previous year of 2007. Based on figures of the German bio-engineering report 2009 by Ernst & Young, it was 402 enterprises compared to 403 in the previous year of 2007. The selection used by Ernst & Young is focused on pure bio-engineering companies. Large corporations and companies that do not exclusively deal with bio-engineering are explicitly not recorded. This means that, for some years now, the number of companies has stagnated at around 400 companies. When looking at this figure, one needs to keep in mind that different sources use different definitions when it comes to recording bio-engineering companies. Hence, the data collection on behalf of the BMBF by biotechnologie.de, based on a definition that encompasses the fields of industrial and green (i.e. environmental bio-technology), represents 501 companies. All information gathering processes, however, agree on the fact that the number of newly founded companies had only insignificantly recovered in 2008 with 15 or 21 (depending on the source) in comparison to the numbers of the previous years, with only 13 in 2007 – the lowest number in years. On the other hand, in 2008 the newly founded companies were opposed by 22 shutdowns. For the shutdowns, the number of 14 insolvencies or wind up´s clearly outweighed that of the eight acquisitions and/or fusions.

Number of bio-engineering companies (newly founded companies indicated in brackets)



* Figures partly adjusted retroactively

Source: Calculation of the BPI based on data of Ernst & Young AG 2007-2009.

The process of innovation in the pharmaceutical industry is essentially driven by the progress in life sciences. New methods and knowledge, with regards to the complex metabolism processes in living cells, cell compounds, organs, and living beings, increasingly make it possible to understand the development of illnesses in detail at the level of the molecules involved, and to develop targeted therapies and medicines. The active ingredients can be a matter of small, synthetically-produced molecules (small molecules) or, equally, of biological molecules. The latter stands out in that they are similar, or even chemically identical, with endogenous substances. Hence, for instance, illnesses that arise from deficiency of endogenous substances can be treated with them. Examples would be the administration of insulin for diabetes, Erythropoetin (EPO) for kidney diseases or cancer. In the past, these substances had often been elaborately isolated from body components of animals or people, if sufficient amounts could be obtained at all. Furthermore, at their extraction, the transmission of disease could not always be excluded.

These restrictions were overcome by modern biotechnology and genetic engineering. In Germany today, there are already over 130 medicines approved on a biotechnological basis, with around 100 recombinant active ingredients that, in 2008, constituted almost 15% of turnover in the pharmacy market. Biotechnology has therefore ceased to be a futuristic vision a long time ago but, day-by-day, provides concrete benefit for the patient. Insulins constitute the main share of the global market, followed by immunomodulators, and EPO, as well as vaccines and other hormones.

Other molecules are monoclonal antibodies – whose significance keeps growing in cancer therapy, receptor molecules, enzymes and receptor antagonists. Meanwhile, there are also first products on DNA or RNA basis. In that case, there are a number of new therapy approaches that can be identified, which are going to lead to a number of completely new products in the near future or in the long run. Further fields with dynamic development are genetic therapy, tissue engineering and the regenerative medicine that, which in connection with the public discussion about stem cell, have particularly generated public attention lately.

In the field of biotechnological pharmaceuticals and therapies, development is still in its early stages. With the decoding of the human genome, increasing understanding of the function of proteins and peptides, and their extremely complex interactions due to systems biology, knowledge keeps increasing ever faster. With the aid of bioinformatics, new techniques are developed in order to extract essential and required information from the enormous data volumes available. Integrating the different fields of knowledge will result in new active ingredients, completely new mechanisms of action and therapy approaches.

Individualized therapies are also already identifiable today, like testing of individual pharmaceutical drug efficacy rates or side effects through using pharmacogenomic or metabolomic examinations.

In the long run, through understanding the pathomechanisms, and therapy methods developed on that basis, many patients with diseases that are considered as uncurable at this time, will have access to affordable therapy. Aside from this primary goal there is also the hope of lowering therapy costs in the long run through revolutionary new approaches that, for instance, can prevent the outbreak or development of an illness, or that replaces the approach of providing chronic therapy of symptoms with causative healing.

In Germany, a young biotechnological industry that started developing in the mid-nineties, achieved a turnover of more than one billion (1,068 million) Euros in 2008, according to data provided by Ernst & Young, which has grown 6.5 % since 2007, primarily due to the support of public funding. With this, there has been stable growth in comparison to the previous year (2007: 6 %). Compared to the growth rate of 2005 to 2006 (14 %), this may be a lower growth rate when compared to the growth rate of 2004 to 2005 amounting to only 1 % but, overall, it constitutes proof of the steady development of the sector.

The large majority of the companies is engaged in developing new diagnostic methods, pharmaceutical drugs, therapies and/or the corresponding technologies and methods.

Biotechnology branch 2008 (information in million Euros, change compared to previous year of 2007 in %)

Turnover	1,068	(+ 6.5 %)
R&D costs	966	(- 2.0 %)
Number of companies	402	(-0.25 %)
Number of staff members	10,520	(+ 2.5 %)

Source: Calculation of the BPI based on data of Ernst & Young 2009.

Mergers and acquisitions of firms has gained great significance, whereby the number of companies may be slightly on the decline but, on the other hand, larger and more powerful structures are the result.

Longer development times for new pharmaceutical drugs and their causes have already been looked into under the sections titled “Patents” and “Research and development of pharmaceuticals”.

Therefore, it is not surprising that the German biotechnology companies, in terms of development of their own approved, ready-to-market products , are lagging behind the USA – where biotechnology has developed much sooner. In the USA, companies that undertake research and development by using biotechnological methods have had more approvals since 2003 on an annual basis than the classical large pharmaceutical companies (source: Ernst & Young Global Biotech-Report 2009).

In 2008, the biotechnology sector in Germany achieved an essential breakthrough with the approval of three pharmaceutical drugs that hit the market: With Firazyr (Icatibant, Jerini/Shire), Oracea (Medigene) and the biosimilar Filgrastim (G-CSF, Merckle Biotec). Another five were in the registration stage. In 2007, one biosimilar was approved (EPO), six further candidates were in the approval stages (2006: two candidates).

Of the five candidates still in the approval stage by 2008, one product received approval in April 2009: Removab (Catumaxomab, Fresenius Biotech) for the treatment of malignant ascites. This is the first worldwide tri-functional antibody, an innovation developed in Germany in cooperation with TRION-Pharma. Two further applications for approval are being processed, two were withdrawn.

In 2008, 308 active ingredients were in the development pipeline, a value that has remained nearly constant in comparison to the previous year. The development progress is reflected in the repeated increase in the number of active ingredients that are in the clinical trial stage (phase I – III): In phase I, from 124 in 2006 to 129 in 2007 to 139 in 2008. In phases II and III, an increase was also noted, although to a lesser extent than the previous year (2007). The growth rates still did not match those of 2004 and 2005.

Owing to this successful development, biotechnology companies become more interesting for purchase, as proven by the takeover of the Jerini AG by Shire Ltd. (GB) or of the U3-Pharma AG by Daiichi Sankyo Co., Ltd.

Until now, this has been reserved for companies that focused on products that were faster to market, such as diagnostics, tissue-engineering and the provision of services, whereby Germany already has a leadership role in those fields that are of future importance. Interestingly enough, companies with that focus, for instance Quiagen or Miltenyi Biotec, are strategically and increasingly focused on the development of their own products for the diagnostics or pharmaceutical markets.

Aside from this, new perspectives are opening up in the field of "biosimilars". This term denotes biological active ingredients that hit the market as an imitation preparation, once the patent protection of the original preparation has elapsed. Note the use of the word biosimilars, as biological molecules present minor variants, hence, are not fully identical. For this reason, the cost for testing and approval of biosimilars is significantly higher than for other generics, and the price decline to be expected is less than for classical pharmaceuticals. In 2006, the European Medicines Agency (EMEA) granted the first approvals for biosimilars for the European market. In the middle of 2007 a real milestone was set in this product segment with the approval of EPO, which was developed and produced in Germany, since this was the first biotechnologically produced biosimilar product with an expected real potentially great marketing volume.

Altogether, based on the products already launched on the market or products already far advanced in their development, and also products constantly moving up from base research, excellent future perspectives for medical bioengineering are opening up. A requirement for this is a predictable and stable health care system. This especially applies to reimbursement policies.

Continuous monitoring of the safety of pharmaceutical drugs / pharmacovigilance

Pharmacovigilance is a comprehensive term that encompasses all measures in order to recognize side effects of a given pharmaceutical therapy and to avoid incorrect use of pharmaceutical drugs.

In general, each effective pharmaceutical drug can also present with undesired effects. These, however, usually only occur in a few percent of patients, often only in one of 100,000 patients or less.

The risk assessment of a given pharmaceutical drug in the population at large is the subject of pharmacoepidemiology. It is generally considered to be the base science for the safety of pharmaceutical drugs. The objective here is to identify the causative connections between exposure and efficacy, if possible to prophylactically exclude undesired pharmaceutical effects and to increase the therapeutic benefit.

The Paul-Ehrlich-Institute (PEI) is the responsible national competent authority for vaccines, blood preparations and sera. For all other medicines, it is the Federal Institute for Drugs and Medical Devices (BfArM).The EMEA is responsible for process implementation on the European level, and issues recommendations, which are then implemented through decisions of the European Commission in a legally-binding manner in all member states.

Identification of side effects in clinical trials

Data about side effects reported in the context of clinical trials, meaning under ideal conditions, is not very representative of daily practice. On one hand, the required inclusion and exclusion criteria result in limited interpretation capacity; on the other hand, the frequency of undesired effects of pharmaceutical drugs is rather low in controlled clinical trials with patient groups when compared to the later prescription figures.

Hence, side effects that, e.g., only occur with certain concomitant diseases, or with concurrent administration of certain other medicines, cannot be identified in clinical trials.

Monitoring of pharmaceutical drugs under conditions of daily life, meaning after approval, is of highest significance for the safety of pharmaceuticals, and thus for the quality assurance of therapy.

The pharmaceutical corporations are legally obligated to actively collect information concerning side effects and interactions with other pharmaceutical drugs, contraindications and quality defects about their respective pharmaceutical drugs, to assess the same, and to notify the respective authorities of the same. Severe side effects must even be immediately reported to the regulatory authorities of the member states and the EMEA, respectively, which is located in London. The obligation to notify encompasses all side effects that are reported, both nationally and in other EU member states, but also in countries outside of Europe. The BPI, however, is also involved in the constant information exchange between the pharmaceutical companies and the regulatory authorities.

In order to comply with this regulatory requirement the pharmaceutical companies are required to designate a person in charge of pharmacovigilance – and / or as per German law, to employ a so-called "Stufenplanbeauftragter". Their task is to gather any known reports about the risks involving pharmaceutical drugs, to assess them and to coordinate the required measures. This person is individually liable for his work. At a national level, the so-called "Stufenplan" [as per § 63 German Medicines Act (AMG)] serves for observation, gathering and interpretation of risks involving pharmaceutical drugs.

If it turns out that additional measures are required to ensure the safety of patients, and that these measures are sensible or necessary, then these will be immediately implemented. This is most often done independently by the pharmaceutical company, partially, however, also through requirements of the national competent authorities or the European authorities. The "Stufenplanverfahren" outlined in the AMG regulates what type of measures the manufacturer of pharmaceutical drugs needs to initiate in order to increase the patients' safety. This may range from changing the patient information leaflet all the way to a recall of the pharmaceutical drug. In recent times, many pharmaceutical drug safety procedures, so-called referrals, have not been implemented nationally anymore, but at the EU-level coordinated by the EMEA.

