

# EVOLUTION OF PHARMACEUTICAL MARKET

Associate Prof. PhD. Ioan Alin NISTOR<sup>1</sup>

## Abstract:

*A good health and a happy life are still distant dreams for most of the world's population. Extending these currently unmet needs is fueling the growth of many global industries, divided into categories, such as: life science, health care and disease management. Within this group of industries, there is pharmaceutical industry and the concern for remedies in preventing, improving and healing to hundreds of distinct diseases, from colds and flu to AIDS and Ebola. This area is enhanced by new sub domains such as biotechnology, genetics and dietary treatment. They will demonstrate whether or not represent a factor that will transform the industry in the twenty-first century.*

**Keywords:** Health, pharmaceutical market, public health

**JEL classification:** I15, N30, I18

## 1. INTRODUCTION

It all began 100 years ago. Felix Hoffman's curiosity created the pharmaceutical industry. Adding a mixture of carbon and hydrogen atoms on an extract of willow bark, it produced acetylsalicylic acid, and thus was born the aspirin. Confederation of the Rhine, Germany and Switzerland were pioneering. Bayer started the production of aspirin. Novartis's antecedents in Basel and Aventis's antecedents in Berlin accelerated maturation of the industry, representing a qualitative leap towards the production of chemicals in bulk. Progress has been slow. While other new industries had gone up to mass production in 1930, drugs were still made up of mayors medicinal compounds, galenic products made by the Greek physician Galen initially, in the second century after Christ. Chemotherapeutic revolution really began with the first antibacterial substances Prontosil (Farber) and M & B693 (May & Baker), representing a leap in medical practice.

The pharmaceutical sector is vital to the health of citizens, who must have access to innovative, safe and affordable drugs. On average, each citizen was spent about 494 dollars in 2000 and this amount will likely continue to rise, because the population will age of this part of the world, it reached 1042 dollars in 2013.

## 2. LITERATURE REVIEW

The literature regarding pharmaceutical industry is very rich on papers analyzing the introduction of new drugs, respectively the improvements on production and performance of pharmaceutical companies.

Gummerus et al. (2016) investigate what types of regulatory affairs tasks are outsourced in pharmaceutical industry, respectively what are the main reasons for outsourcing in EU countries. The findings show that outsourcing in regulatory affairs will continue, also most pharmaceutical companies in European Union have already outsourced the tasks to Contract Research Organization.

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<sup>1</sup> Babes-Bolyai University, [ioan.nistor@tbs.ubbcluj.ro](mailto:ioan.nistor@tbs.ubbcluj.ro)

Boldeanu and Pugna (2014) study the impact of different factors that can influence the performance of pharmaceutical companies. The finding results show an important correlation between ROE and these indicators.

Müller et al. (2014) propose a new framework to reduce energy consumption in pharmaceutical industry. They built twelve models for the case study, but only three models reduce the energy consumption by 2.4% by using Energy Weighting Factors even for new products.

Shabaninejad et al. (2014) design a performance measurement of pharmaceutical companies. To realize the study, the authors used the relevant literature review and the opinions of 200 experts in manager position. They recommend to managers to link the indicators from the model with their payments and reward systems, which may dramatically affect the performance of employees, and the organization's success.

Majumder and Rahman (2011) analyse the financial performance and the financial strengths and weaknesses of nine pharmaceutical companies in Bangladesh during 2005-2008. The final results were not satisfactory for financial position and operational performance of analyzed companies, caused by the inefficiency of financial management. Also, eight companies were at the lower level of bankruptcy.

Friedli et al. (2010) analyzed the pharmaceutical industry's improvements in operational effectiveness and efficiency during 2004-2009. The findings show that most of the analyzed companies are focusing on the effectiveness side, rather than on the efficiency side.

### 3. WORLD PHARMACEUTICAL MARKET

World pharmaceutical industry is worth around 1.1 trillion U.S. dollars (in 2014) in market value. The global financial crisis did not affect the pharmaceutical industry (see table 1), it is on an ascendant trend (Vizjak and Iuga, 2011).

In 2013, the pharmaceutical industry from North America generated 354 billion dollars in revenue, while pharmaceutical companies from Asia, Africa and Australasia, collectively, account for 271 billion dollars in total.

