

CASE STUDY REGARDING ANALYSIS ON THE FINANCIAL PERFORMANCE IN TERMS OF CREDITORS, BASED ON SCORES, AT COMPANIES LISTED AND TRADED ON BUCHAREST STOCK EXCHANGE OPERATING IN INDUSTRY AND CONSTRUCTIONS, DURING 2006-2013

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Abstract

Addressing the financial performance must undergo beyond the classical analysis, on the basis of profit and loss account, and integrate ability of a company to cope with debts. Given the lack of homogeneity of the individual values of the indicators calculated for liquidity, solvency, and indebtedness, recorded for each company listed and traded on Bucharest Stock Exchange during the period 2006-2013, three models of score functions were developed, in order to track the company's ability to cope with debts.

Keywords: *liquidity, solvency, indebtedness, financial analysis, score functions, BSE*

JEL classification: *G30, G33, M40,*

1. Introduction

Addressing global financial performance cannot be reduced only to its assessment based on indicators calculated on the information provided by the income statement and accepting its existence when it is reflected in profit.

Assessment of financial performance of an economic entity must also consider the companies' ability to cope with outstanding debts. Unlike most of

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the other economic entities, which generally uses only bank loans, listed companies have better access to funding sources. Acting on a capital market offer them, besides a good knowledge of these market mechanisms, the possibility to diversify the sources for capital purchasing.

On these grounds, the analysis on the financial performance for listed companies must also be done in terms of third parties, in particular creditors.

2. Objectives of the research

In conducting this scientific approach were considered the following objectives: performance analysis in terms of liquidity, solvency and indebtedness, based on scores and achieving a hierarchy of companies analyzed in terms of liquidity, solvency and indebtedness;

3. Methodology of research

Given the share of the total market capitalization sectors, the number of companies, the performance criteria that must be met, the criteria of homogeneity on the work done, we have chosen for the case study, the analysis of the financial performance of the companies listed and traded on the BSE, which are operating in industry and construction, in a total number of 51, hereinafter *„industry and construction companies, listed and traded on BSE in the period 2006-2013”*. According to the NACE classification Revision 2, the industry includes mining and quarrying, manufacturing, production and supply of electricity, gas, steam and air conditioning (sections B, C, and D).

Starting with the financial statements of year 2012, companies listed on a regulated market were required to apply IFRS in preparing separate financial statements, according to Minister of Finance Order no. 1286/2012. In applying these regulations, companies restated financial statements for 2011, according to the law, which led to the recording of value differences between the information provided by the initial and restated financial statements. The financial statements for 2011 are extracted from the reports for the year 2012 made in accordance with IFRS and presented in the following as *„the year 2011r”*. Since the analysis of influences due to restatement is one of our future concerns, there were presented both the values for 2011 to better highlight the differences that may arise, and the impact on comparability

Liquidity, solvency and indicators are calculated by the author based on the information provided by the individual financial statements of these types of

companies, developed for the years 2006-2013, published on www.bvb.ro and on the website of each of the listed companies in the special sections dedicated to investors. To the extent necessary, additional information was obtained from the statutory audit reports, reports of the Board of administration and other publications devoted to investors, available on the website of each listed company.

Calculations, graphs, tables and annexes are the processing performed by the author.

The detailed analysis of **liquidity, solvency and indebtedness** is performed by authors in the doctoral thesis concerning the financial performance of listed companies (Vasiu, 2014; Vasiu, 2015), the results being presented and published in specialized scientific events.

4. Data analysis and presentation of results

4.1. Score Function for analyzing the evolution of liquidity

The Current liquidity ratio, Quick liquidity ratio and Cash liquidity ratio have been calculated according to the models provided by the vast specialized literature, national (Stancu 2007),(Balteş 2010), (Istfănescu 1999), (Bistriceanu 2001) and international (Brigham 2003),(Correia 2001), (Dyson 2010), (Halpern 1994), and the economic practice (Petcu, 2009), (Petrescu 2008):

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current debts}}$$

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Stocks}}{\text{Current debts}}$$

$$\text{Cash ratio} = \frac{\text{Cash}}{\text{current debts}}$$

Given the relatively high variation in the indicators of liquidity (Vasiu 2014), and therefore the arithmetic average non-representativeness to follow the dynamics of liquidity, a score model for liquidity ratios was created, similar to the scoring model that banks use to analyze the creditworthiness of clients.