Reports of side effects

According to reports of the BfArM, in 2008, the authority received about 46,400 case reports from Germany, most of them from pharmaceutical companies, and almost two-thirds of the rest from drug commissions of the health care professions. Only about 4 % of reports are still in hard copy. The increase in the number of literature reports is based on the well-established literature search systems of the pharmaceutical companies. The predominant number of reports, owing to the currently valid duties to notify as per § 63b of the AMG, concerns suspected cases from abroad and here, especially suspected cases from outside the EU.

About two-thirds of the reports of the PEI that, altogether, just as in all the other years, recorded clearly less cases for 2008 than the BfArM, are based on reports concerning vaccination complications. These are undertaken according to the infection protection law (Gesetz zur Verhütung und Bekämpfung von Infektionskrankheiten beim Menschen – IfSG; law for the prevention and fighting of infectious disease in humans). Some 30 % of cases concern monoclonal antibodies and about 10 % cellular blood products.

The general increase can be attributed to improved reporting tools for the reporting of UAW data (e. g via Internet).

EU-wide exchange of safety data

In the field of pharmaceutical drug safety (pharmacovigilance), the swift exchange of information between the individual competent authorities of the EU member states is of important significance. For that reason, the EU has created graduated information systems where, depending on urgency, the respective required procedures are applied. A so-called Rapid Alert System concerning pharmacovigilance is always initiated whenever one of the member states identifies a suspected change of the benefit-risk ratio of a given pharmaceutical drug to an extent that might require greater changes to the approval status.

Both German national competent authorities closely cooperate with the local state authorities, and with those of other European nations. There are also close relations with authorities of states outside Europe, the World Health Organization (WHO), the pharmaceutical drug commissions of the health care professions, as well as with individual centers that collect reports of special side effects.

“Rote Hand Brief” for informing the expert

The “Rote Hand Brief” is an instrument of information that is used in medical expert groups for important information concerning newly identified, significant risks concerning the use and administration of pharmaceutical drugs and measures for their minimisation.

The Pharma codic of the manufacturer associations BPI and VFA (AKG – Arzneimittel und Kooperation im Gesundheitswesen [pharmaceuticals and cooperation in the health care sector] and FSA – Freiwillige Selbstkontrolle Arzneimittelindustrie [voluntary auto-monitoring of the pharmaceutical industry]) obligate their members to send out important, and spread such information, concerning pharmaceutical drug safety in coordination with the national competent authorities and such warnings to expert circles, i.e. to physicians, and to the drug commissions of the German Medical association and the German Pharmacists, respectively.

The members of the associations are obliged to use, on envelopes as well as on letters, the symbol of a red hand with the wording “Important information concerning a pharmaceutical drug” for reports about newly identified, severe side effects, recalls of faulty batches or other information that needs to reach the physician and/or pharmacist in the fastest possible way in order to secure patient safety.

This is to warrant that important information cannot be overlooked amidst the daily mail load.

The global pharmaceutical market

In 2008, the worldwide turnover of pharmaceutical drugs reached a total of 773.2 billion USD. Compared to the previous year, that translates to an increase of 8.2 %.

Development of the global pharmaceutical market

	2004	2005	2006	2007	2008
Total market (billion USD)	559.9	603.7	646.6	714.7	773.2
Change compared to previous year (in %)		+ 7.8	+ 7.1	+ 10.5	+ 8.2

Source: Illustration of the BPI based on data of IMS World Review 2009.

80 % of the total turnover on the global pharmaceutical market is covered by North America, Europe and Japan. The turnover in North America has risen by 1.7 % to make 309.7 billion USD. With this, it constitutes 40 % of the global pharmaceutical market turnover for 2008. The pharmaceutical market in Europe grew by 10.5 % to 235.5 billion USD. In 2008, Latin America increased its turnover by 15.3 % to make 49.1 billion USD, something that, once more constitutes a notable improvement since turnover in 2002 was still at 21.1 billion USD.

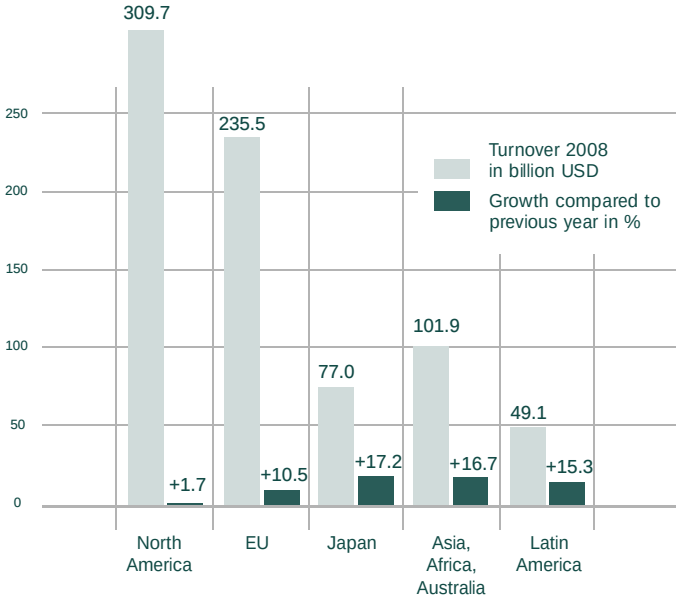
Top 10 pharmaceutical markets worldwide and growth to LCD* (in %)

Land	Turnover 2008 (million US-Dollars)	Growth to LCD 2008 (%)
USA	290,980	1
Japan	77,041	3
France	42,200	2
Germany	41,291	5
Italy	26,644	4
China	24,543	27
Great Britain	22,323	3
Spain	20,966	8
Brazil	19,181	12
Canada	18,723	6

* LCD: Local currency dollar – currency fluctuations in the country are not considered, so the growth rate in the various countries is thus comparable.

Source: Illustration of the BPI based on data of IMS World Review 2009.

World pharmaceutical market according to regions, 2008



Source: Illustration of the BPI based on data of IMS World Review 2009.

Altogether, the health care market is a growth market with considerable employment potential. To date, many diseases are unresponsive to therapy; life expectancy of people is on the rise and the changed consumer interest, as well as the search for more quality of life, increases demand for health-related services and products. Furthermore, advances in the fields of medicine and pharmacy, particularly in molecular and cellular biology, principally generate novel innovation incentives. Further, an individualization tendency in the fields of diagnostics and therapy of disease can be identified.

The European pharmaceuti-cal market

Currently, the EU includes 27 member states.

A detailed depiction of these pharmaceutical markets, on one hand, represents a heterogeneous image of the market size and, on the other hand, steady growth of the individual markets. In the various EU member states, pricing and reimbursement of pharmaceuticals are regulated in a different manner. One common factor, however, is increasing competition in the generic area.

An analysis of turnovers in 2008 for the EU-15 in absolute terms shows, that France, Germany, Italy, followed by Great Britain, represent the largest pharmaceuticals markets. When comparing growth rates of the previous year of 2007, however, Greece is first, followed by Ireland, Denmark and Spain.

Pharmaceutical markets of the EU-15

EU-members	Turnover* for 2008 (million USD)	Growth** to LCD 2008 (%)
France	42,200	2.0
Germany	41,291	5.0
Italy	26,644	4.0
Great Britain	22,323	3.0
Spain	20,966	8.0
Greece	7,520	10.0
Belgium	6,353	6.0
The Netherlands	5,917	-4.0
Portugal	5,344	4.0
Sweden	4,327	5.0
Austria	4,294	7.0
Finland	2,755	7.0
Denmark	2,723	8.0
Ireland	2,561	9.0
Luxembourg	245	7.0
Total	195,463	6.0

* Turnovers from the markets observed, plus estimation of partial markets not observed, result in the total turnover of a nation at ex-factory price.

** LCD: Local currency dollar - currency fluctuations in the country are not considered, so the growth rate in the various nations is thus comparable.

Source: Illustration of the BPI based on data of IMS Health 2009.

Due to the special economical relations, the following selected Central and Eastern European nations are to be looked at in detail.

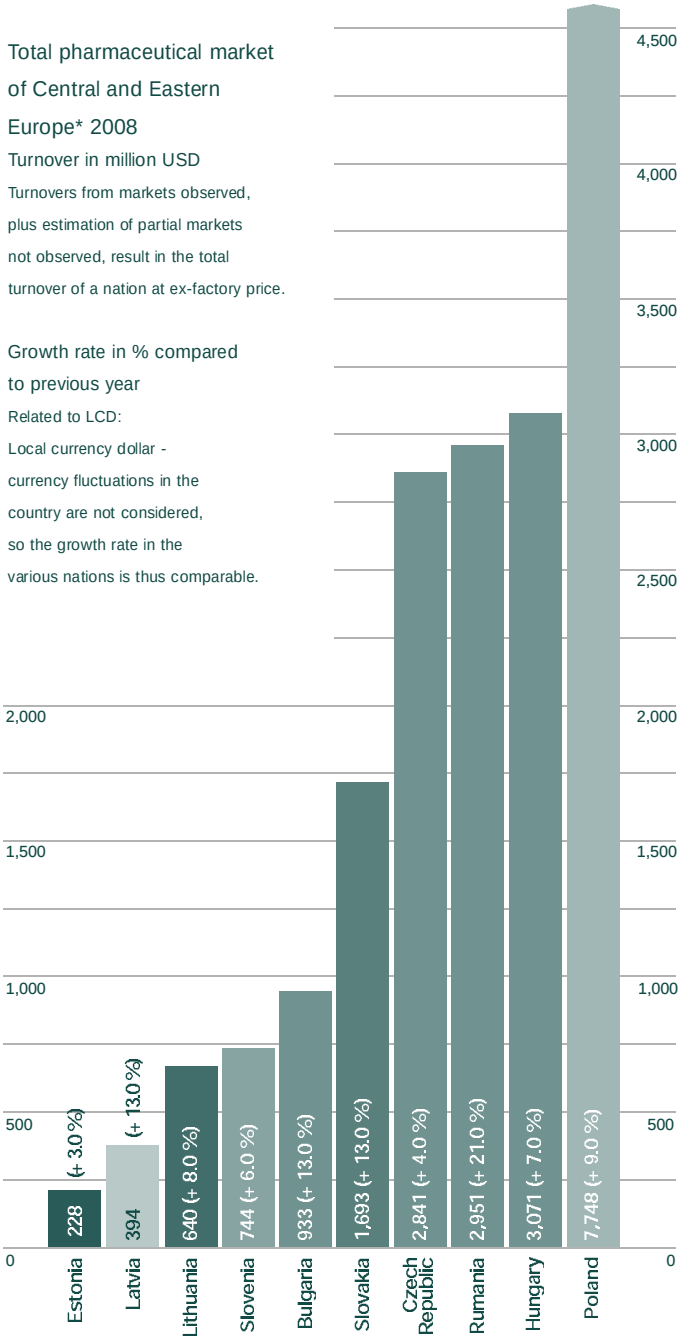
Total pharmaceutical market of Central and Eastern Europe* 2008

Turnover in million USD

Turnovers from markets observed, plus estimation of partial markets not observed, result in the total turnover of a nation at ex-factory price.

Growth rate in % compared to previous year

Related to LCD: Local currency dollar - currency fluctuations in the country are not considered, so the growth rate in the various nations is thus comparable.



* For Malta and Cyprus, no data is available.

Source: Illustration of the BPI based on data of IMS World Review 2009.

IMS Health expects, for a five-year period, an average annual growth of the European member states of 3.9 %. In comparison, growth prognosis for the non-European member states is 9.1 %. The most significant five EU pharmaceutical markets are to grow by 3.1 %.

