

FINANCIAL ANALYSIS OF THE PROFITABILITY AND RISK OF DRUG MANUFACTURERS IN ROMANIA UNDER THE INFLUENCE OF ECONOMIC CRISIS

Ph. D. Silviu-Valentin Carstina
University of Craiova
Faculty of Economics and Business Administration
Craiova, Romania

Abstract: This paper analyses the evolution of the romanian medicines industry in the context of the actual economic and financial crisis, by studying 3 of the most important production companies in the area: Antibiotice Iasi, Biofarm and Zentiva, in the period 2007-2009. The diagnosis was done by analyzing of some of the profitableness and risk indicators used in the international experience, and by studying the correlation between risk and profitableness for each company, starting from the financial situations published.

Conclusions of the study reveals the fact that, even though the local production of medicines was affected by the crisis , it still continues to be profitable , being touched by little risks. The pharmaceutical industry works with the most important resource that anyone could have: our health. That's why, it will be profitable no matter the conditions generated by the economic environment. Also, regarding the perspectives that this industry has, we consider that it will provide a real economic growth to our country.

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1. INTRODUCTION

Since 2008 the world economy and hence that of Romania and has appeared a negative phenomenon called "economic crisis". When this phenomenon was a decisive majority of companies in our country, its effect is resented even today.

Companies trying to survive to this phenomenon, many managers trying to save the business, but for many with no result. Economic crisis see, feel everything around us: living standards, unemployment, inflation, purchasing power, consumption and newest propensity to save.

Next period, since the second half of 2008 was a decisive period for most businesses. I attended a series of weak anti-crisis measures, we have seen companies close their doors on the ground that their business has become unprofitable, the economic crisis not to let them do their job unbearable weight pressing on their shoulders, leaving a large number of unemployed.

This has left its mark on all sectors of our country and beyond, but as natural influence was different from one society to another, from one sector to another.

Following the press, particularly specialized magazines and newspapers are talking of a business that has survived even during the crisis in our country, even throughout this period that profits would not be neglected.

Items such as: "Profitable business and in times of crisis: drug sales revenue increase pharmacies: Appears new pharmacies, while the rents are high and free medicines are not reimbursed for so long. I wonder how to survive, because the sale of aspirin and antineuralgic can not open a pharmacy," said GB, Maramures county prefect. While many companies have pulled the shutters, pharmacies "bloom" in the city. This, in circumstances where the amount of money received from the House of Health Insurance Maramures. Arrears on compensated and free drugs approaching 300 days. And yet, in Baia Mare is still open pharmacies. She concluded that the opening of a pharmacy business is very profitable.¹ ";

"Pharmacies, a profitable business especially in times of crisis: drug sales has been and will remain a business that fails and not that make money. Despite financial difficulties, pharmacies, especially private ones, remain a profitable business. This is clear although most of those in this system argue that it's not that, on the contrary they complain that there are problems and that they earn less. If there are profits wonder then how the number of pharmaceutical items increased from year to year?² ";

"Most of the investments made in Romania by private equity funds aimed at companies in the pharmaceutical and consumer goods.³" Are just a few items that have pushed us to do a financial analysis on profitability and business risk with drugs. The main objective of this paper is to analyze the impact of economic crisis on the main indicators of profitability and risk of drug manufacturers in our country. Answer questions stirred in our interiroul on the subject of these articles, so we find the financial analysis to be made on major companies in our country drug industry: Antibiotics Iasi, Biofarm and Zentiva, based on financial data published by them in the years 2007, 2008, 2009 and 2010, taking as reference year for the 2008 crisis.

2. RESEARCH METHODOLOGY AND DATA USED

Regardless of the rumors heard on this topic I went on the idea of "think and do not question." Taking advantage of the knowledge acquired during the years of study and the fact that the Internet provides you with almost any information you need, I gave this little outline research.

In order to ensure that the data used are real and can benefit from obtaining as much information as we chose three companies considered representative of the production of new drugs listed. So I picked up on the website Bucharest Stock Exchange financial statements of the three companies.

Before proceeding to the actual analysis we made the necessary corrections on the balance sheet and I turned the financial statement. The financial balance sheet and profitability indicators we calculated risk coefficients.

To measure operational risk and financial risk of operating leverage ratio we used that leverage. Bankruptcy risk ratio I calculated using the Altman discriminant model.

