ECONOMIC AND FINANCIAL IMPLICATIONS OF THE PHARMACEUTICAL INDUSTRY IN ROMANIA

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Abstract

In the wake of the financial crisis, most industries witnessed an economic downturn also boosted by the austerity measures imposed by the state. The pharmaceutical sector is one of the few sectors that followed an upward trend. Although the economic and financial crisis has long taken hold of the entire world, the domino theory did not apply to this industry; instead, the "butterfly effect" became evident. The phrase refers to the fact that the wings of a butterfly create small changes that may finally alter the route of certain elements. In the pharmaceutical industry, minor changes in research and development finally led to spectacular innovations. At present, there are no such big investments in research and development in Romania as there are in Europe; yet, due to mergers and acquisitions between Romanian and foreign companies, the pharmaceutical sector in Romania significantly contributes to the creation of added value in terms of economic development. The added value of the pharmaceutical industry in our country has increased significantly in recent years.The purpose of this article is to highlight the financial and economic significance of the pharmaceutical industry in Romania. This industry is one with an average degree of concentration; thus, the average liquidity and solvency indicators in this sector were calculated with a view to emphasizing its financial independence. The findings of this research indicate a high level of financial independence in this industry, as pharmaceutical companies are able to meet payment deadlines. This study highlights the importance of such an industry in times of economic crisis, the financial stability of the pharmaceutical sector reinforcing the need for massive investment in research and development.

Keywords: pharmaceutical industry; liquidity; solvency; financial independence; development

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1. Introduction

Original ideas, innovations and inventions have made this sector a real boost of economic development especially in developing countries. A good example is Romania, where the pharmaceutical sector annually contributes over £1.5 billion from taxes and fees retained by the state.

The purchase of Romanian companies by the world's top companies led not only to real economic development but also to social progress. Sustainable development is undeniably supported by this sector, which uses state-of-the-art technologies and innovations to meet the needs of future generations. The financial position of companies within this industry is firm, as companies can quickly convert their liquidity into cash and cope with debts.

2. Research methodology

In order to conduct our research, we collected data on the shares held by the main players in the pharmaceutical market from the Cegedim website. Financial data were collected from the Bucharest Stock Exchange website and from the website of the Ministry of Finance.
The sample was determined by calculating the rate of market concentration. The companies considered were the first five players in the industry, players which have a market share of over 30%.
Liquidity indicators and the indicators of the general solvency of each of these companies were calculated on the basis of the financial data. After that, we calculated the average liquidity and solvency indicators of the industry in 2010, 2011 and 2012, when the pharmaceutical market began to witness a steady increase.

3. Trends in the pharmaceutical industry in Romania

The pharmaceutical industry is one of the few industries included by Eurostat in the "High Technology" top and it is considered to be a true business model for all the other existing sectors. This industry is highly globalized, being one of the strongest sectors in the world. Even if, according to Philip Kotler and John Caslione in *Chaotics: The Business of Managing and Marketing in the Age of Turbulence*, globalization and technology are the main factors that led to marked vulnerability in the global economy, to shock waves and turbulence at micro and macroeconomic level, for this industry, this instability created opportunity rather than weakness. Economic globalization brought about increased competition as well as the development of new technologies (C. Burghelea, 2014).
In thins moment, there are no such big investments in pharmaceutical research in Romania as there are in other countries; yet, due to mergers and acquisitions between Romanian and foreign companies, the pharmaceutical sector in Romania significantly contributes to the creation of added value in terms of economic development. However, we must not forget that economic development will not lead to the dissolution of the economic and financial crises. No matter how much they will develop, the economies of the world will be susceptible to collapse at the slightest crisis shockwave (G. Gorton, 2012).
The added value of the pharmaceutical industry in our country has increased significantly in recent years. According to data published by the Institute of Economic Forecasting, the industry has a share of over 1% of the GDP, the

government cashing more than 20% of the market value of existing drugs from the taxes and fees paid by drug-producing companies.
The main players of the pharmaceutical market in Romania are shown in Table 1.

Table 1: Top ten pharmaceutical companies in Romania in 2013

Position	Company	Market share (%)
1	**Sanofi-Aventis**	**7.8**
2	**Hoffmann La Roche**	**7.3**
3	**Novartis**	**6.2**
4	**Servier**	**5.7**
5	**Pfizer**	**5.3**
6	**Glaxosmithkline**	**4.8**
7	**Merck&Co**	**4.2**
8	**AstraZeneca**	**4.0**
9	**Rambaxy**	**3.7**
10	**Abbott**	**3.6**