Figure 1: Revenue of the worldwide pharmaceutical market

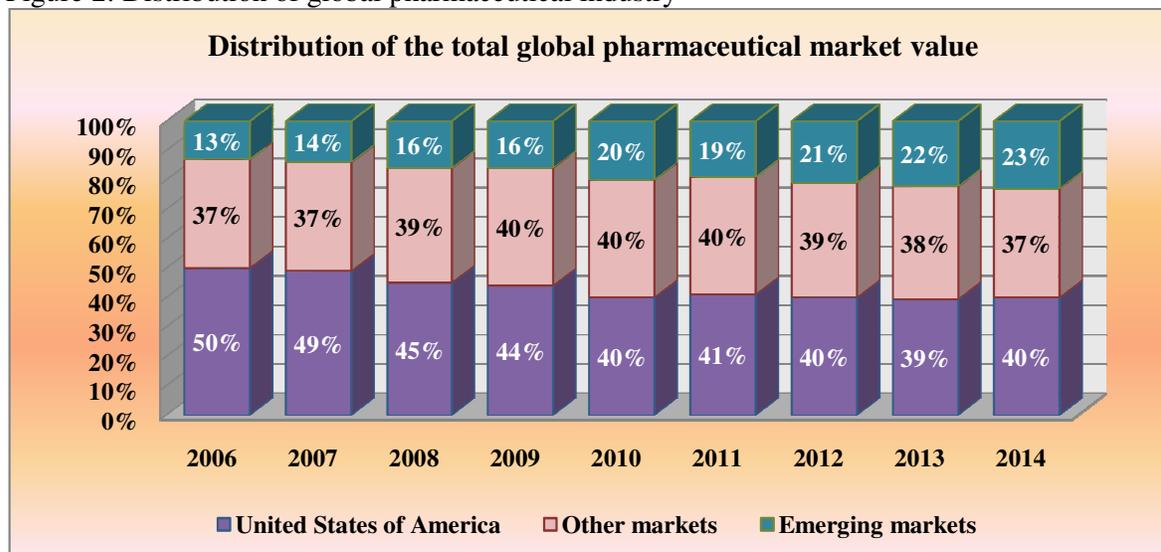


Source: [www.statistica.com](http://www.statistica.com)

The United States of America are the leaders on pharmaceutical market (see table 2). Their pharmaceutical market was worth half the total global market value in 2006. Currently, this

position is kept, but the percentage is at 40% (in 2014). Pharmaceutical companies from emerging countries increase 10% during 2006-2014, it reached 23% of pharmaceutical market value.

Figure 2: Distribution of global pharmaceutical industry



Source: [www.statistica.com](http://www.statistica.com)

The pharmaceutical industry experienced important changes in emerging countries. These markets are quickly catching up to those of North America, Japan, and Europe. The industry from North America garnered a 12 % increase in revenue during 2013 to 2014, while revenues in Latin America increased by 17 % (annex 1). China is rapidly reforming the pharmaceutical industry. The Government stimulus, improved R&D capabilities, respectively increased health awareness are driving China's pharmaceutical industry growth. This country generated in 2014 almost 109 billion U.S. dollars for pharmaceutical market revenue.

The pharmaceutical companies in United States make up a small part of the overall healthcare spending. The growth in drug expenditures has slowed likely due to increased costs for consumers, conversion to over the counter drugs, new generic medication and safety concerns.

Average world health expenditure per capita has increase to 1041 dollars in 2013 from 494 dollars in 2000 (annex 2). Switzerland is spending the most on health population (9277 dollars per capita in 2013). It is followed by United States of America, who spends 9146 dollars per capita.

#### 4. ROMANIAN PHARMACEUTICAL INDUSTRY

Value chain in the pharmaceutical industry has increased significantly in the last decade in all segments, contributing over 1% to GDP (in 2010). Since the second half of 2007 pharmaceutical market has entered a period of stagnation for nearly 3 years. The reasons for this development are mainly related to the negative effects of the economic downturn on financial resources of the health sector and regulatory measures that have transferred a significant part of the health system funding in the pharmaceutical value chain, particularly to manufacturers. The onset of the economic crisis in late 2008 revealed a high structural deficit in the public health sector and consequently, the National House of Health Insurance extended from October 2009 the payment periods for drugs given on medical prescription from 60-210