Market prognosis while using constant exchange rates, growth in %, ex-factory price

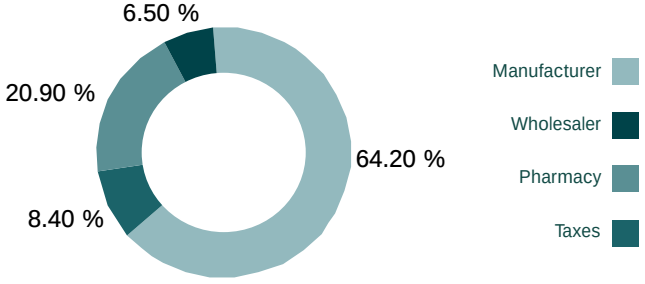
Europe	2008 - 2013
EU-members	3.9 %
Non-EU-nations	9.1 %
EU top five nations	3.1 %
Global market	4.4 %

Source: Illustration of the BPI based on data of IMS Market Prognosis Global 2009.

International comparison of pharma-ceutical drug prices

A given pharmaceutical drug is differently priced in the various nations for the simple reason of different Value Added Tax (VAT) rates. Further influences on the prices of pharmaceutical drugs, are partially governmental interventions, as well as different by law margins for the various trade levels (pharmacist and wholesaler). This accounts for the price differences within Europe. When it comes to international pharmaceutical price comparisons, one needs to consider that these can only be undertaken at the level of the trade types. When selecting, for instance, the leading trade types in Germany, one needs to verify whether these are also leading in other nations and/or have a sufficient market share there. Further, not all nations have data available on the basis of manufacturer´s prices, meaning that the prices may need to be converted. Albeit, the political framework (reimbursement and pricing system), as well as therapy practice, have an impact on the prices of pharmaceutical drugs. When undertaking overall market comparisons, quantity adjustments are necessary.

Pharmaceutical price structure in Europe (2007)
- Based on pharmacy retail price



These values constitute a non-weighed mean value for Europe.

Source: Illustration of the BPI based on EFPIA 2009.

The figure of the pharmaceutical price structure shows the different share of the trade levels regarding the prices of pharmaceutical drugs in Europe. This shows that it is not only the manufacturer who has an influence on the price, since the pharmacy retail price also includes the other partial components (distribution and Value Added Tax).

Value Added Tax rates in Europe (01 / 01 / 2009)

Country	Standard VAT rate (%)	VAT rates apply to medicines Prescription (%)	OTC (%)
Belgium	21.0	6.0	6.0
Bulgaria	20.0	20.0	20.0
Denmark	25.0	25.0	25.0
Germany	19.0	19.0	19.0
Estonia	18.0	5.0	5.0
Finland	22.0	8.0	8.0
France[1]	19.6	2.1-5.5	2.1-5.5
Greece	19.0	9.0	9.0
Great Britain[2]	15.0	0.0	15.0
Ireland[3]	21.5	0.0-21.5	0.0-21.5
Iceland	24.5	24.5	24.5
Italy	20.0	10.0	10.0
Croatia	22.0	0.0	22.0
Latvia	18.0	10.0	10.0
Lithuania	18.0	5.0	5.0
Luxembourg	15.0	3.0	3.0
Malta	18.0	0.0	0.0
The Netherlands	19.0	6.0	6.0
Norway	25.0	25.0	25.0
Austria	20.0	10.0	10.0
Poland	22.0	7.0	7.0
Portugal	20.0	5.0	5.0
Rumania	19.0	9.0	9.0
Sweden	25.0	0.0	25.0
Switzerland	7.6	2.4	2.4
Slovak Republic	19.0	10.0	10.0
Slovenia	20.0	8.5	8.5
Spain	16.0	4.0	4.0
Czech Republic[4]	19.0	9.0	9.0
Hungary	20.0	5.0	5.0
Cyprus	15.0	0.0	0.0

[1] Pharmaceutical drugs subject to reimbursement: 2.1 %, Pharmaceutical drugs not subject to reimbursement: 5.5 %

[2] Pharmaceutical drugs that are purchased by hospitals: 17.5 %

[3] Pharmaceutical drugs for oral administration: 0 %, other: 21.5 %

[4] VAT increases of 5 % to 9 %, for all pharmaceutical drugs

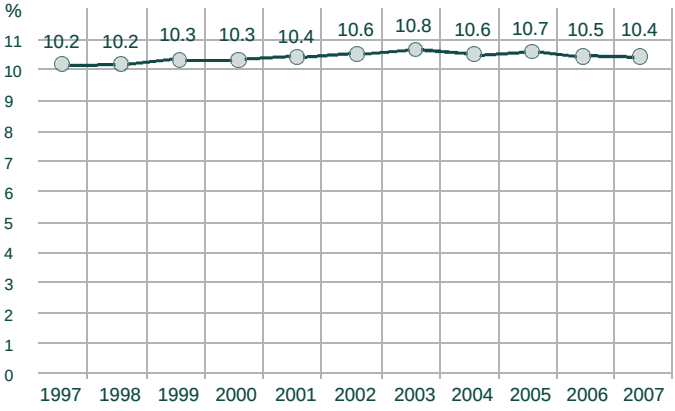
Source: Illustration of the BPI based on EFPIA 2009.

When comparing the actually used VAT rates on pharmaceutical drugs, one can see that only Bulgaria, Denmark, Germany, Norway and Iceland claim the full VAT rate for all pharmaceutical drugs.

The health care system in Germany

When analyzing expenditure quotas, it should be taken into consideration that the sole comparison does not allow for a conclusive statement, particularly in an international health care system comparison. A more in-depth look is required, for instance, into organizational structures, societal circumstances and/or the overall framework. In the end, the share of the gross domestic product (GDP) reflects the position that society grants to the health sector. Hence, a large GDP share must not be considered as wastefulness.

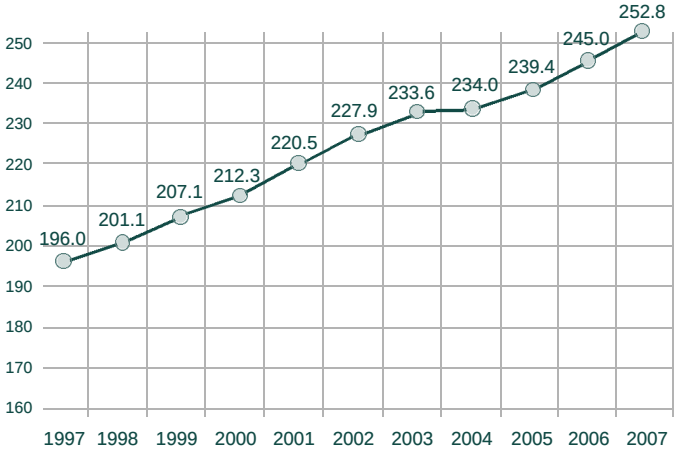
Development of health care expenditures - share of the GDP in %



Source: Illustration of the BPI based on data of the Federal Statistical Office 2009.

The share of health care expenditures of the GDP has remained stable in Germany over the course of the years. In 1997, it was at 10.2 % and in 2007, at 10.4 %.

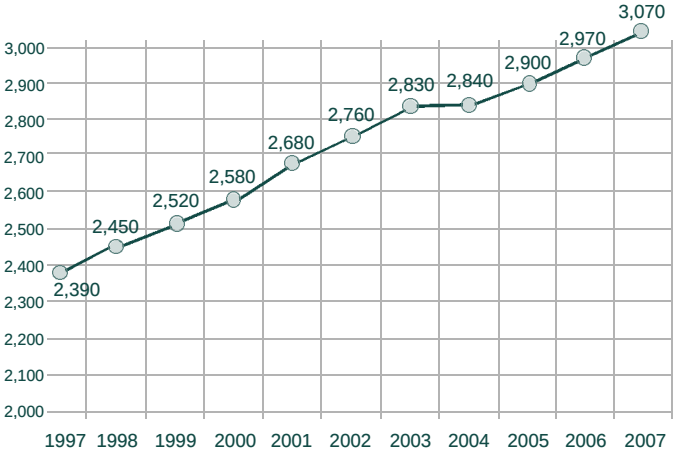
Development of nominal health care expenditures (in billion Euros)



Source: Illustration of the BPI based on data of the Federal Statistical Office 2009.

Nominal health care expenditures in Germany have been continually on the rise since 1997 and, by 2007, were at 252.8 billion Euros. This means an increase of 3.2 % compared to 2006. In the same period, health costs per inhabitant rose by 3.4 %, from 2,970 Euros in 2006 to 3,070 Euros in 2007.

Development of health care expenditures per inhabitant (in Euros)



Source: Illustration of the BPI based on data of the Federal Statistical Office 2009.

According to current information provided by the Federal Statistical Office, a total of 4.4 million people, which translates to about 1 out of 10 job holders, were employed in the health care sector by the end of 2007. In 2007, the number of jobs within the health care sector rose 1.5 % when compared to the previous year of 2006. The primary cause of this is an increase in the health service professions (e. g. nursing profession) and social professions (e.g. geriatric care taker). In 2007, the largest number of staff (84 %), was employed in outpatient, inpatient and day-patient care health care facilities.

In an ageing society like Germany, with a structural shift toward older, multi-morbid people, and increasing chronic diseases owing to lifestyle and nutritional habits, the health care service sector is forced to find sustainable solutions. In this, the potentials of a strong, innovative job-intensive health care sector are supposed to be strengthened, not weakened.

Health care policy interventions over the last years display a tendency toward encouraging competition between participants, and toward integrative health care solutions. A financially sustainable health service care system in Germany, however, still seems to be a distant prospect.

Due to continually rising contributions to the Statutory Health Insurance (SHI), the development of SHI expenses is of great interest each year. For many years, SHI expenditures, as a share of the GDP, have been at approximately 6 % (2008: 6.5 %), and those of pharmaceutical expenditures reached a share of the GDP at 1.4 % (2008: 1.2 %), thus the situation can be described as rather constant. Therefore the expenditures associated with pharmaceuticals at the expense of the SHI have not increased any faster than the macroeconomic performance. In view of this development, there is no indication for a “cost explosion” in the health care sector.

The financial situation of the SHI is influenced by structural problems, i.e. developments on both, the revenues, as well as expenditures.

When it comes to revenues, the following factors may have a negative impact:

-> Increase of the so-called mini-jobs (marginal employment)
-> Abolition of income liable to social insurance deductions
-> Loss of earned income subject to social security
-> Stagnating earned income
-> Pure salary receipt with simultaneous increase of other sources of income
-> Shift toward private health insurance
-> Decrease of health care insurance contributions for the recipients of unemployment benefits

On the expenditure side, there is a need to act owing to:

-> Costs due to the introduction of an electronic health care chip card
-> Expansion of the SHI benefits, e. g. palliative care
-> Implementation of the European guidelines on working hours
-> Increase in the number of chronic diseases
-> Medical-technological progress in connection with the shifting of the ageing population structure
-> Value Added Tax increase to 19% from January 1st, 2007
-> Hospital tariff contracts
-> Remuneration reform for physicians in outpatient care

In Germany we have wage-based contributions to SHI, therefore the development of the number of employees is of particular interest.

While the German Economic Optimization of Pharmaceutical Care Act (Arzneimittelversorgungs-Wirtschaftlichkeitsgesetz), introduced in 2006, mainly focused on cost reduction for pharmaceutical expenditures, the German Act to Reinforce Competition between the German Statutory Health Insurances (GKV-Wettbewerbsstärkungsgesetz) in 2007 aimed to foster competition in the health sector.