¹ www.informatia-zilei.ro, article written by Corina Saffron, Economic section, March 17, 2011

² www.ziarulunirea.ro, article by Lavinia Ionas, October 27, 2010

³ www.manager.ro, article published on November 11, 2010 by manager.ro, taken from Romania Liberă.ro

A main assumption behind the analysis is well-known relationship between risk and return (the greater the risk that a company and it assumes, the greater the return is obtained). This relationship was highlighted by Microsoft Excel using Pearson linear correlation function.

3. DATA ANALYSIS AND RESULTS

3.1. ANALYSIS OF THE PROFITABILITY

Based on data obtained from processing the available balance sheet and profit and loss account for each company have calculated indicators of profitability, profitability analysis necessary to achieve that we set for each company a clear financial diagnosis for 2007-2010 .

Following calculations society Iasi Antibiotics were obtained the following values:

Table 3.1.1

The value of the company Antibiotics Science profitability indicators

Iasi Antibiotics	2007	2008	2009	2010
EBE	33.254.844	11.889.170	12.567.492	17.381.192
PT	36.886.350	13.378.633	15.647.528	18.472.270
Rex (operating result)	42.077.062	25.346.164	26.172.761	30.562.500
ROE=Pn/Cp	12,75%	4,16%	4,81%	4,68%
ROA=Pb/AT	10,70%	3,64%	4,16%	4,71%

On the analysis of profitability indicators we can say that the company Antibiotics Science, profitability decreased activity. All profitability indicators were lower in 2008 than in 2007, but also there is a return in the near future, in 2009, which is not insignificant in view of expanding economic crisis even today.

In 2010 the society were increases in the gross operating surplus, total profits, operating results and economic rate of return. Return on equity slightly decreased compared to 2009 is explained by increasing equity in a faster pace than the increase in net profit in this period.

At first glance I would say that 2008 was a year as difficult, as with other companies in our country, but if you look, for example in the profit and loss, and we consider the evolution of operating result are, in fact, it decreased due to the increase of wages in 2008 to about 8,155,106 lei 2007, a phenomenon rarely seen in the same period. Following the financial information exchange website, we see that in this period the average number of employees has decreased, thus increasing wages can be justified by salary increases.

Decreased rates of return is justified by economic and financial decline in 2008 profit company, with about 23,507,717 lei for gross profit and net profit of 21,883,251 in the case.

Table 3.1.2

The value of the profitability to Biofarm

Biofarm	2007	2008	2009	2010
EBE	11.115.892	10.497.184	9.581.480	12.237.740
PT	15.969.619	-18.873.119	22.995.970	17.844.926
Rexpl (operating	15.328.632	14.548.911	14.120.602	16.934.705

result)				
ROE=Pn/Cpropriu	8,95%	-16,45%	14,40%	9,90%
ROA=Pb/AT	9,61%	-14,53%	14,85%	10,62%

Biofarm Company recorded a decrease in profitability in 2008 compared to 2007, but in 2009 it has a more favorable level of profitability. Although we have a result of operation in 2009, slightly down from 2008, noted that the total profit of the company is growing, the situation is favorable to the company as a whole.

Decrease in operating results may be justified here by an increase in operating expenses, specifically an increase in salary costs due to new employment by the company, the average number of employees increasing in 2009 compared to 2008, and expenditure on benefits external.

In 2010 there is an increase in gross operating surplus, this is due in turn to increase operating income, growth and development influenced the results of operations. Total income decreased in 2010 compared to 2009 with its major influence on a company's financial result, declining in 2010.

Financial return in 2010 decreased due to the influence net profit was in slight decrease in this period, equity was growing from it. We can have the same interpretation and economic rate of return if it has a similar trend to that of financial profitability. If its gross profit to assets declined in 2010.

Overall we can say that the company Biofarm has, despite this slight decrease, a favorable situation, in 2010 as a profitable year for the company.

Regarding the situation in the company Zentiva, given here as indicators of profitability, we have the following results:

Table 3.1.3

The value of the profitability to the company Zentiva

Zentiva	2007	2008	2009	2010
EBE	-5.183.586	9.958.918	-19.680.181	53.548.789
PT	9.020.418	30.069.348	-692.798	68.981.215
Rexpl (operating result)	9.236.401	22.570.403	-10.270.467	62.929.082
ROE=Pn/Cpropriu	1,63%	8,13%	-1,02%	16,93%
ROA=Pb/AT	2,81%	8,72%	-0,21%	17,43%

Unlike the first two companies, Science and Biofarm antibiotics, the company Zentiva has a reverse situation to them. If the first two companies in 2008 was a critical year for Zentiva was a very successful year recording a favorable situation in terms of profitability. A critical situation for Zentiva is the year 2009, when indicators are declining profitability, registering negative values. Data in the appendices, specifically in the income statement, shows that company, although a decrease in operating expenses, operating income decrease was more pronounced.