Source: Compilation based on studies conducted by Cegedim

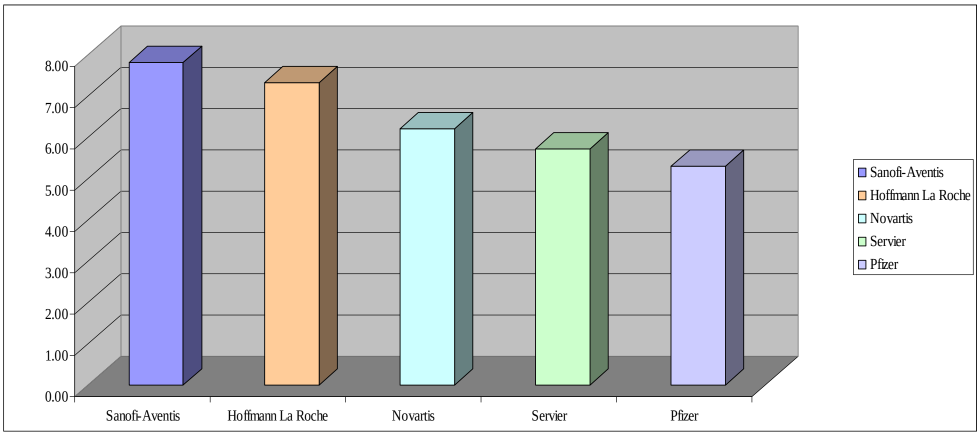
Given that the pharmaceutical industry is regarded as an activator of "economic recovery", our research builds on highlighting industry concentration, on calculating the average liquidity and overall solvency of the companies analyzed in our case study, and aims at stressing the significance of this industry for economic development. In any empirical economic analysis, it is difficult to clarify causes and effects on the basis of observational data (Saragent Thomas, 2011). Hence, our study is based not only on observational analysis but also on economic and financial investigation.
The degree of concentration in the pharmaceutical industry is average, the top ten companies in the industry holding a market share of 52.6%. This concentration was mainly due to mergers and acquisitions carried out by internationally operating companies in the pharmaceutical market, among which the most important were the following: the purchase of Zentiva by SanofiAvent, the purchase of Wyeth by Pfizer and the purchase of Solvay by Abbott group.
The concentration rate formula is the following:

Concentration rate = S1 + S2+ S3+ ….+ Sn,
where S1, 2 ... n are the market shares of the companies considered.

The concentration rate of the first five players is 32.3%, which indicates an average concentrated market, the top five companies holding a quarter of the share in the pharmaceutical industry.
The market shares of the top five pharmaceutical companies that are part of our research are illustrated in the chart below.

Graph 1: Market shares of the top five pharmaceutical companies in Romania, in 2013

%



Source: Compilation based on studies conducted by Cegedim

The Herfindal-Hirschman index is another method for determining concentration. HHI is calculated as the sum of the squares of the market shares held by the companies that are part of the research (V. Brătian, 2013).

For the production of drugs, HHI, whose value is 26%, shows the average concentration of the market. The calculations indicated that the pharmaceutical market has an average degree of concentration. The financial indicators are calculated on the basis of data gathered from the Bucharest Stock Exchange and of the annual reports found on the official website of the Ministry of Finance.

The average indicator of liquidity and solvency refers only to the top five players in the industry, which hold a market share of over 30%. The calculated financial indicators of the pharmaceutical industry are the mirror of financial statements, also providing the fastest way to an accurate understanding of their significance (Karen Berman, 2011).

Liquidity refers to the ability of the company to convert its current assets into cash in order to meet debt payment due dates (N. Baltes coord., 2013). By calculating the liquidity ratios, the extent to which the analyzed companies can cope with short-term financial obligations can be assessed.

The current ratio is the ratio between current assets and short-term liabilities, also indicating the coverage of current liabilities by means of current assets (N. Baltes, 2010). To determine the financial health of the company, it is imperative to perform a careful analysis not only of liquidity but also of solvency. It is not enough for an economic entity to possess cash in order to find itself in a satisfactory financial situation; it must also be able to pay its debts in full, or, to put it more simply, it must be creditworthy. For businesses that want to keep their financial independence, creditworthiness is a primary goal, as it represents the company's ability to meet medium and long-term maturities (V. Robu, 2014).

The overall solvency ratio is calculated as the ratio between total assets and total liabilities. Overall solvency indicates the risk of default of medium and long-term debt of the company analyzed. The indicator shows the share of total assets within the total amount of debt (S. Petrescu , 2010). Given that long-term debts are almost non-existent in pharmaceutical companies, the overall solvency position reflects a good financial long-term equilibrium that allows full debt coverage.

The average liquidity and solvency indicator was calculated as the arithmetic mean of the liquidity and solvency rates of the top five pharmaceutical companies in Romania, which have the largest market shares. With the help of these indicators of the financial position of the pharmaceutical sector, it can be established whether the analyzed companies can meet payment due dates and whether they can invest primarily in research and development.