The German Act to Reinforce Competition between the German Statutory Health Insurances also initiated structural changes. The benefits offered by instances allowed more differentiation of the insurances through introducing optional rates. In terms of content, most optional rates are oriented either on reimbursement of costs or on deductibles. Only one optional rate allows for reimbursement of pharmaceutical drugs for special therapy approaches, but in combination with a higher premium. While this may be a first step in the right direction, more options are desirable such as reimbursement of so-called OTCs. That would be the start of real competition between the health insurance providers. The insured person could be reinforced in his or her capacity as a client, and have the opportunity to complement his or her standard service package with an individualized service package by several service choice components.

The mentioned act offers the Statutory Health Insurance providers further options for shifting the collective-contractual agreements in favor of selective contracting. With the introduction of optional rates and rebate contracts, the Statutory Health Insurance providers increasingly change from “payer” to “player”. As a result, this leads to a differentiation between the offers. Inevitably, this leads to questions regarding cartel and competition, and the entrepreneurial activities of the SHI come into focus. In order to ensure fair market competition the law must, consequently, lead to uniform competition conditions for all stakeholders. Partial opening and application of §§ 19-21 of the German Act against restraints of Competition (Gesetz gegen Wettbewerbsbeschränkungen) is not enough.

In January 2009, a health care fund was introduced as a compromise of the political concepts of “citizen insurance”, and “citizen capitation fee”. From the BPI’s point of view, that does not constitute a solution to the problem of financing a sustainable health care system. The amount of the standard premium, in association with the risk structure compensation scheme, which is newly oriented towards morbidity, will lead to the following: due to mergers, more and more of the almost 190 currently existing SHIs will cease to exist. This dynamics can be accelerated if additional premiums are asked for.

In the opinion of the pharmaceutical industry, the insured person should, with the combination of income-dependent premiums and flat-rate premiums in the funds, be able to control the premium in such a manner as to finance an individual insurance package as per his or her own desires.

From the view of the industry, a first step toward a fundamental and financially sustainable reform of the SHI system would be freezing the employer's contribution and turning it into salary. In this manner, on one hand, health care costs and salary costs are separated. On the other hand, the individual is able to fully decide on the amount of premiums paid, and use the money in order to create an individual insurance package. In this manner, the insured person accepts more responsibility, without becoming financially overwhelmed.

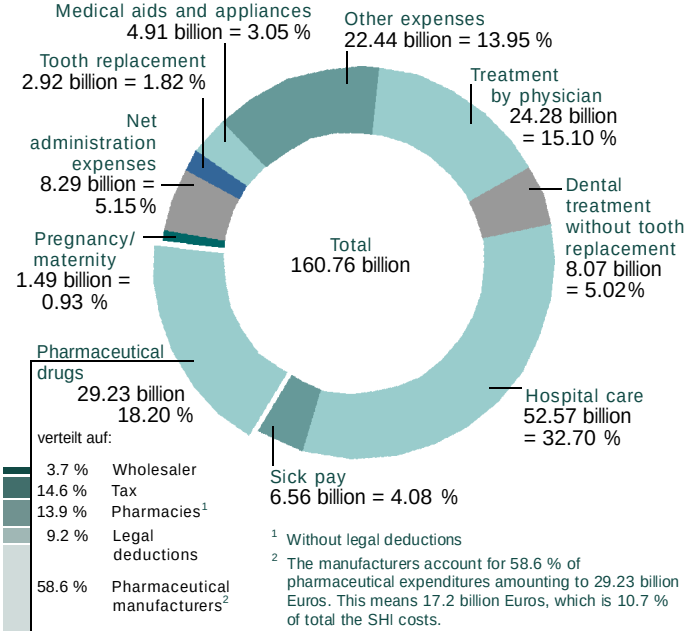
In the course of further reforms, the increased tendency toward standardizing of therapies needs to be stopped. At a time when the pharmaceutical industry is ever more strongly capable of developing pharmaceutical therapy options in a patient-individualized manner and to apply them in medical practice, the manifold therapy options must not be restricted to sheer cost reduction measures, e.g. through therapy advice or exclusions, by the self-government of health insurance funds.

Future health care reforms must contribute to deregulation and streamlining of administration in favor of increased responsibility of the individual, and freedom of choice for the stakeholders concerned. It must be the goal that the patients will, once again, benefit from the greatest possible service provided by service providers in the health care sector.

Cost structure of Statutory Health Insurance (SHI)

According to the view of the expert panel, the goal of cost limitation is always a “tightrope walk between withdrawal effects that cause increasing premiums, primarily outside the health sector for consumers and investors, and the positive effects that are generated by health costs and the services financed by them” (expert opinion furnished in 2003).

Cost structure of the Statutory Health Insurance (SHI)
2008 (in billion Euros and in % of all SHI-costs)



[1] Without legal deductions

[2] The manufacturers account for 58.6 % of pharmaceutical expenditures amounting to 29.23 billion Euros. This means 17.2 billion Euros, which is 10.7 % of total the SHI costs.

Source: Illustration of the BPI based on KJ1 2009.

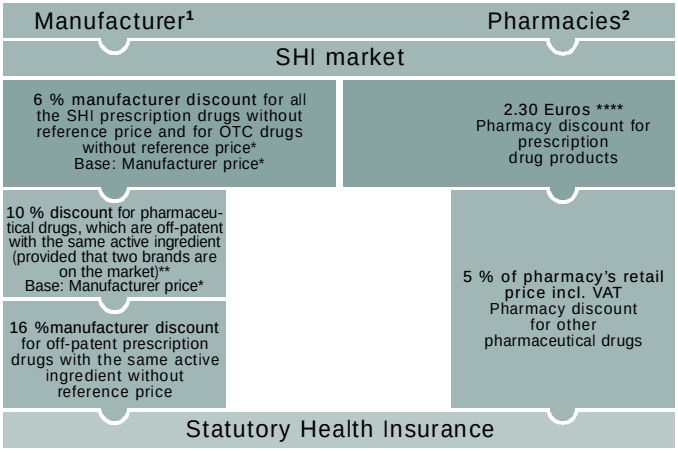
Inpatient care, at 52.57 billion Euros, is the most cost-intense sector of the SHI system. The expenditures for pharmaceutical drugs (29.23 billion Euros) and for medical treatment (24.28 billion Euros), combined, amount to 53.51 billion Euros. Together, that nearly accounts for the overall expenditures of the inpatient care sector. The share of pharmaceuticals expenditures alone was at 18.2 % of the total SHI costs.

During the analysis of the SHI pharmaceuticals expenditures, the share of the trade levels is often neglected, i.e. the proportion of the wholesalers' and pharmacies' margins, and the Value Added Tax. If a given pharmaceutical drug at manufacturer price costs one Euro, on average, one needs to add on a 6 % wholesaler margin, 3 % plus 8.10 Euros of the pharmacy margin, as well as 19 % Value Added Tax. The retail price would total just about 11 Euros.

Irrespective of this, rising pharmaceutical expenditures, as well as falling point values of medical treatment, are predominantly caused by the increase of outpatient therapy options, as well as a patient shift from the inpatient to the outpatient care sector. The Diagnosis Related Groups (DRGs) and the related shorter stay times in hospitals are going to reinforce this tendency even more in the years to come. For now, however, as in the past, the shift of services is not followed by the required financial volume.

In public, too little attention is paid to the fact that manufacturers as well as the pharmacists need to provide an obligatory discount for the stabilization of the SHI expenditures, as shown below.

SHI obligatory discounts***



* April 1st, 2006 to March 31st, 2008, shows the discount by manufacturer price increase, compared to the price status of November 1st, 2005 (price increase moratorium)

** If at least 30% less than the respective, valid, reference price, then
a) the 10% discount automatically lapses b) additionally, the SHI can waive the co-pay for patients as long as there are savings for the SHI

*** General prohibition of "discounts in kind"

**** Increase to 2.30 Euros since April 1st, 2007

1 § 130a sect. 1 German Social Code Book No. V (SGB V); § 130a sect. 3a, 3b German Social Code Book No. V.

2 § 130 sect. 1 German Social Code Book No. V

Source: Illustration of the BPI 2009.

The cutback of the obligatory discount for the pharmaceutical industry, from 16 % to 6 % at the beginning of 2005, was welcomed by the industry because the obligatory discount had resulted in negative effects for the pharmaceutical location of Germany, and for employment in this sector. Retrospectively, the 16 % obligatory discount was partially reintroduced through the back door via the German Economic Optimization of Pharmaceutical Care Act (AVWG) 2006. In general, for pharmaceutical drugs not subject to the reference price system, there is an obligatory discount on the manufacturer price of 6 %. Based on the AVWG regulation, an additional 10 % obligatory rebate for pharmaceutical drugs that are off-patent and have the same active ingredients was introduced. Outside the reference price system, there is sometimes a new cumulative discount totaling 16 %. Avoidance of the 10 % rebate – through price reduction of at least 30 % below the reference price – can only be considered by companies whose products are part of the reference price system.

Expenses of the pharmaceutical industry, due to obligatory discounts 2003–2008 (in million Euros), manufacturer price

* So-called "discount for generics"

** Discount decline due to the price moratorium running out in April 2008

Source: IMS Health PharmaScope® 2009.

The obligatory discounts are to be paid since the solidarity tax in 2002 (200 million Euros), and they have been adapted several times.

In 2008, this resulted in just about 1 billion Euros. Medium-sized pharmaceutical companies, in particular, are hard hit by these payments because they cannot absorb the losses through cross-subsidies with other product segments. These political interventions undermine the proclaimed overall support for medium-sized companies. On the contrary, governmental intervention accelerates market consolidation in favor of larger corporations.

Discount / rebate contracting in SHI

Since 2003, there has been a legal option for the health insurance providers (§ 130a sect. 8 German Social Code Book No. V) to enter into individual rebate / discount contracts with the pharmaceutical companies. In the first few years, this regulation had barely any practical significance. With the German Act on reinforcing SHI competition (GKV-WSG) in 2007, this instrument has rapidly gained momentum as a result of the accompanying measures, such as consideration regarding the bonus-malus system for doctors, reduced co-pays for patients and through the statutory principle of preferred-delivery of rebate pharmaceuticals in the pharmacies. From then onward, the debate was characterized by legal disputes about the application of distribution, competition and cartel law.

Now as then, it is necessary to fight for an equal playing field for all stakeholders involved in competition, which means that, in the case of selective contracting between Statutory Health Insurance providers and pharmaceutical companies, the entire German cartel and competition law (GWB and UWG) must be applied. Due to the increasing number of mergers in the Statutory Health Insurance sector, the market power on the side of the health insurance providers is increasing.

Until 2008, questions had been left open concerning the applicability of the Cartel Procurement Law –connected with the obligation to conduct European-wide calls for tender – as well as the valid legal route when checking rebate contracts. Finally, in October 2007, the EU Commission initiated contract violation proceedings against the Federal Republic of Germany, for violation of the EU Procurement Law when entering rebate contracts. Actions only started taking place with the implementation of the German Law to enhance of organizational structures of SHI (GKV-OrgWG). The new rules, which

went into force on January 1st, 2009, provide that when entering contracts as per § 130a sect. 8 German Social Code Book No. V, procurement law is applicable, "provided the pre-requisites mentioned therein are fulfilled". There is now a divided legal route for verification of discount contracts: the first stage is handled by the procurement chambers, and the second by the respective social jurisdiction. Further, a special procedure has been installed for procurement-related disputes with regard to social jurisdiction and became part of the German Social Court Law (SGG), which meets the special requirements of procurement-related disputes.