days and for drugs within the National Health Programmes from 30 to 120 days. In practice, payment terms exceed 300 days, thus generating substantial arrears. In fact, it was a financing forced measure imposed by government to pharmaceutical manufacturers. With over 1 billion euro receivables in balance against the National House of Health Insurance in June 2011, the pharmaceutical industry has become one of the largest creditors of the Romanian Government. Until now, drug manufacturers have internalized the opportunity costs related to extended payment terms; therefore, there were no social or economic effects of contamination. However, if arrears remain and pharmaceutical manufacturers are not able to cover the resulting opportunity costs, there is the risk that at some point in the near future the pharmaceutical industry will reduce the drugs demand. This would have an immediately major social impact and would also trigger additional economic losses due to pharmaceutical industry linkages with other sectors of the economy. The directive 7/2011 of the European Parliament and Council of the European Union regarding the reduction of budgetary arrears and reduction of payment terms in commercial transactions will compel Romanian authorities to reduce the average payment terms in the pharmaceutical industry with at least half of current periods to get 60 days. To alleviate the budgetary impact of reducing payment periods in 2013, the government initiated a sequential reduction over the next year and a half. Increasing outstanding debts of the National House of Health Insurance to pharmaceutical industry led medicine distributors to carry out parallel exports in order to improve their financial situation. In Romania, the price of RX medicines has been established at the minimum level of prices for RX drugs marketed in a number of EU reference countries, offering to medical distributors the opportunity to exploit price differences. Distributors buy drugs imported at a (very) small price and re-exported to other markets at higher prices. Widely practiced, parallel trade can lead to a shortage of drugs on domestic market, with negative social and economic consequences. Parallel exports in Romania reached 18.4% of total imports of drugs in 2010.

The Romanian government has tried in the last three years to increase revenues in the public health system. One of these attempts was the claw back tax to reduce consumption of subsidized drugs and recovery from manufacturers and distributors of a part of the amounts resulting from market growth.

The tax reveals government assumption that drug manufacturers should be responsible for the growth of compensated drugs market growth over the level of allocated budget and ignores policy and regulatory deficiencies that underlie drug addiction and the system of medical prescription. The latest version of the tax from December 2011 introduces a reference threshold for the consumption of drugs and charges only the amount that exceeds this threshold. Manufacturers or local branches of foreign manufacturers should pay the fee directly correlated with their market share and quarterly sales increases.

Quarterly revenues estimated from claw-back tax amounts to about 135 million RON, respectively 8% of total consumption of RX drugs. This version of the tax incorporates a number of disadvantages mainly affecting local producers or local branches of foreign manufacturers. Taxable value of the new mechanism includes VAT and margins (of distributors and retailers), while the paying returns to producers / local branches. Thus, the fiscal impact is significantly higher for producers / local branches as a percentage of their sales of compensated drugs. Claw-back tax sends a negative message to investors by creating an unfriendly business environment for drug manufacturers. The government collects the taxes paid by the pharma value chain to the central and local budget more than 20% of the total market value of RX drugs, or 1, 7 billion lei (2010). In the medium term, the benefits that the tax will generate to the state budget could be compensated by lost investment opportunities. Claw-back tax will most likely lead many local and foreign producers of pharmaceuticals to restructure their activity in Romania. Combined added value generated by

these companies in Romania was 2, 5 billion in 2010. The biggest percentage of this (95%) is spent in the national economy for the remuneration of labour, taxes or to finance expenditure on R & D (eg. clinical trials), media campaigns or campaigns for screening and awareness of disease and medical education offered to medical staff. Only a small part of the added value (less than 5%) represents the net profit accrued by shareholders. Claw-back will cause additional costs for manufacturers of drugs that will worth almost 40% of the added value generated by them. The most likely reaction of producers to this increase in costs will be a reduction in investment spending, which, according to our estimates are comparable to the amounts estimated to be received from the claw-back tax. Rather than focus only on short-term solutions to maintain the public health system in life (eg. extension of the deadlines, arrears, claw-back tax), public authorities should implement wider measures aimed at restructuring the whole health sector - both public and private.

Health expenditure as a percentage of GDP is currently at a level close to the average of the last 15 years, indicating that the public authorities have not taken the necessary measures to reform the health system.

## 5. CONCLUSION

Romania is losing on average almost 16 thousand years of active life to 100 thousand people in a cycle of life, measured by the indicator Years of Life adjusted by disability (DALY) due to disease or injury, ranking among the countries with the highest burden of disease in Central and Eastern Europe (CEE). Non-communicable diseases accounted for 76% of total DALY. Non-communicable diseases represent a priority area of concern for producers of innovative drugs. Through research and continuous innovation, these companies are able to produce medicines that allow patients with chronic diseases to live longer, healthier and more productive lives.