The research is based on an analysis of the average liquidity and solvency ratios of the pharmaceutical sector, which covers a period of three years, from 2010 until 2012. In 2010, the average liquidity ratio of the industry was 2.79, and the average solvency ratio was 3.40. These values show a solid financial situation of the pharmaceutical market, the companies in this sector being able to meet debt payment terms. That year, Zentiva (Sanofi-Aventis) recorded the highest liquidity rate, worth 6.99. Servier recorded a quick ratio of 3.23, Pfizer of 1.57, La Roche of 1.30 and Novartis of 0.80, which are normal rates for a short life cycle industry. In 2010, Zentiva had the highest solvency ratio, i.e. 8.58, while Novartis had the lowest rate, i.e. 1.3.

In 2011, the average liquidity ratio in the pharmaceutical sector was 1.86, which shows that existing companies can easily convert their current assets into cash. The average solvency ratio was 2.29, the companies belonging to this industry being able to meet their payment deadlines. In 2011, Zentiva recorded the highest liquidity rate, i.e. 3.33, followed by Servier with a liquidity rate of 2.48, Pfizer with a rate of 1.46, La Roche with a rate of 1.27 and Novartis with a rate of 0.77. As regards the overall solvency ratio, Zentiva had a rate of 4.43, Servier of 2.65, Pfizer of 1.76, La Roche of 1.33 and Novartis of 1.30.

Companies with high capacity of converting current assets into cash are Sanofi-Aventis and Servier Romania, whose current assets are four times higher than current liabilities. The other three companies have a liquidity rate of about 1, which shows that current assets had approximately the same share as current liabilities. This is due to the refusal of pharmaceutical companies to borrow long-term, but it is not a cause for worry, given their position on the market and the way their borrowings are invested, specifically in innovation and research, bringing further added value.

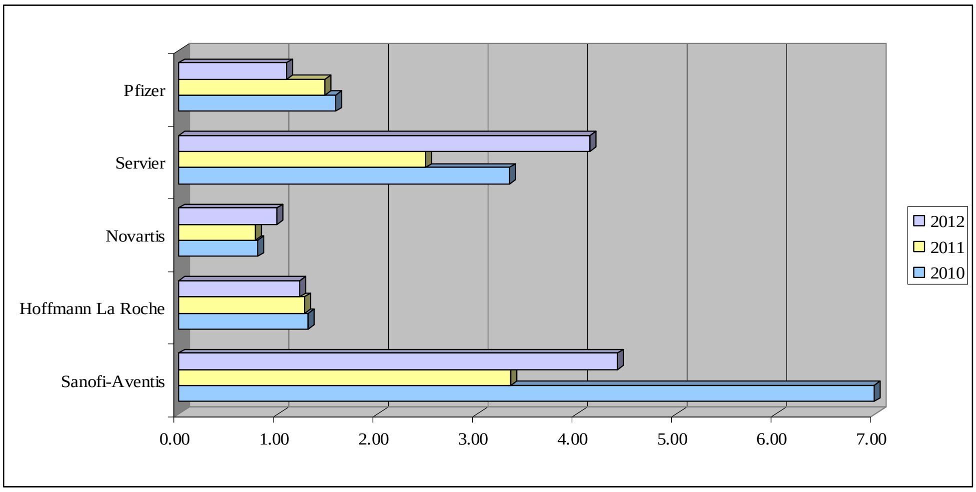
Another explanation for the rather low value of this indicator is that the liquidity varies from sector to sector, and the pharmaceutical one is not a long life cycle sector; thus, in the case of distribution and drug production sectors, the indicator may be around 1 (S. Petrescu, 2010).

The average liquidity rate of the top five largest players in the pharmaceutical industry in Romania is 2.37. This liquidity rate indicates their capacity to meet payment deadlines, the current assets they have available being twice as high as their current debts. Thus, they are able to make further investments in research and development. Such investments are essential in the sustainable development of the economy and of the society in general.

The overall solvency ratio for Sanofi-Aventis (Zentiva) is 4.43; for La Roche, it is 1.26; for Novartis, it is 1.48; for Servier Pharma Romania, it is 4.60; and for Pfizer Romania, it is 1.08. The average rate of overall solvency for the first five players in the pharmaceutical industry is 2.57, which

shows that total assets are twice as high as the total debt, indicating a high solvency of the analyzed sector and the capacity of the companies to meet payment due dates.Chart 1 illustrates the evolutions of the liquidity rate of the top five pharmaceutical companies in Romania.