Each analyzed company has been granted, in each of the years 2006-2013, a score according to the registered values for liquidity ratios as presented in Table 1.

Table 1: The model for granting the liquidity scores

Current ratio		Quick ratio		Cash ratio	
Values	Given score	Values	Given score	Values	Given score
less than 0,5	-1	less than 0,5	-1		
(0,5-1]	0	(0,5-0,8]	0	less than 0,2	0
(1,1,5]	1	(0,8-1]	1	(0,2-0,3]	1
(1,5-2]	2	(1-1,5]	2	(0,3-1]	2
(2-2,5]	3	(1,5-2]	3	(1-2]	3
more than 2	4	more than 2	4	more than 2	4

Source: author's processing, based on banks' models for assessing liquidity

Based on the individual values of the scores granted for each company, we calculated the annual average score for each type of liquidity ratios, for each year j in the period 2006-2013, according to the model

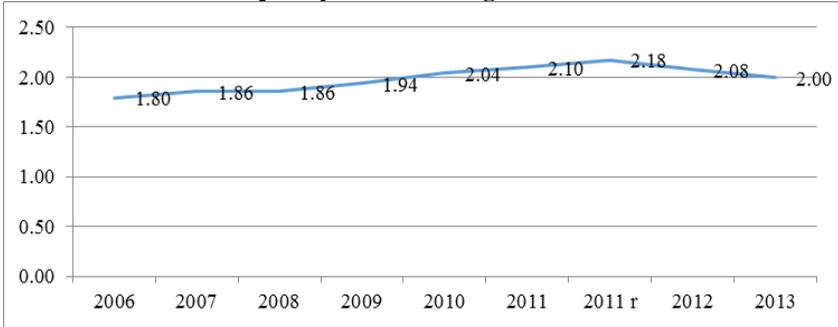
The individual liquidity ratio score for company i in year j

$$= \frac{\sum \text{score}_j \text{ for company}_i \text{ in year}_j}{\text{The number of listed companies in year}_j}$$

Annual values of the scores calculated for each type of liquidity ratios are presented in Figures 1, 2 and 3.

The evolution of annual average score, calculated for Current Liquidity Ratios during 2006-2013, presented in figure 1, records increases during 2006-2011 and decreases in 2011-2013. The average annual growth for the whole period 2006-2013 was 1.55%.

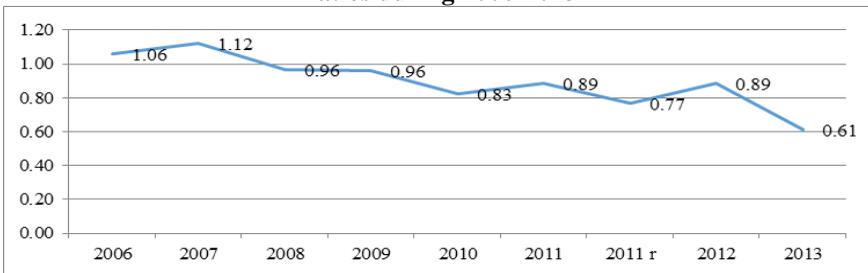
Figure 1. Evolution of annual average score, calculated for Current Liquidity Ratios during 2006-2013



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on www.bvb.ro

The evolution of Annual average score calculated for Quick Liquidity Ratio, presented in figure 2, has a similar evolution as the annual average score, calculated for Current Liquidity Ratios, recording increases during 2006-2011 and decreases in 2011-2013. The average annual growth of the Annual average score calculated for Quick Liquidity Ratio, for the whole period 2006-2013 is 1.74%.