An important role in lowering operating income has sold production, which fell from one period to another with 44,552,248 lei.

Decreased rates of economic and financial profitability in 2009 is justified by the decrease in profit before and after tax.

In 2010 the company Zentiva situation presents more than favorable indicators of profitability with growth well above the previous period. The increase is justified by the operating revenue in 2010 amounted to 261,645,314 lei ajund from 2009, when they had a value of 181,436,874 lei.

The analysis of the three companies is noted that the level of profitability the main problem faced is lower income and increased expenditure, which can be easily explained due to the delay in recovery of claims referred to in articles mentioned. It is clear that companies were affected by the crisis, but rates of return available evidence indicates that the impact of the crisis was not so strong in this industry from what I saw during this period in other production sectors in the country.

Only if we look from a financial standpoint, it appears that financial activity contributed to influence the final result in lower proportions in 2007-2008, the operating result still holding the largest share in the final output of the enterprises. This reinforces the idea that the financial crisis hit hard both firms in the pharmaceutical industry.

3.2. Risk Analysis

During its activity the enterprise has experienced a lot more risks, textbooks often making reference to numerous risks: economic, financial, social, political, etc.. All these risks that society faces its lifetime can be grouped into three broad categories of risks: operational, financial and bankruptcy. To analyze the risk situation of the three companies I went to the calculations necessary to determine the risk factor values on the three categories of risk.

Economic or operational risk was calculated using the ratio of operating leverage with the formula:

$$CLE = \frac{\frac{\Delta Re x}{Re x_0}}{\frac{\Delta CA}{CA_0}} \quad (1)$$

The financial risk was calculated using the financial leverage it with the formula:

$$LF = \frac{D}{Cpr} \quad (2)$$

Quantifying the level of risk of bankruptcy was made after the model of Altman and Lavalee. These financial ratios ranging from 11 to 54 businesses studied (27 healthy and as many in need) have reached the following discriminant function:

$$Zc = -1.626 + 0.234X_1 - 0.531X_2 + 1.002X_3 + 0.972X_4 + 0.612X_5 \quad (3)$$

where the variables X1, X2, X3, X4 and X5 are calculated in the following table as data taken from the balance sheet and profit and loss related.

Since Antibiotics Science Society, and after the three risk calculations, we obtained the results shown in the table below:

Table 3.2.1

The value of risk indicators Antibiotics

Iasi Antibiotics	2007	2008	2009	2010
Economic risk - Le		6,7	1,78	1,54
Financial risk - Lf	0,21	0,28	0,3	0,26

Bankruptcy risc - Zc	1,48	0,84	0,71	0,27
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We note that our society does not present a hazard in terms of economic risk because it has a value of 6.7 in 2008, so a favorable situation, and in 2009 and 2010 shows a declining level of 1.78 or 1, 54, however not put threatening the company's activity.

The decrease is justified by the fact that the operating result, even had a slight increase in 2009 compared to 2008, had a slower growth compared to the turnover in the same period, a situation that can be found at the level of 2010.

Table 3.2.2

Altman's formula calculation of indicators on Antibiotics Science

Iasi Antibiotics	2007	2008	2009	2010
R1=CA/AT	0,67	0,59	0,58	0,62
R2=DT/AT	0,26	0,31	0,34	0,32
R3=AC/DTS	2,09	1,8	1,7	1,8
R4=Pn/DT	0,36	0,09	0,09	0,1
R5=RcrKpr-RcrAT	1,05	0,99	0,97	0,04

The accuracy is 83.3% and prevents the appearance of one year before bankruptcy risk. Because the situation is favorable to the company's value Zc must be greater than 0 ($Zc > 0$). If Zc is less than 0 then the company is in financial difficulty.

Antibiotics Science in society's value Zc is positive but down from one period to another, but its level does not put the company in financial difficulty.

Society of antibiotics Biofarm following values for the three risk categories:

Table 3.2.3

Values of risk indicators Biofarm

Biofarm	2007	2008	2009	2010
Economic risk - Le		-1,14	-0,97	0,88
Financial risk - Lf	0,013	0,0093	0,11	0,15
Bankruptcy risc - Zc	3,385	1,42	5,29	3,68

The data presented in the table we see that the economic risk indicators registered negative values in both 2008 and 2009. This is explained by the fact that the operating result declined in this period as opposed to turnover which had an upward trend.