Graph 2: Current liquidity rate of the first five players in the pharmaceutical market in Romania between 2010 and 2012

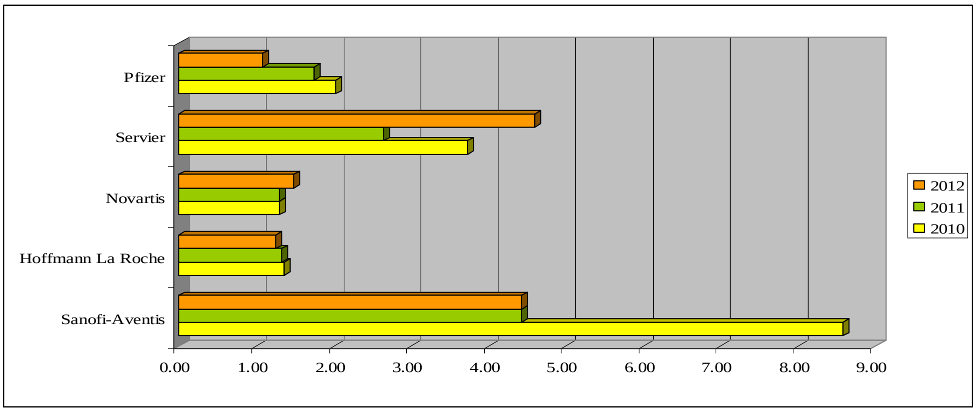


Source: Our own calculations based on annual financial statements

There is a decrease in the liquidity ratio of the pharmaceutical market leader, Zentiva, from 6.99 in 2010 to 4.41 in 2012. Novartis and Servier are also the only companies to register an increase in the liquidity ratio from 2010 to 2012, even if they have a lower liquidity ratio compared to the other analyzed companies. The current ratio reflects the coverage of current liabilities from current assets. The average liquidity indicator stands at around 2 in all three years considered, indicating a favourable situation of the industry, which is thus able to convert current assets into cash easily and to pay short-term debts.

The chart below illustrates the evolution of the overall solvency ratio of the analyzed companies from 2010 until 2012.

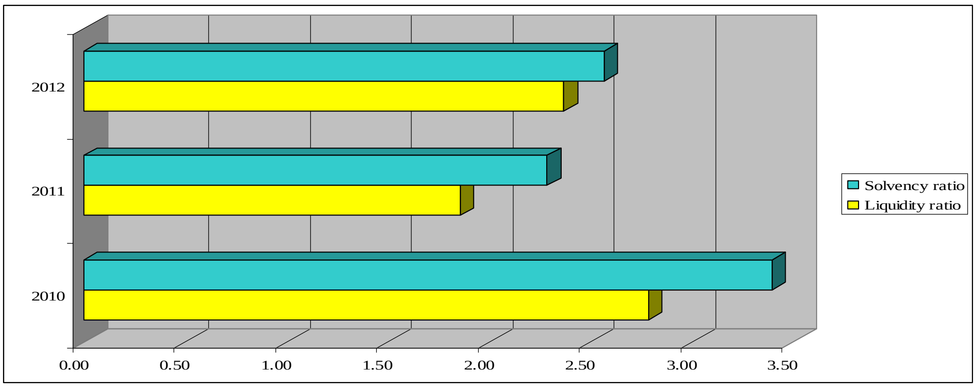
Graph 3: Overall solvency ratios of the top five players in the pharmaceutical industry in Romania 2010-2012



Source: Our own calculations based on annual financial statements

Zentiva recorded the highest solvency ratio, being thus able to meet long and medium-term maturities. Given that the drug-producing industry has a short life cycle, the values given for all analyzed companies are appropriate, as there is a clear balance between receipts and expenditures.
The chart below shows the evolution of average liquidity and solvency ratios in the pharmaceutical industry. The analyzed periods were denoted by numbers from 1 to 3, from 2010 to 2012.

Graph 4: Average liquidity and solvency ratios in the pharmaceutical sector between 2010 and 2012



Source: Our own calculations based on annual financial statements

The analyzed ratios fall within appropriate limits, and the companies belonging to the pharmaceutical industry are able to meet their payment due dates. Even though from 2010 to 2012 there was a slight decrease in the liquidity and solvency ratios, the values are appropriate for this industry.

4. Conclusions

The pharmaceutical industry is one of the few industries ranking in the "High Technology" top, innovation and research being the pillars of its development. The pharmaceutical market is a concentrated industry, the top ten players holding a market share of over 50%. According to research studies, the average liquidity ratio in the industry indicates that existing economic entities have the ability to convert current assets into cash easily, the pharmaceutical industry being one of the few industries that are able to meet payment due dates. The pharmaceutical sector has a high degree of financial independence, due to the acquisitions of Romanian companies by leading companies worldwide.

According the Romanian Institute of Economic Forecasting, the pharmaceutical industry contributes over 1% to the GDP. Furthermore, the state collects over 1.5 billion only from fees and taxes from the production of drugs. Thus, we can conclude that, in an emerging country, such an industry can be seen as the driving force of economic development and not only. Its innovations, which will also be used by future generations, may help to promote sustainable development.

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