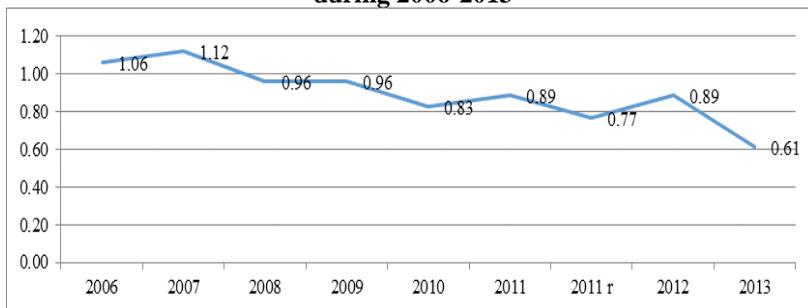
Figure 2. Evolution of annual average score, calculated for Quick Liquidity Ratios during 2006-2013



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on www.bvb.ro

The evolution of Annual average score calculated for Cash Liquidity Ratio, presented in figure 3 has a different trend compared to other values of the others Annual average scores for liquidity, registering a downward trend for the entire period 2006-2013, with an average annual decrease of 7.57%. Also must be noted the subunitary values, since 2008, of the Annual average score calculated for Cash Liquidity Ratio, while the maximum score could have a value of 4.

Figure 3. Evolution of annual average score, calculated for Cash Liquidity Ratios during 2006-2013



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on www.bvb.ro

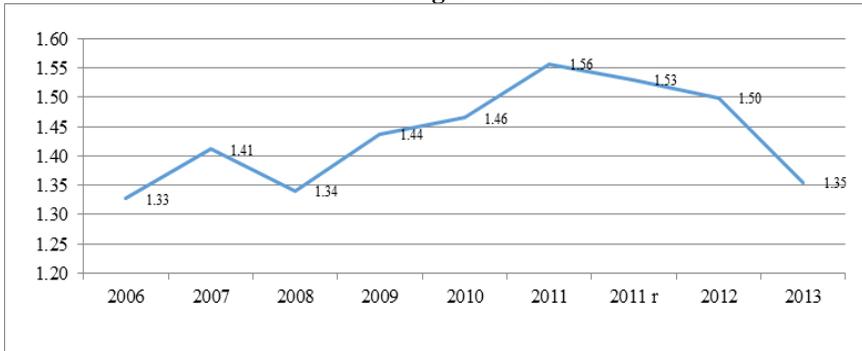
Summarizing liquidity analysis based on scores calculated for each type of liquidity rate, we propose the calculation of an average score for liquidity, for each company, as the annual arithmetic mean of the values registered by each company, according to the model:

The individual liquidity ratios score for company i in year j

$$= \frac{\text{Current Liquidity Ratios score} + \text{Quick Liquidity Ratios} + \text{Cash Liquidity Ratios}}{3}$$

The evolution of Annual values of the liquidity ratios scores, calculated as the arithmetic mean of The individual liquidity ratios score for company i in year j is presented in Figures 4.

Figure 4. Evolution of annual average score, calculated for Liquidity Ratios during 2006-2013



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on www.bvb.ro

The evolution of the average score, calculated for liquidity ratios is oscillating, recording increases in periods 2006-2007 and 2008-2011, respectively decreases, in 2011-2013, the figures for 2013 being similar to those in 2006.

The strongest increase in liquidity score, of 7%, was recorded during 2008-2009, and the strongest decrease in score, of 5%, was recorded between 2007-2008. For the entire period under review, the average score calculated for liquidity rates showed a very small variation, increasing by an average annual rate of 0.3%.

Most companies, meaning 31%, registered an annual average score of liquidity between 0 and 1. The maximum value of liquidity scores, between 3 and 4 points, was registered by 13.73% of companies

4.2. Score Function for analyzing the evolution of solvency

Solvency reflects the company's capacity to meet medium and long term maturities, particularly from their own resources. Creditors are interested in a high value as of the overall solvency ratio, the enterprise's assets constituting liability (Petrescu, 2008). Solvency assessment is complex and can be approached from national, international and the economic practice uses perspectives, as the following ratios (Ișfănescu, 1999), (Stancu, 2007), (Balteș,

2010), (Bistriceanu, 2001), (Eros-Stark, 2001), (Halpern 1994), (Petcu, 2009), (Petrescu, 2008) (Vasiu,2014):

Patrimonial solvency ratio (Psr), calculated as the ratio between equity and permanent equity (equity plus long term debts) or as the ratio between equity and total capitals.

Global solvency ratio (Gsr), calculated as the ratio between *Total assets* and total debts, quantifies the risk of the company's payment inability.