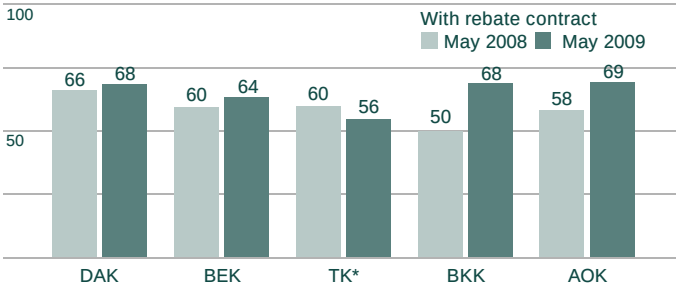
Since April 24th, 2009, a new act came into force concerning the modernization of the Procurement Law. It is now obligatory in the tender business, to divide these into partial and specialist lots, something that can be helpful for medium-sized companies in the procurement process. But also when it comes to legal protection, the modernization of the Procurement Law contains important regulations, especially in respect to the invalidity of illegal de facto procurement (§ 101b sect. 1 GWB). This invalidity only applies, however, if it is submitted to the procurement chamber within 30 days of obtaining the knowledge, and/or no longer than six months after signing the contract (§ 101 b sect. 2 GWB).

As far as rebate contracts concerning generic drugs, the applicability of the procurement law can be considered as clear. With reference to discount contracts concerning patented drugs, a final legal decision is still pending.

An essential aspect here is whether Statutory Health Insurance providers, when signing a rebate contract concerning patented drugs, are actually making a selection decision for the persons insured. The selection would mean an essential part for a public service remit in the sense of the procurement law, since patented drugs cannot be substituted at the pharmacies.

Meanwhile, there is a significant increase of discount contract drugs at all the SHI. In terms of quantity, the AOKs reached a share of 69 % in May 2009, which is the highest share in the generic segment. These tenders were based on active ingredients, whereby the large Statutory Health Insurance funds, had partly entered contracts pertaining to the overall portfolio of a company. The latter had not been subject to public tenders. In July 2009, however, the TK (Techniker Krankenkasse) initiated a European-wide call for active ingredient related tender.

Share of discount drugs in different Statutory Health Insurances (market share in %)

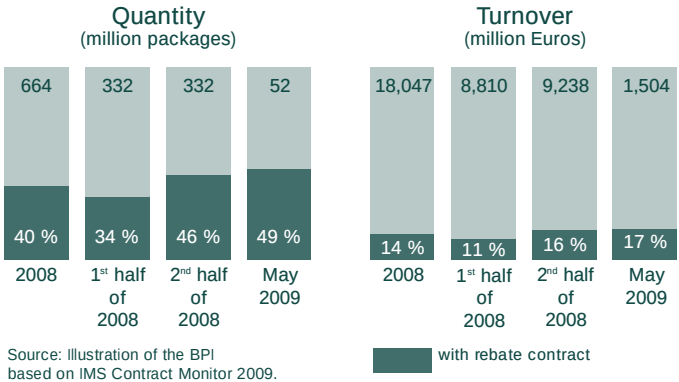


* Merged with IKK Direkt

Source: Illustration of the BPI based on IMS Contract Monitor 2009.

In May 2009, almost half of all pharmaceutical drugs supplied through the SHI market were subject to rebate regulations, according to information by IMS Health. At the end of 2008, 204 Statutory Health Insurance providers had entered some 4,739 contracts, containing 25,937 different trade forms, with 116 pharmaceutical companies.

SHI-market and pharmaceutical drugs subject to rebate contracts



Source: Illustration of the BPI based on IMS Contract Monitor 2009.

In May 2009, IMS Health reported the number of 203 Statutory Health Insurance providers with 127 manufacturers. The number of contracts was 5,972 and there were over 27,000 trade forms involved.

The portfolio contracts are highly precarious, especially for medium-sized companies, since even when uniting as a bidding consortium, they barely receive any contracts. Not being taken into consideration in a rebate contract has the same effects as a partial exclusion from the market since the contractually set time period (usually two years) regulates the preferred distribution of discounted pharmaceuticals. An AOK with a market share of 40 %, hence, means very negative effects for the bidder who does not receive the award. And if the corresponding company has achieved the highest turnover with the majority of its products, by cooperation with the AOK, this can actually endanger its existence.

In general, selective contracting between manufacturers and Statutory Health Insurance providers is undertaken within a highly regulated overall system that is characterized by massive market interventions, as well as the monopoly position of the Statutory Health Insurance providers. The side-by-side “regulation jungle” – among others reference price system, obligatory manufacturer rebates and co-payment waivers – needs to be cleared.

The German pharmacy market

The development in the German pharmacy market presents a very heterogenous picture. Compared to the previous year, the total turnover in the pharmacy market, assessed at manufacturer prices[1] rose in 2008 by 4.3 % to a total of 23.8 billion Euros. For prescription drugs, there was an increase in turnover of 5.0 %. The area of OTCs, on the other hand, was on the decline with 4.7 %.

Looking at the volume trends in the overall market shows that in 2008, there was a slight tendency increase. The largest decline of 5.9 % is presented by non-pharmaceutical drugs when compared to the previous year.

Development of turnover in the pharmacy market 2005–2008

(in million Euros)

	2005	2006	2007	2008	Change to previous year in %
Total	21,904.8	21,823.1	22,785.7	23,772.5	4.3
Prescription only	17,055.5	16,902.8	17,741.1	18,635.7	5.0
Only for sale at pharmacies	2,856.1	2,846.1	2,901.3	2,975.0	2.5
Non-pharmaceutical drugs	1,176.2	1,224.1	1,263.0	1,254.6	- 0.7
Narcotics	609.6	652.2	682.4	718.1	5.2
For sale outside of pharmacies	202.3	193.0	192.9	183.8	- 4.7
Drugs + chemicals	5.1	4.9	5.0	5.3	5.5

Source: Illustration of the BPI based on data of Insight Health 2009.

Development of the sales trend in the pharmacy market 2005–2008

(packages in millions)

	2005	2006	2007	2008	Change to previous year in %
Total	1,619.6	1,599.3	1,586.0	1,609.7	1.5
Prescription only	707.1	674.7	697.8	729.9	4.6
Only for sale at pharmacies	705.0	684.2	691.2	692.3	0.2
Non-pharmaceutical drugs	145.1	141.7	139.7	131.5	- 5.9
Narcotics	54.4	50.3	48.2	46.2	- 4.3
For sale outside pharmacies	7.3	7.8	8.5	9.2	7.8
Drugs + chemicals	0.7	0.6	0.6	0.6	1.7

Source: Illustration of the BPI based on data of Insight Health 2009.

[1] For this assessment, initially, the wholesaler turnovers, as well as the direct business of manufacturers with pharmacies is recorded and, afterwards evaluated with the manufacturer price. Not included are turnovers of manufacturers with hospitals.

The development of the pharmaceutical drug segments according to additional categories, when looking at the turnover in the year of 2008, shows the largest growth rate in comparison to the previous year in the field of anthroposophics (14.2 %), followed by biopharmaceuticals (9.7 %). Pharmaceutical drugs increased by 3.8 %.

Development of turnover of pharmaceutical drug segments according to additional categories 2005–2008 (in million Euros)

	2005	2006	2007	2008	Change to previous year in %
Total	21,904.7	21,823.2	22,785.6	23,772.5	4,3
Pharmaceutical drugs	17,515.2	17,228.4	17,544.1	18,216.6	3,8
Biopharmaceuticals	2,098.0	2,276.5	2,861.7	3,137.8	9,7
Phytopharmaceuticals	821.8	797.4	797.7	825.5	3,5
Other*	649.4	671.2	706.3	704.7	- 0,2
Diagnostics	554.1	580.4	593.6	592.0	- 0,3
Homeopathic medicine	233.8	235.2	245.7	254.2	3,5
Anthroposophy	32.5	34.1	36.5	41.7	14,2

* Physical and dental hygiene products, injection equipment, disinfection agents, sideline products, pharmaceutical drugs, medical devices, chemicals, animal medicine, nutritional supplements, diet products

Source: Illustration of the BPI based on data of Insight Health 2009.

When looking at volume, anthroposophical medicine was also on the rise in 2008 (6 %), followed by homeopathic medicines (3.3 %). The growth for pharmaceutical drugs, in comparison, amounted to 2.3 %.

Development of turnover of pharmaceutical drug segments according to additional categories 2005–2008 (in million packages)

	2005	2006	2007	2008	Change to previous year in %
Total	1.619,6	1.559,4	1.586,1	1.609,7	1,5
Pharmaceutical drugs	1.257,3	1.212,3	1.237,0	1.265,3	2,3
Phytopharmaceuticals	144,1	132,2	130,2	131,1	0,7
Other*	124,9	120,1	118,9	111,3	- 6,4
Homeopathic medicine	48,6	47,9	50,4	52,0	3,3
Diagnostics	25,2	26,6	26,9	26,8	- 0,2
Biopharmaceuticals	14,4	14,7	16,8	16,9	0,5
Anthroposophy	5,1	5,6	6,0	6,3	6,0

* Physical and dental hygiene products, injection equipment, disinfection agents, sideline products, pharmaceutical drugs, medical devices, chemicals, animal medicine, nutritional supplements, diet products

Source: Illustration of the BPI based on data of Insight Health 2009.

With the introduction of optional rates for special therapy options, the government has provided patients with choices in the areas of homeopathic medicine, anthroposophy and phytotherapy, whereas there is currently a lack of attractive implementation concepts. Large parts of the population are increasingly using natural medicines, for instance phytopharmaceuticals. These are medicines with the active ingredients which are exclusively plants, parts of plants and/or combinations.

In Germany, over 100 pharmaceutical companies with highly-qualified staff are engaged in producing anthroposophical and homeopathic medicines. Germany is the market leader in the field of phytopharmaceuticals, as well as anthroposophical and homeopathic medicine. The medicines are used all across the EU. In Germany alone, there are some 60,000 physicians who regularly prescribe homeopathic and anthroposophical medicines. Outside of Europe, the homeopathic field enjoys global popularity, especially in the USA, Central and South America, Asia, India, and South Africa. Anthroposophical medicine, outside Europe, is especially popular in North and South America, as well as in Australia and New Zealand.

An analysis of the Top 10 indication areas according to Anatomical Therapeutic Chemical Classification (ATC-3) shows an overall minimal rising trend when looking at volumes. Compared to the previous year, the largest growth rate, with 16.3%, is in the field of ulcer therapeutic agents, followed by beta blockers (6.0 %) and non -steroidal anti-inflammatory drugs (5.9 %).

Top 10 leading indication areas (ATC-3)
at the pharmacy market 2008 by distribution

Indication areas (ATC-3)	Packages in thousands	% to previous year	Share of total turn-over in %	Share of total sales in %
Total	1,609,733.8	1.49	100.00	100.00
N02B other analgetics	153,234.3	3.02	2.18	9.52
R01A nasal preparations, topical	73,066.7	- 3.42	0.67	4.54
R05C expectorants without anti-infectants	63,753.9	1.28	0.93	3.96
V03X other therapeutic preparations	52,020.8	1.98	0.98	3.23
M01A anti-phlogistic/anti-rheuma., non-steroid.	44,603.7	5.90	0.80	2.77
A02B ulcer therapeutic agents	43,381.8	16.33	3.31	2.69
C07A beta-blockers	36,224.8	6.02	1.00	2.25
M02A anti-rheumatory, and analgetics, topical	33,015.3	- 0.21	0.59	2.05
N05B hypnotics and sedatives	27,040.1	- 1.55	0.47	1.68
A06A laxatives	26,688.0	- 1.83	0.60	1.66

Source: Illustration of the BPI based on data of Insight Health 2009.