Due to increased operating result in 2010 is noted that economic risk has positive value expresses a thing to improve the situation at the firm level.

Financial risk, calculated here using financial leverage, and he recorded values becoming smaller in 2009 reaching as close to level 0. In 2010 it is slightly increasing, but throughout this period we can say that financial risk has a favorable situation.

At the risk of bankruptcy notice that our society values very good record, with more than 0, according to Altman's equation condition, only in 2008 was a decrease in this indicator, but not represent a danger for the company.

In 2009 there is a sudden increase in the level of this indicator which easily gives us thoughts on the situation in the near future.

The year 2010 proves, despite the warning given by the indicator in 2009, to be a very favorable year, the risk of bankruptcy with only the theoretical to the company but not practical.

And here we calculated the indicators needed in relation Zc, with values in the table below:

Table 3.2.4**Altman's indicators required in relation to Biofarm**

Biofarm	2007	2008	2009	2010
R1=CA/AT	0,38	0,44	0,43	0,49
R2=DT/AT	0,09	0,12	0,10	0,13
R3=AC/DTS	4,07	4,22	5,59	4,65
R4=Pn/DT	0,89	-1,24	1,29	0,64
R5=RcrKpr-RcrAT	0,04	-0,02	0,02	-0,04

We note with these rate that most influence on the risk of bankruptcy has, if Biofarm society, R3 which appears to be the rate calculation of liquidity. Its level is justified by growth in a fast-paced growth of current assets versus short-term debit.

Zentiva risks have been analyzed in the following table values:

Table 3.2.5**Indicators values Zentiva risks**

Zentiva	2007	2008	2009	2010
Economic risk - Le		11,42	7,43	-14,93
Financial risk - Lf	0,2294	0,2089	0,1698	0,1677
Bankruptcy risc - Zc	3,1463	3,9476	4,1926	5,13

Unlike the first two companies, Zentiva has a much better situation in terms of values of risk indicators. The economic risk factor and the positive financial records during 2007 - 2009, which shows that over this period, the company has financial problems.

The situation is critical in terms of economic risk in 2010, when the indicator that expresses the company's economic risk is negative. This is explained by the influence which has in the calculation of economic risk, the operating result in 2009, when the company Zentiva recorded a negative value in this indicator.

So we can say that the unfavorable situation in the mining activity is felt, with indicators of risk, until the following year. Financial risk shows that the company has the capacity credit contraction, with no possibility of default in this period, the debt-equity firm is quite reasonable.

Bankruptcy risk calculation was also based on Altman model, not here before calculating the indicators needed in relation to calculation of Zc.

Table 3.2.6**Value indicators necessary in relation Altman**

Zentiva	2007	2008	2009	2010
R1=CA/AT	0,61	0,63	0,53	0,66
R2=DT/AT	0,19	0,17	0,15	0,14
R3=AC/DTS	3,97	4,46	5,22	5,68
R4=Pn/DT	0,07	0,39	-0,06	1,01
R5=RcrKpr-RcrAT	1,12	1,09	0,98	0,0023

It is noted that bankruptcy risk indicator calculated by Zc register very high, increasing from one year to another. So we can say that the company Zentiva on this period there can be no question of bankruptcy.

Risk analysis in the three companies revealed that the pharmaceutical industry continues to be subject to lower risk, risk factor values are large enough so that the enterprises concerned have no serious economic or financial problems that jeopardize their . The risk of failure of such business, especially as regards the possibility of non-payment of debts to various vendors, but the state is minimal even if it delays the collection of receivables.

4. RISK-RETURN CORRELATION ANALYSIS

To analyze the relationship between risk and return we turned to the correlation function in Excel, which is based on calculating the Pearson linear correlation coefficient classic. It takes values between -1 and 1, and indicates the degree of association between two variables linear.

Thus we find that there is a strong correlation between economic risk and economic profitability in all three companies analyzed: if there is a link Zentiva Antibiotics and inversely proportional between economic risk assumed and profitability achieved, and if a relation proportional Biofarm.

Between financial risk and financial return is a correlation, weaker, which depends, however, the profile and financial exposure of each company: if antibiotics strongly negative, positive and negative media for Biofarm for Zentiva.

It also notes that there is a strong correlation between the risk of bankruptcy and financial and economic profitability for Antibiotics Iasi, Biofarm and Zentiva.