Global financial autonomy ratio (Gfar), calculated as the ratio between equity and total liabilities, shows how much of the company's assets is financed from the own resources.

Overall Borrowing Ratio (Obr), calculated as the ratio between total debts and total liabilities, indicates the proportion of total debt in the total capital, showing the extent to which sources borrowed and attracted participate in the financing of the activity.

Similarly to the banks' models for assessing solvency, a scoring model for companies analyzed was created, granting points to each company, depending on the values registered for Global financial autonomy ratio (Gfar), as presented in Table 2:

Table 2: The model for granting the solvency scores

Solvency	Values	Given score
Global financial autonomy ratio $Gfar = \frac{\text{Equity}}{\text{Total liabilities}}$	< 30 %	0
	30% ÷ 40 %	1
	40% ÷ 50 %	2
	50 % ÷ 60 %	3
	60% ÷ 70 %	4
	70% ÷ 80 %	5
	> 80 %	6

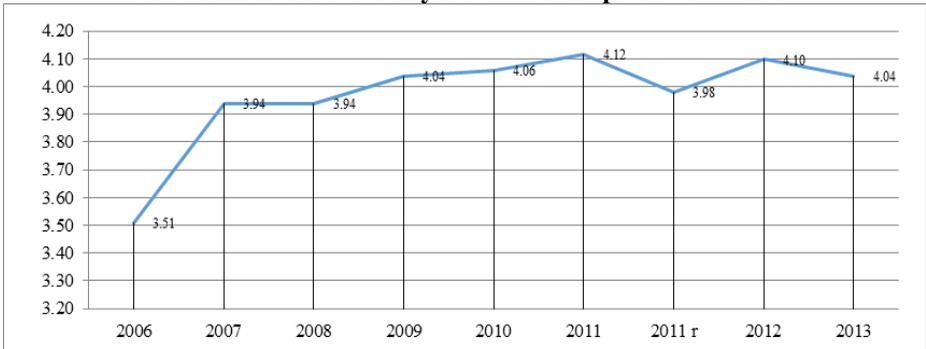
Source: author's processing, based on banks' models for assessing solvency

Based on the individual values of the scores granted for each company, we calculated the annual average score for solvency, for each year j in the period 2006-2013, according to the model

$$\begin{aligned} & \text{The annual average score of solvency for in year } j \\ & = \frac{\sum \text{score } j \text{ for company } i \text{ in year } j}{\text{The number of listed companies in year } j} \end{aligned}$$

The evolution of The annual solvency score is presented in figure 5.

Figure 5. Evolution of annual average score of solvency assessed based on the Global financial autonomy ratio over the period 2006-2013



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on www.bvb.ro and the scores given by the author

It can be noticed that the highest annual average value was obtained in 2011, despite difficult financial times, marked by a lack of liquidity and accumulation of receivables and payables. All scores recorded an annual average of over 3.5, which is an above average value.

In 2013, compared to 2006, the annual average Global financial autonomy ratio score increased by 15% represented an average annual rate of 2.03% during 2006-2013.

4.3. Score Function for analyzing the evolution of financial leverage

Financial leverage is used in diagnosing the financial risk, representing the share of debt to equity (the recommended value of the indicator is maximum 60%). It is calculated according to the following model (Eros-Stark Lorant 2001):

$$Fl = \frac{\text{Total debt}}{\text{Equity}} \times 100$$

Starting from the commercial banks' model of awarding scores for various indicators for assessing the creditworthiness of customers, a model for assessing the performance in terms of financial leverage was created, presented in Table 3.

Table 3: The model for granting the solvency scores

Financial leverage	Values	Given score
$Fl = \frac{\text{Total debt}}{\text{Equity}} \times 100$	< 0 %	0
	0% ÷ 20 %	4
	20% ÷ 60 %	3
	60% ÷ 80 %	2
	80% ÷ 100 %	1
	> 100 %	0