The turnover development of the Top 10 indication areas per ATC–3 shows that immune suppressants, other antineoplastic agents and interferons show the highest rate of increase compared to the previous year. In 2008, the share of these three groups at the overall turnover volume of the pharmacy market was at 8.6 %.

Top 10 leading indication areas (ATC-3)
at the pharmacy market 2008 by turnover

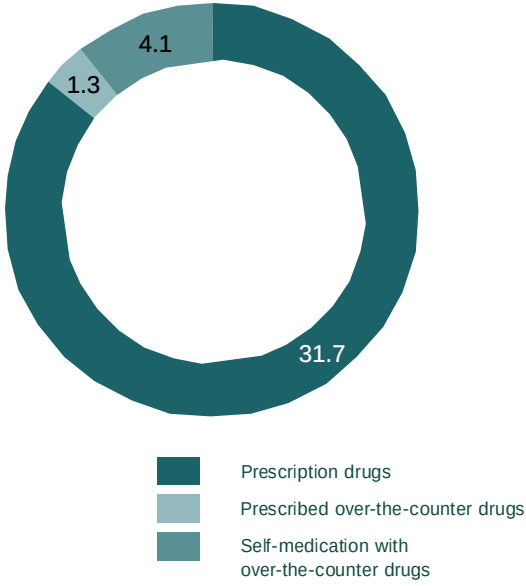
Indication areas (ATC-3)	In thousands Euros	% to previous year	Share of total turn-over in %	Share of total sales in %
Total	23,772,515.9	4.33	100.00	100.00
J07A vaccines, simple	920,437.3	- 5.32	3.87	0.49
L04A immune suppressants	871,628.7	32.98	3.67	0.13
A10C human-insulin and analogs	846,637.9	4.48	3.56	0.80
A02B ulcer-therapeutic agents	786,899.8	2.48	3.31	2.69
N05A anti-psychotics	657,577.4	- 11.67	2.77	0.82
L03B Interferons	623,275.5	12.58	2.62	0.03
N02A analgetics, narcotics	620,783.7	7.94	2.61	0.39
N06A antidepressants / mood stabilizers	552,291.2	11.64	2.32	1.53
L01X other antineoplastic agents	549,118.9	26.49	2.31	0.06
T02D diabetes tests	539,493.5	- 0.39	2.27	1.46

Source: Illustration of the BPI based on data of Insight Health 2009.

The German pharmaceutical market

The illustrations outlined below clarify different segments of the pharmaceutical market in pharmacies. For prescription drugs assessed with the pharmacy's retail price, IMS Health for 2008 determined a total turnover of 31.7 billion Euros. The turnover of over-the-counter medicines showed a total of 5.4 billion Euros for 666 million packages.

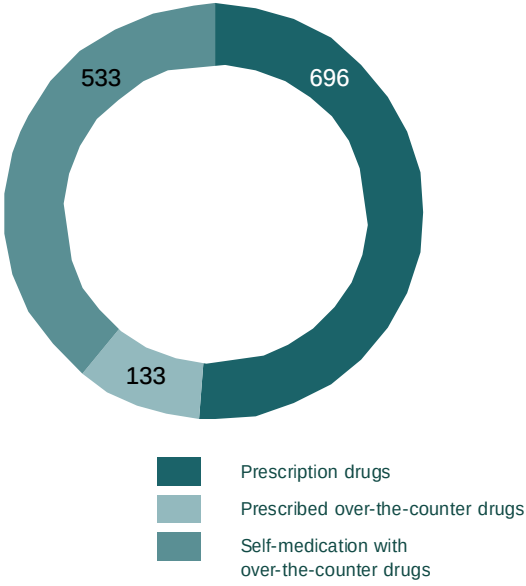
Turnover of pharmaceuticals in pharmacies 2008 at the pharmacy's retail price (in billion Euros)



Source: Illustration of the BPI based on data of IMS Health 2009.

In 2008, 133 million package units of over-the-counter drugs were reimbursed by the SHI, while 533 million units were purchased for self-medication.

Sales of pharmaceuticals in pharmacies 2008
(in million package units - PU)



Source: Illustration of the BPI based on data of IMS Health 2009.

The differences between turnover and sales/quantity can particularly be traced back to the price level of the pharmaceutical drugs under consideration. The average pharmacy's retail price of a prescription drug with about 44.58 Euros a package is clearly above the average price of over-the-counter drugs at 8.00 Euros.

The price differences between over-the-counter and prescription drugs are an expression of the different competitive situation of these products. Over-the-counter drugs are proven products that have already been on the market for quite some time, and that are frequently subjected to competition from generics. In this segment of highly effective pharmaceutical drugs, one can also find many phytopharmaceuticals. The group of prescription drugs contains many new developments, which are partially still protected by patent and have a higher price because of covering the higher R&D costs.

The OTC market

The turnover development in the German pharmacy market in 2008, with pharmaceutical drugs available without prescription only at pharmacies, as well as health products (GMS, Gesundheitsmittel)*, will, in the future, be dominated by pharmacy-only drugs at 81 % (sales: 79 %). What was initially a swift increase of the share of health products has declined over recent years; the tendency toward growth in this product range does, however, continue. While turnover share of health products in 2003 was still at 8.8 %, by the year 2008 it was already 13.7 % (volume 2003: 14.2 %; 2008: 15.5 %). As looking at the volume shows, however, the amount of health products has only risen insignificantly while there has been a strong price increase in the health product category in recent years.

The total OTC market, compared to the previous year, showed some losses (sales: 3.3 %; turnover: 2.6 %) and, for both sales and turnover, is below the 2004 figures. 2004 was the year when the health care modernization law, aside from a few exceptions, vacated reimbursement of OTC drugs.

Development of turnover in the German OTC pharmacy market

Turnover in thousand Euros to pharmacy's retail price

	2003	2004	2005	2006	2007	2008
Pharmaceutical drugs						
- Pharmacy-only	6,347,920	5,497,728	5,529,331	5,294,711	5,285,794	5,103,774
- OTCs	379,305	368,999	350,075	334,815	328,635	312,783
GMS pharmacy	645,999	752,342	820,650	845,954	833,337	864,908
Total	7,373,224	6,619,069	6,700,056	6,475,480	6,447,766	6,281,465

Market share in %	2003	2004	2005	2006	2007	2008
Pharmaceutical drugs						
- Pharmacy-only	86.1	83.0	82.6	81.8	82.0	81.3
- OTCs	5.1	5.6	5.2	5.2	5.1	5.0
GMS pharmacy	8.8	11.4	12.2	13.0	12.9	13.7
Total	100	100	100	100	100	100

Source: Illustration of the BPI based on data of IMS Health 2009.

*GMS: Defined as products competing with pharmaceutical drugs.

Development of sales in the German OTC pharmacy market

Volume in thousands of package units

Packages	2003	2004	2005	2006	2007	2008
Pharmaceutical drugs						
- Pharmacy-only	763,621	679,006	686,585	653,090	641,636	618,855
- OTCs	57,145	53,497	51,202	48,958	46,965	44,604
GMS pharmacy	136,180	134,253	137,866	127,207	123,271	121,440
Total	956,946	866,756	875,653	829,255	811,872	784,899

Market share in %	2003	2004	2005	2006	2007	2008
Pharmaceutical drugs						
- Pharmacy-only	79.8	78.3	78.4	78.8	79.0	78.8
- OTCs	6.0	6.2	5.9	5.9	5.8	5.7
GMS pharmacy	14.2	15.5	15.7	15.3	15.2	15.5
Total	100	100	100	100	100	100

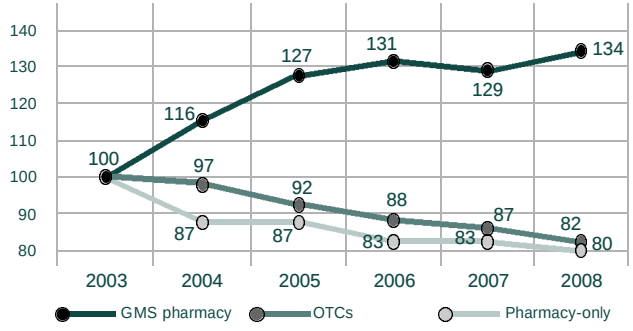
Source: Illustration of the BPI based on data of IMS Health 2009.

The sales and turnover figures of the mail-order pharmacies were only insufficiently recorded in 2008, and there are significant parameter errors for 2008. For the future, an improved data status can be envisioned through new contracts between market research institutes and pharmacies. Comparisons of BPI member companies between the market research data and the actual volume showed deviations of up to 20 % for individual products. Large packages (N3) and high-priced products are particularly affected by this, suffering in part from very aggressive pricing policies of some individual mail-order pharmacies. Mail-order pharmacies actively use these products in order to gain new clients through price leadership, or to merely maintain market shares. Altogether, the market share of the mail-order pharmacies of the OTC total market is estimated at 5 %.

For fifth OTC pharmaceutical drug sold at pharmacies, there is no pharmacy-only obligation (share of sales: 21 %; share of turnover: 19 %). As can be seen from the illustrations to follow, this tendency has been ongoing since 2003.

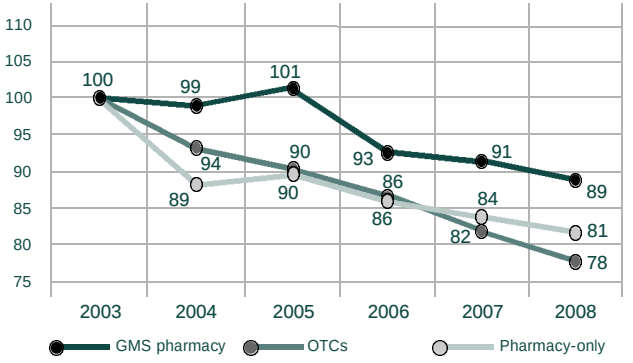
Index-based illustrations of turnover and sales development of over-the-counter drugs in the German pharmacy market (index comparison, basis: turnover (retail price) 2003 = 100; basis quantity: units 2003 = 100)

Development of turnover (index)



Source: Illustration of the BPI based on data of IMS Health 2009.

Development of sales (index)



Source: Illustration of the BPI based on data of IMS Health 2009.

In the category of non-pharmaceutical drugs, higher quality products are increasingly on offer. For instance, the average price of a health care product at the pharmacy rose from 4.74 Euros in 2003 to 7.12 Euros in 2008.

The average pharmacy retail price of a product at the German pharmacy market, for 2008, was 8.00 Euros. Prices in the strongest quantity category for pharmacy-only pharmaceutical drugs are at a value of 8.25 Euros in 2008, which matches the level of 2007, and which is slightly below the average pharmacy's retail price of 2003. Over the next years, further development on the German pharmacy market (e.g. growth of mail-order pharmaceutical business), expansion of franchise concepts and cooperation amongst pharmacies, is going to exert a strong influence on price development.

Average pharmacy retail price for OTCs in the pharmacy market

Prices in Euro	2003	2004	2005	2006	2007	2008
Pharmaceutical drugs						
- Pharmacy-only	8,31	8,10	8,05	8,11	8,24	8,25
- OTCs	6,64	6,90	6,84	6,84	7,00	7,01
GMS pharmacy	4,74	5,60	5,95	6,65	6,76	7,12
Mean value (weighed according to volume)	7,70	7,64	7,65	7,81	7,94	8,00

Source: Illustration of the BPI based on data of IMS Health 2009.

The SHI pharma-ceutical market

The SHI pharmaceutical market comprises an overview of prescriptions as well as sales, at the expense of the SHIs. Turnovers are calculated on the basis of the pharmacy retail prices; therefore they contain the respective wholesaler and pharmacy margins, as well as VAT.