So we can say that companies Zentiva Antibiotics and resemble in terms of economic return correlation - economic risk, the correlation is strong and negative. The correlation financial profitability - financial risk is lower in Zentiva to antibiotics but in both cases it is negative.

Biofarm presents a different situation for companies Antibiotics and Zentiva, correlations return - risk being positive.

If we look at correlations economic and financial return - risk of bankruptcy, the situation is similar for the three companies. This correlation is strong in both positive and Biofarm Antibiotics and Zentiva.

Table 4.1

Indicators of correlation

Corelatia risc-profit	Antibiotice	Biofarm	Zentiva
ROA-Le	-0,878267816	0,449297301	-0,782742058
ROE-Lf	-0,89863822	0,617738471	-0,330800142
ROA-Zc	0,803320621	0,92712217	0,724948588
ROE-Zc	0,853503669	0,927008015	0,737204141

It is noted that there is therefore a strong relationship between economic risk assumed by a company and achieved profitability as a result of taking this risk. We can say that at a minimum risk assumed by these companies, the return achieved is quite high.

This is, after all, a natural consequence of carrying out business activities in an unstable economic environment and competitive Romanian economy in recent years, in which large profits were obtained, due to low market risk. Even with an economic downturn, the results of these companies from their core business (operating result) shows a profitable activity. The only company that can be achieved in a greater crisis may be Zentiva extension, but here the possibility that business to fail is a minor.

5. CONCLUSIONS

Once considered the information provided, namely that drug production is a profitable business is not intimidated by the phenomenon that put the jar around the world, we began to raise questions about the industry. We were not hard, nor easy, to draw some conclusions on this subject.

Based on our analysis we have reached the following conclusions:

- Production of medicines, although the impression apparently that was not affected by the economic crisis, a small analysis of the profitability, we see that in financial terms, and this branch of production suffered: there were decreases in analyzed corporate profits and even losses if Biofarm (2008) and Zentiva (2009);

- But unlike other productions, the production of drugs was still a success, it proved so satisfactory level of profitability indicators, calculated using data from the balance sheet and profit and pierdere. Astfel: Zentiva had the high return on capital (16.93%) in 2010, and all Zentiva offered the best financial stability to its shareholders, the positive rates of return of capital and growth in 2010 compared to 2009;

- 2010 presents a favorable year in terms of profitability for all companies but the most profitable results have proved the Zentiva;

- We can say that overall profitability is presented in the three companies favorable, despite the slight losses recorded by them;

- Economic risk and financial records satisfactory values in the three companies, the only company in difficulty is somewhat Biofarm made in 2008 and 2009 respectively because of the economic risk indicator of something more serious and Zentiva in 2010, because of the same indicator;

- The indicator of bankruptcy risk, Altman's model, we show that, unlike other companies that went bankrupt during this period far there can be no question in these companies bankruptcy indicator with positive values, and even increasing for Zentiva, which means that the pharmaceutical industry is one of the healthiest industries in the Romanian economy;

- Production of drugs is a business that does not comply with the principle of high risk-high return because for two of the companies analyzed, namely, those that still have Romanian majority, risk-return correlations economic and financial risk-return gave negative, which means that the minimum risk, these companies get a higher return.

- Given the above findings we can say that, overall, drug production has been affected by financial crisis, but continued, even in these tough times, be a profitable business. This is supported by the return and risk indicators calculated for the three production companies analyzed drugs: Antibiotics Iasi, Biofarm and Zentiva.

- In my opinion, the pharmaceutical industry is among the most profitable industries, the risk that the industry is subject to the minimum, because those working in this field know that health is the most important thing for man, which allocates however, making any sacrifice for keep it or retrieve it. Therefore, we believe that drug production is profitable, regardless of economic conditions in the environment: growing unemployment, high inflation, decreasing purchasing power of man, as it provides solutions to what we most value, namely the health of our body .

- In recent years, according to data provided by international bodies concerned, we face an aging population, followed by a decrease in birth rates and increased average lifespan. Amid these phenomena, the demand for drugs for cardiovascular diseases, central

nervous system or respiratory disease increased continuously, which has only served to benefit are part of local drug industry, which can be seen as continuing to get good results even in difficult times, and prospects for development of the industry attractive to many investors do.

- My opinion is that this industry, in addition to long-term profitability that offers the prospects for steady growth and expansion of the market research area, brings the possibility of sustainable economic growth of countries investing in this sector, as economic recovery is made strictly on a real, a real production, and is beneficial for everyone involved.

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