Source: author's processing, based on banks' models for assessing solvency

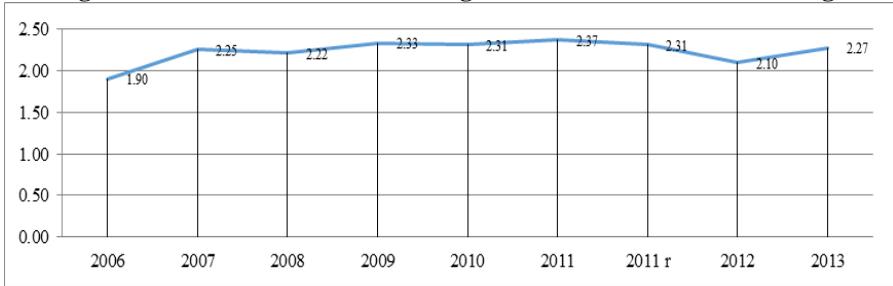
Based on the individual values of the scores granted for each company, we calculated the annual average score for Financial leverage, for each year j in the period 2006-2013, according to the model

The annual average score of Financial leverage for in year j

$$= \frac{\sum \text{score}_j \text{ for company}_i \text{ in year}_j}{\text{The number of listed companies in year}_j}$$

The evolution of The annual average Financial leverage score is presented in figure 6.

Figure 6. Evolution of annual average score of the Financial Leverage



Source: author's processing, based on information provided by the annual financial statements in the period 2006-2013 of the companies listed and traded on the BSE, which operate in industry and construction, available on www.bvb.ro and the scores given by the author

Considering the annual average scores of the Financial Leverage it must be noted that the highest annual average value was obtained in 2011. All annual average scores recorded a value over 2 (considering the value of 1,90 obtained in 2006 very close to the average level 2) which is an above average value.

Ranking the companies according to the annual average score of the Financial

Type of Score Function	The worst performers	The best performers
Liquidity	MJ MAILLIS ROMANIA S.A. ROMPETROL RAFINARE S.A. ELECTROPUTERE S.A. CONTOR GROUP S.A. Arad ROMCARBON SA BUZAU CEMACON SA CLUJ-NAPOCA	ROMGAZ MEFIN S.A. ZENTIVA S.A. BIOFARM S.A. CONTED SA DOROHOI PRODPLAST S.A. ROMPETROL WELL SERVICES S.A.
Solvency	COMELF S.A. VES SA DAFORA SA UAMT S.A. C.N.T.E.E. TRANSELECTRICA	ZENTIVA S.A. SANTIERUL NAVAL ORSOVA S.A. GRUPUL INDUSTRIAL ELECTROCONTACT S.A. MEFIN S.A. CONTED SA DOROHOI SINTEZA S.A. ELECTROMAGNETICA SA BUCURESTI ROMGAZ ROMPETROL WELL SERVICES S.A. BIOFARM S.A. PRODPLAST S.A. COMCM SA CONSTANTA CARBOCHIM S.A.
Financial leverage	TMK - ARTROM S.A. CEMACON SA CLUJ-NAPOCA COMELF S.A. CONTOR GROUP S.A. Arad ELECTROPUTERE S.A. DAFORA SA UAMT S.A. VES SA RETRASIB SA SIBIU ELECTROARGES SA CURTEA DE ARGES TURBOMECHANICA S.A.	OMV PETROM S.A. ZENTIVA S.A. PREFAB SA BUCURESTI AEROSTAR S.A. GRUPUL INDUSTRIAL ELECTROCONTACT S.A. ROMGAZ SANTIERUL NAVAL ORSOVA S.A. CONTED SA DOROHOI CARBOCHIM S.A. MEFIN S.A. SINTEZA S.A. ELECTROMAGNETICA SA BUCURESTI ROMPETROL WELL SERVICES S.A. BIOFARM S.A. PRODPLAST S.A. COMCM SA CONSTANTA

Leverage it may be established that 31% of companies are included in the group of values for financial leverage score between 3 and 4.

Considering the average scores for each company, the best and worst performers in terms of creditors, were obtained by the analyzed companies as follows:

Ranking companies depending on financial performance in terms of third parties, based on rates of liquidity, solvency and degree of indebtedness shows that the best performance was attended by ZENTIVA BIOFARM, ROMGAZ, MEFIN, CONTEND, PROPLAST and ROMPETROL WELL SERVICES, regardless the score.

5. Conclusions

Analyses carried out allow us to conclude that the companies listed and traded on the BSE, which operate in industry and construction record, from the perspective of third parties, a good financial performance, especially regarding the Financial Leverage.

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