Number of prescriptions at the expense of the SHIs 2006 – 2008

Additional categories	2006	2007	2008
Total	636,555,192	650,335,197	667,003,515
Pharmaceuticals*	601,245,474	613,586,153	629,456,340
Diagnostics	19,213,287	20,446,525	21,698,994
Phytopharmaceuticals	6,602,481	6,477,890	6,037,534
Other**	5,812,106	6,078,950	6,234,597
Homeopathics	2,914,418	2,935,017	2,754,183
Anthroposophy	767,426	810,662	821,867

* Including biopharmaceuticals

** Physical and dental hygiene products, injection equipment, disinfection agents, sideline products, pharmaceutical drugs, diet products, medical devices, chemicals, nutritional supplements

Source: Illustration of the BPI based on data of Insight Health 2009.

In 2008, an overall volume of 667 million prescriptions were financed through the SHI system. The share of volume of prescribed pharmaceuticals is around 94.4 %. If one looks at the development of the volume of prescriptions, it becomes clear that diagnostics show a continuous increase with time, with a share of volume of prescriptions of 3.3 %. Phytopharmaceuticals are prescribed in 1.0 % of the cases, homeopathic medicines in 0.4 % of the cases.

Turnover at the expense of the SHIs 2006-2008, pharmacy retail price in Euros

	2006	2007	2008
Total	26,346,413,369	28,052,797,192	29,528,498,932
Pharmaceuticals*	25,335,357,434	26,961,959,508	28,392,747,595
Diagnostics	734,908,977	795,000,609	837,568,419
Other**	144,972,375	163,333,797	169,548,039
Phytopharmaceuticals	86,432,322	85,036,837	81,166,781
Homeopathy	25,598,819	26,998,795	25,593,216
Anthroposophy	19,143,441	20,467,646	21,874,882

* Including biopharmaceuticals

** Physical and dental hygiene products, injection equipment, disinfection agents, sideline products, pharmaceutical drugs, diet products, medical devices, chemicals, nutritional supplements

Source: Illustration of the BPI based on Insight Health 2009.

Development of the market share at the expense of SHIs 2006-2008 in %

	Prescription volume			Turnover		
	2006	2007	2008	2006	2007	2008
Total	100.00	100.00	100.00	100.00	100.00	100.00
Pharmaceuticals	94.45	94.35	94.37	96.17	96.12	96.15
Diagnostics	3.02	3.14	3.25	2.79	2.83	2.84
Other*	0.91	0.93	0.93	0.55	0.58	0.57
Phytopharmaceuticals	1.04	1.00	0.91	0.33	0.30	0.27
Homeopathy	0.46	0.45	0.41	0.10	0.10	0.09
Anthroposophy	0.12	0.12	0.12	0.07	0.07	0.07

* Physical and dental hygiene products, injection equipment, disinfection agents, sideline products, pharmaceutical drugs, diet products, medical devices, chemicals, nutritional supplements

Source: Illustration of the BPI based on data of Insight Health 2009.

Looking at turnover, it becomes clear that the turnover of pharmaceuticals in 2008 accounted for 28.4 billion Euros, corresponding with a 5.2 % growth rate compared to the previous year of 2007. The market share of pharmaceuticals was 96 %. The comparatively lower share in turnover of phytopharmaceuticals, at 0.3 % of SHI expenditures, can be explained with the lower-than average price level of these products. Similar considerations apply for homeopathic medicines, which resulted in SHI expenditures of 25.6 million Euros. This corresponds to only 0.1 % of the SHI pharmaceutical expenditures.

Top 10 leading indication areas (ATC-3) at the SHI pharmaceutical market 2008 according to sales volume

Indication areas (ATC-3)	Prescriptions	% to previous year	%-share of total volume	%-share of total turnover
Total	667,003,515	2.56	100.00	100.00
M01A antiphlog. / antirheum., non-steroid	35,417,795	2.08	5.31	1.91
N02B other analgetics	35,006,724	4.66	5.25	2.00
C07A beta-blockers, pure	32,030,508	4.39	4.80	1.95
A02B ulcer therapeutic agents	25,589,088	10.82	3.84	3.88
C09A ACE-inhibitors, pure	23,046,738	6.66	3.46	1.22
T02D diabetes tests	21,158,718	6.83	3.17	2.69
C03A diuretics	21,127,913	2.98	3.17	1.38
H03A thyroid preparations	18,569,138	6.38	2.78	1.01
C08A calcium antagonists, pure	17,552,902	3.29	2.63	1.12
N06A antidepressants / mood stabilizers	17,438,849	6.68	2.61	2.61

Source: Illustration of the BPI based on data of Insight Health 2009.

When looking at sales volume in 2008, the ulcer therapeutic agents presented the highest growth rate, followed by diabetes tests and anti-depressants. This group corresponds to 9.2 % of the total turnover.

Top 10 leading indication areas (ATC-3) at the SHI pharmaceutical market 2008 according to turnover

Indication areas (ATC-3)	In million Euros	% to previous year	%-share of total volume	%-share of total turnover
Total	29,528,5	5.26	100.00	100.00
A10C human insulin and analogs	1,161,5	4.89	1.80	3.93
A02B ulcer therapeutic agents	1,144,4	5.46	3.84	3.88
L04A immune suppressants	1,129,5	33.06	0.26	3.83
J07A vaccines, simple	1,108,8	7.62	0.69	3.76
N05A antipsychotics	926,1	- 9.80	1.73	3.14
N02A analgesics, narcotics	797,3	7.96	0.83	2.70
T02D diabetes tests	793,4	5.13	3.17	2.69
L03B interferons	789,1	12.18	0.07	2.67
N06A antidepressants / mood stabilizers	770,0	9.83	2.61	2.61
L01X other antineoplastic agents	655,5	20.67	0.10	2.22

Source: Illustration of the BPI based on data of Insight Health 2009.

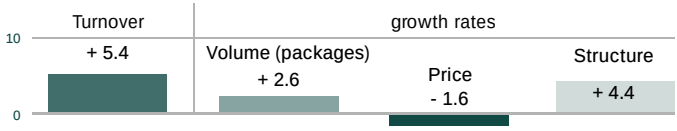
Looking at turnover, in 2008, it was the immune suppressants that, before other antineoplastic agents, presented the highest growth rate compared to the previous year of 2007. Concerning the highest declines, antipsychotics registered with 9.8 %.

The SHI structural component

The structural component allows for detailed consideration of the development of factors affecting the SHI pharmaceutical expenditures. It is possible to identify to what extent has there been a tendency toward the prescription of innovative and patented pharmaceutical drugs. The structural effect comprises different effects (package size, dosage/ strength and pharmaceutical form) and effects within and/or among pharmaceutical segments as well as indication groups among each other).

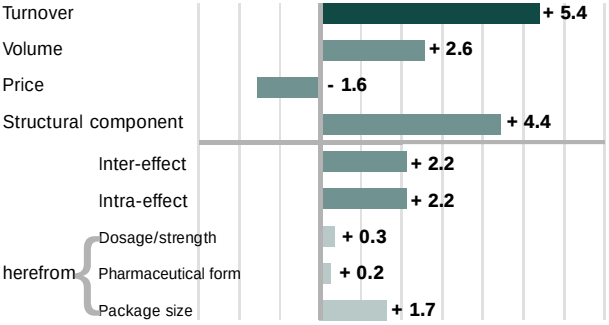
The SHI structure component study of IMS, as a quantitative instrument of market research and health care policy, shows the individual components (price, volume and structure) of changes in turnover.

SHI - structural component, growth rates, 2008
(changes to previous year in %)



Source: Illustration of the BPI based on data of the IMS® SHI-Structural component study 2009.

Components 2008, as a cause of the turnover development in the SHI market, divided into sub-groups (in %), pharmacy retail price



Quelle: IMS® SHI-Structural component study 2009.

Through addition, one can form the individual components (e.g. the structural component “package size”) for the individual forms of administration, the preparation in general, as well as at the hierarchy levels above. The SHI market is described based on the pharmacy’s retail prices, including VAT. The structural component study shows changes for four different segments.

The “Pharmaceutical Atlas” published by the Institut für Gesundheits- und Sozialforschung (IGES), uses the ATC classification, just like the IMS Health Structure Component Study. The IMS structure component analysis examines all ATC groups (ATC 1 to ATC 4) and thus allows for indication-oriented consideration of the individual growth factors for all levels.

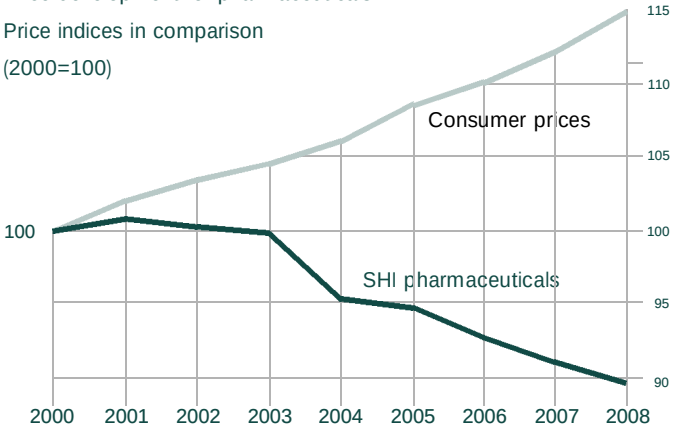
The “Pharmaceutical Atlas” of IGES takes a different approach. The essential difference to IMS is in the different definition of the components. When it comes to structure of the turnover components, IGES, among others, looks at consumption, therapy approach, generics, efficacy strength/package size, manufacturer and price component. For the 22 indications with the highest prescription share, there are detailed analyses. The quantity unit used in the “Pharmaceutical Atlas” relates to daily dosage (DDD, defined daily dose). The IMS structural component analysis uses quantity units (package unit - PU) and/or measuring units as a base.

In 2008, the IMS structural component was reported at 44 %. As a rule, this component moves somewhere between 5 % and 8 %. The price level in the SHI pharmaceutical market was on the decline overall with 1.6 %, while the quantity increased by 2.6 %.

For cost development, it showed that changes in price, quantity and quality played a part. Innovative pharmaceutical drugs that, by necessity, have a higher price level due to their higher R&D costs, frequently contribute toward the treatment of diseases that, until then, could not be treated, or were only adequately treated, thus offering considerable benefit to the patients concerned. At the same time, when it comes to less severe diseases, oftentimes generic drugs with a strongly decreasing price level since 2006 mostly due to the rebate contracts, cannot be properly illustrated.

The SHI-Pharmaceuticals Index, based on a slightly different calculation method compared to the figures of the IMS structural analysis, also confirms this declining price development in the SHI system for 2008, when compared with the development of consumer prices.

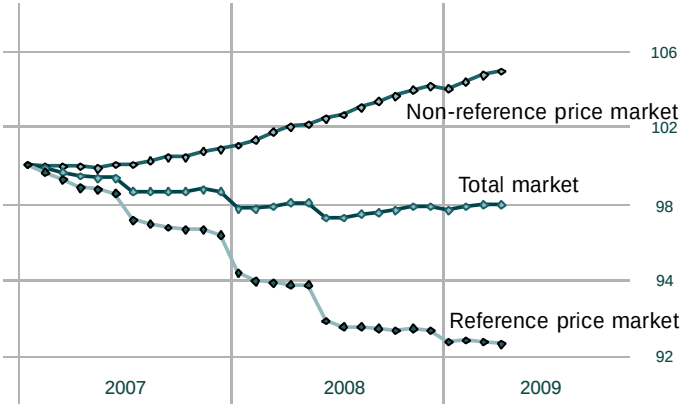
Price development for pharmaceuticals - Price indices in comparison (2000=100)



Sources: Illustration of the BPI based on data of the Wissenschaftliches Institut der AOK (WidO), Federal Statistical Office 2009.