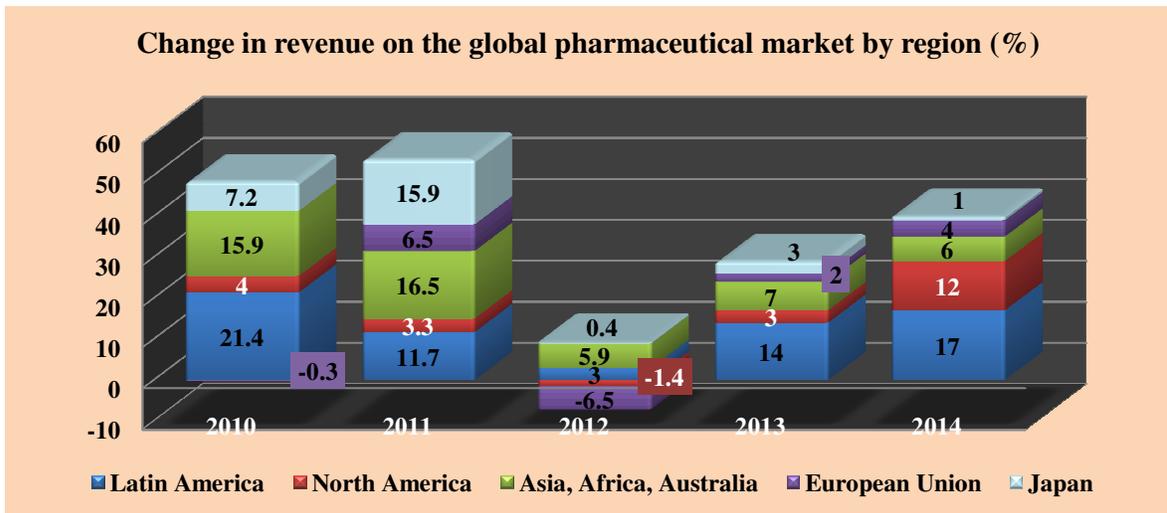
Although there are practical tools to reduce DALY, it depends by the Government to implement the right policies to increase people's access to innovative treatments. Romanian economy loses around 18,6 billion euro (15% of GDP in 2010) in terms of GDP in the medium and long term, due to the poor health of the population as measured by DALY. If the health of the population in Romania will be at the EU average, there would be a surplus in economic output of 6.7 billion Euros (6% of GDP in 2010), resulting from increased labour force participation and productivity. By increasing health expenditure in GDP by 5 percentage points sequentially in the next 10 years, the health of the population in Romania could reach the EU average.

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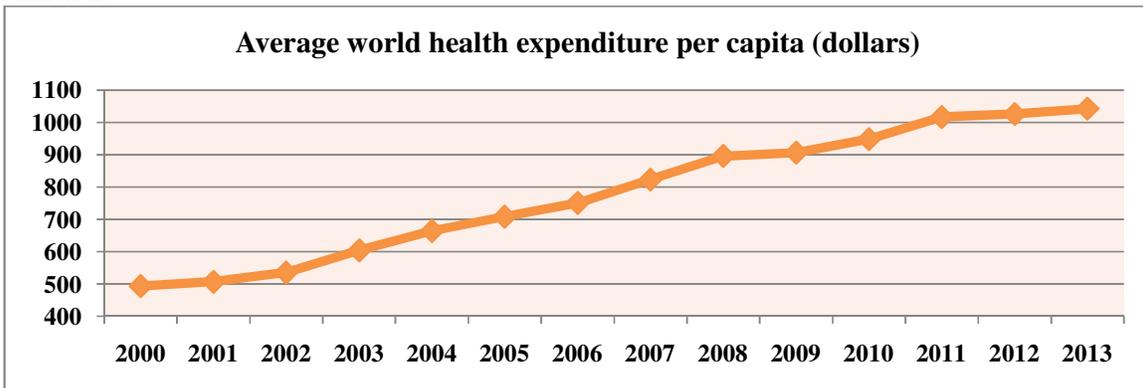
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Annex 1:



Source: [www.statistica.com](http://www.statistica.com)

Annex 2:



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