As part of the German Act on SHI Modernization (GMG), a new pharmaceutical drug price ordinance has been in place since January 1st, 2004, which – for the prescription-only segment – has led to decreasing distribution costs for high-price pharmaceuticals, while those for low-cost, on the other hand, have risen. Further, since 2006, strong effects due to the German Act on Economic Optimization of Pharmaceutical Care (AVWG) have become evident. Prices, especially for pharmaceutical drugs under reference price, are continuously decreasing.

Price development according to market segments between January 2007-April 2009 (January 2007=100)



Source: Illustration of the BPI based on data of the Wissenschaftliches Instituts der AOK (WidO) 2009.

The number of pharma ceutical drugs in Germany

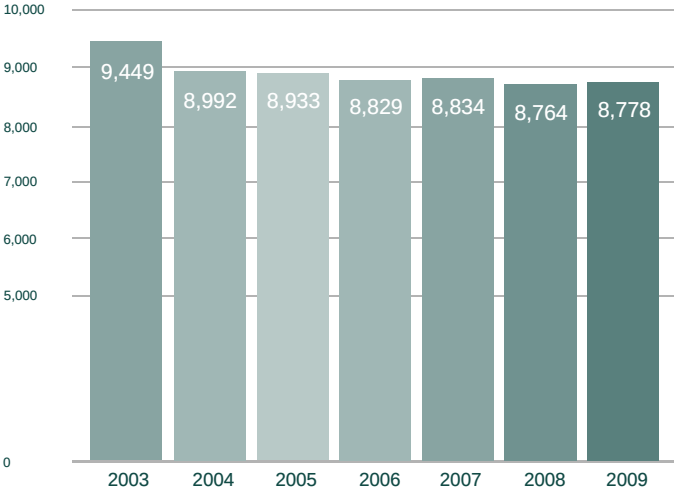
The focus of criticism is often about the high number of pharmaceutical drugs on the German market when it comes to international comparison. Here, a differential approach is required, as the manner of counting differs internationally.

As of June, 9th 2009, according to the statistics of the Federal Institute for Drugs and Medical Devices (BfArM), there are approvals or registrations for 60,089 pharmaceuticals of all therapy areas. The “Rote Liste®", the widespread register for pharmaceutical drugs in Germany, however, in its current issue only lists the figure of 8,778 products and, in this, provides a total of 35,577 prices (products are almost always handled in different package forms at different prices).

The difference between the number of more than 60,000 approvals and/or registrations on one hand, and the comparatively low number of less than 10,000 products listed in the “Rote Liste®" on the other hand, can be primarily explained by the different manner of counting, and by only partial consideration of self-medication products in the “Rote Liste®".

First of all, in Germany, every single strength/dosage and form of administration of pharmaceutical drugs requires a separate approval by the BfArM or the EMEA. This means that, for each cream, ointment or unction with the same active ingredients, there is an individual, independent approval. This is a German phenomenon. In other countries, products with the same dosage, but different formulation, are evaluated as the same approval and counted respectively.

Number of pharmaceutical drugs listed in the “Rote Liste®"



Source: Illustration of the BPI based on data of the “Rote Liste®" 2009.

Further, the BfArM figure merely described the maximum amount of products capable of being marketed in Germany. This does not necessarily mean that these products are also constantly available on the market. The approval of a pharmaceutical drug is not connected to the obligation of the marketing authorization holder to actually also offer the respective product on the market. As a rule, at all times, nobody offering pharmaceutical drugs completely exploits the authorisations available to them. However, unused authorisation expires after three years (Sunset-Clause).

The “Rote Liste®" is available to all suppliers of “pharmaceutical drugs”. At the same time, this compendium is so popular with the majority of physicians that any supplier of pharmaceutical drugs who wishes to have their pharmaceuticals prescribed by a doctor is also interested in being listed in the “Rote Liste®". Pharmaceutical drugs serving exclusively for patient self-medication, on the other hand, are only represented in the “Rote Liste®" in low numbers.

Hence, the number of pharmaceutical drugs available on the German market cannot be determined with certainty. Generally, the number of pharmaceutical drugs available for a given market is more a measure of supply amplitude and supply depth, and offers little indication concerning a possible over-supply of pharmaceutical drugs, since this figure does not include any information about their use.

Interventions in the pharmaceutical market - outlook

Over the course of the years, the governmental interventions into the pharmaceutical market have increased. Since 1989, at almost annual rhythm, changes are made which pharmaceutical companies have to overcome.

The fundamental problem of achieving a sustainable SHI system in Germany has thus far not been reached; on the contrary, health care policy has negatively influenced both the industrial and the service-providing health care sector. Transparency and safety in planning, through this, are being increasingly threatened, and the concentration process of the pharmaceutical industry, which is not forced by the market but by governmental intervention, is intensified. Interventions, particularly for small and medium-sized

companies, mean big threats. The laborious attempt of other industrial sectors of dissolving the process of oligopoly formation is actually counteracted in the health care sector where oligopolies' structures are even fostered by law.

Furthermore, the complexity of the overall system has reached such an extent that it is barely identifiable anymore what effects, in detail, resulted from which governmental intervention.

A cost containment policy fails to highlight the contribution of the pharmaceutical industry towards the treatment of diseases and the perception of Germany as an industrial location with high competitiveness.

Future growth potential is predicted for novel therapies of bio-medicine, genetic medicine and tissue engineering. Even though these approaches are only at the start of their development, legal stipulations for their approval at EU-level have already been set.

The Act on reinforcing SHI Competition (GKV-WSG) among the SHI system clearly shows that the government, through new instruments, continues to strive to control and regulate market excess of innovative, thus higher-priced pharmaceutical drugs. As of August 2008, the new instrument of a second opinion was introduced by the Federal Joint Committee (G-BA), comprising those pharmaceutical drugs that can be included in this process: primarily Orphan Drugs, highly effective new pharmaceutical drug therapies and procedures with higher costs or, which from the standpoint of the G-BA, involve higher risks, that are, e.g. used for the treatment of tumor and auto-immune diseases. This means that, aside from better control of possible side effects, it is the price of pharmaceutical drugs that becomes a criterion of additional social legislative control.

This new instrument constitutes a further example for how the government, by applying continously new measures, keeps interfering with reimbursement situations of innovative products, and hence, once more damages a very essential requirement for R&D, namely planning. The instrument of maximum reimbursement amounts for innovative pharmaceutical drugs constitutes an additional intervention. In the segment of Orphan Drugs, the BPI (due to a missing therapeutic alternative) was able to achieve that there would be no set amount of maximum reimbursement.

With the 15th Amendment of the German Medicines Law (15. AMG-Novelle), the government has also undertaken further changes in the area of Compassionate Use, i.e. the provision of pharmaceuticals in the cases of life-threatening illnesses prior to their approval. In the future, these pharmaceutical drugs must be made available to patients in need free–of-charge by the pharmaceutical entrepreneur, so long as there is no therapeutic alternative. This leads to a considerate financial burden, especially in the cases of medium-sized companies. The provisioning entitlement of patients, for whom other types of therapies with an approved pharmaceutical are usually not available, is politically negated.

A glance at the European legislative calendar shows that the EU ordinance for pharmaceuticals for novel therapy forms was published in the official gazette of the EU in late 2007, following intense discussions, and was applied in late 2008. With this, a uniform legal framework has been created inside the EU for the examination and approval of genetic therapeutic agents, cellular therapeutic agents and biotechnologically processed tissue products (tissue engineered products). In general, these products were subjected to the European drug product law. The BPI, in discussions at a national and a European level, has intensively become involved and has been able to bring about important changes, like an extended transition period for products already on the market, or extended financial aid for small and medium-sized companies. On the other hand, requirements for the companies, owing to the now obligatory, central approval via the EMEA, have greatly increased. Owing to an initiative of the BPI, however, an option was provided in the EC law, according to which companies do not routinely produce these pharmaceutical drugs, that the companies may obtain a national approval at the PEI and/or the respective competent authority in other member states. For small, innovative firms this option can significantly ease market entry with patient safety requirements remaining equal. Further provisions and the approval procedure, were codified in the German drug law with the 15th Amendment, with intense involvement of the BPI.

Index

Acronyms

AKG	Arzneimittel und Kooperation im Gesundheitswesen (Pharmaceuticals and Cooperation in the Health Care Sector)
AMG	Azneimittelgesetz (German Medicines Act)
AOK	Allgemeine Ortskrankenkasse (a German public health insurance company)
ATC Code	Anatomic Therapeutic Chemical Classification
AVP	Apothekenverkaufspreis (pharmacy retail price)
AVWG	Arzneimittelversorgungs-Wirtschaftlichkeitsgesetz (Economic Optimization of Pharmaceutical Care Act)
BfArM	Bundesinstitut für Arzneimittel und Medizinprodukte
Bill.	Billion
BIP	GDP
BMBF	Bundesministerium für Bildung und Forschung (Federal Ministry of Research and Education)
BMG	Bundesministerium für Gesundheit (Federal Ministry of Health)
BPI	Bundesverband der Pharmazeutischen Industrie e. V. (German Association for Pharmaceutical Industry)
DDD	Defined Daily Dose
DRGs	Diagnosis Related Groups
EFPIA	European Federation of Pharmaceutical Industry and Associations
EMEA	European Medicines Agency
EU	European Union
F&E	R & D
FSA	Freiwillige Selbstkontrolle Arzneimittelindustrie (Voluntary Self-regulation for the Pharmaceutical Industry)

G-BA	Gemeinsamer Bundesausschuss (Federal Joint Committee)
GKV	Gesetzliche Krankenversicherung (Statutory Health Insurance)
GKV-OrgWG	Gesetz zur Weiterentwicklung der Organisationsstrukturen in der Gesetzlichen Krankenversicherung (Act to enhance the organizational Structures of Statutory Health Insurance)
GKV-WSG	GKV-Wettbewerbsstärkungsgesetz (SHI Competition Reinforcement law)
GMG	GKV-Modernisierungsgesetz (SHI System Modernization Act)
GMS	Gesundheitsmittelstudie (health product study)
GWB	Gesetz gegen Wettbewerbsbeschränkungen (Act against Restraints of Competition)
HAP	Herstellerabgabepreis (manufacturer price)
IGES	Institut für Gesundheits- und Sozialforschung (a R&D institute for health and healthcare)
IMS	IMS HEALTH GmbH & Co. OHG
Insight Health	INSIGHT Health Management GmbH
LCD	Local currency Dollar
Mio.	Millions
MwSt.	VAT
NCE / NBE	New Chemical or New Biological Entities
OTC	Over-the-counter/self-medication
OR	Outcomes Research
PE	Packungseinheit (package unit; PU)
PEI	Paul-Ehrlich-Institute
Phyto	Phytopharmaceuticals

Acronyms

PKV	Private Krankenversicherung (Private health insurance)
SGB V	Sozialgesetzbuch (Code of Social Law) V
SGG	Sozialgerichtsgesetz (Social Court Code)
UAW	Unerwünschte Arzneimittelwirkung (undesired effect of a pharmaceutical drug)
WHO	World Health Organisation
WidO	Wissenschaftliches Institut der Ortskrankenkassen (Scientific institute of the AOKs)

German
Pharmaceutical
Industry Association

BPI

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Design: Netrixx Communications GmbH, Hamburg

39th revised edition, September 2009