

Indebtedness of Enterprises and Profitability Improvement

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Abstract

This paper presents an analysis of the efficiency of the indebtedness of companies in the Republic of Serbia. In order to investigate whether the companies' borrowing is accompanied by the efficient investment of resources and the achievement of better profitability, the correlation analysis of level of indebtedness and profitability was conducted. The research was based on a sample of 42,057 observations of companies that operated in the Republic of Serbia in the period 2009-2013. The research results indicate that the debt is negatively correlated with the level of profitability, which shows a weak ability of companies to improve their performance through additional debt.

Keywords

Indebtedness, profitability, economy of Serbia.

Introduction

Companies need to provide sources for funding their activities in order to achieve growth and development on the market. Companies can finance their activities from their own capital or by debt. Financing from owner's equity is achieved by increasing the capital by the new ownership or the retention of profit. The company's ability to generate profits is one of the key factors of financing and it affects the company's ability to attract additional capital investment. On the other hand, companies may decide to finance their activities by indebtedness which causes additional expense such as interest rate (Jakšić, & Mijić, 2013). Even then, the profit has an important role when the creditors consider the risk of collection of receivables. Creditors determine whether the company is able to generate cash flows, or indebtedness should be based on one of the collaterals (mortgages, guarantees, pledges, etc.).

Additional borrowing of companies should be related to the efficient and effective investment in business activities. Performances of the company can be expressed through profitability as a key

indicator of the possibilities of the company to generate profit in relation to the invested resources. Companies that gain profit in spite of debt make a positive impact on economic development since they provide the ability to stimulate investment and additional employment. On the other hand, if the companies make a loss they could have serious problems, such as the problem of short-term payment, insolvency, bankruptcy, and unemployment.

In order to investigate whether the additional borrowing of companies in the Republic of Serbia is effective and whether it results in higher profitability, the analysis of the relation between debt and profitability was carried out. For the study, the data about profitability and debt was used based on the sample of companies from 15 business sectors in the period 2009-2013. Data were taken from the Amadeus database which contains financial data and other information of public and private companies in Europe (Amadeus, 2015).

1. Research methodology

The indebtedness of a company is determined by the analysis of balance sheet structure in terms of relation between capital and debt. The structure of balance sheet liabilities affects the security, viability, and autonomy of enterprises as debtors (Rodić, Vukelić, & Andrić, 2007). The indebtedness (or liabilities ratio) is measured as the ratio of total debt to total assets. The acceptable level of debt ratio should be at 50%, which means that companies finance their activities with 50% of owners' equity and 50% of liabilities. The following table shows the method of calculation, unit and the reference value of indicators of indebtedness – leverage (LEV).

Table 1 Debt ratio

Liabilities ratio	Calculation	Unit	Reference value
Leverage (LEV)	Liabilities / Total assets	%	=50%

Source: The authors' illustration according to Rodić, Vukelić, & Andrić, 2007

Profitability can be measured by various ratios that indicate the ability of company in achieving net income compared to the invested resources. The following table provides the overview of profitability indicators and the method of calculating reference values.

Table 2 Profitability ratios

Profitability ratios	Calculation	Unit	Reference value
Return on assets (ROA)	Net income / Total assets	%	≥10%
Return on equity (ROE)	Net income / Capital	%	≥15%
Gross margin	(EBIT + cost of interest) / Total revenue	%	>0
Net margin	Net income / Total revenue	%	>0

Source: The authors' illustration according to Dyson, 2010

Since the return on assets (ROA) has a positive effect on the market value of company (see more: Asiri, 2015), the analysis of profitability of the Serbian economy is based on the application of ROA.

Initial sample consists of 42,913 observations of companies that were operating in the Republic of Serbia in the period 2009-2013. In order to reduce the influence of extremely high or low rate of ROA and LEV, 1% companies with the highest and 1% of the company with the lowest values of ROA and LEV were eliminated from the initial sample. The final sample includes 42,057 observations of annual ROA and LEV in the period 2009-2013. The following figure shows the characteristics of sample and population.

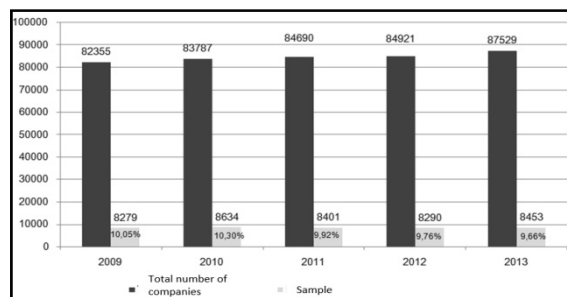


Figure 1 Total number of companies and sample size
Source: The authors' illustration according to RSZ 2014; RSZ, 2013; RSZ, 2012; RSZ, 2011; RSZ, 2010

Analysis of the efficiency of borrowing in the function of achieving better profitability was conducted in two steps. First, the descriptive statistical analysis of ROA and LEV of companies in the Republic of Serbia was conducted. Second, a correlation analysis between ROA and LEV was carried out, in order to give an answer to the question whether the additional borrowing is accompanied by higher profits.

2. Descriptive statistics of indebtedness and profitability of companies in the Republic of Serbia

The indebtedness and profitability of Serbian economy is expressed on the basis of indicators of LEV and ROA in the period 2009-2013. It was measured according to aggregated data from the balance sheets and income statements. The following table presents the results of LEV of companies in the Republic of Serbia in the period 2009-2013.

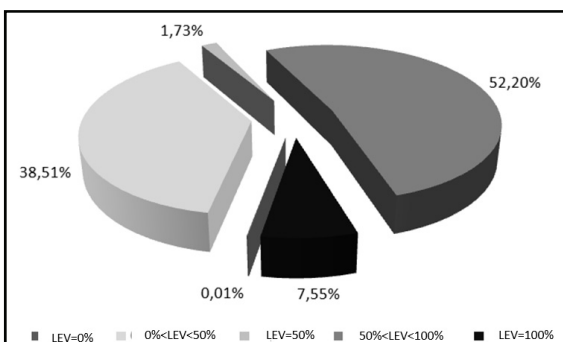
Table 3 The indebtedness of companies in the Republic of Serbia in the period 2009-2013

Year	2009	2010	2011	2012	2013	2009-2013
Number of companies	8,279	8,634	8,401	8,290	8,453	42,057
LEV	57.61	59.05	57.95	57.62	56.06	57.67
Min.	0.00	0.00	0.00	0.00	0.00	0.00
Max	1.00	1.00	1.00	1.00	1.00	1.00
St. dev.	0.28	0.28	0.28	0.28	0.28	0.28

Source: The authors' calculation

Analysis of the indebtedness of companies in the Republic of Serbia in the period 2009-2013 indicates that the average indebtedness of companies was 57.67%. That means that companies' activities were financed 57.67% from liabilities, and 42.33% from equity. Although the average debt is slightly above the traditional boundaries (50%), it can be said that the indebtedness of companies in the Republic of Serbia is acceptable and that companies on average are not too indebted.

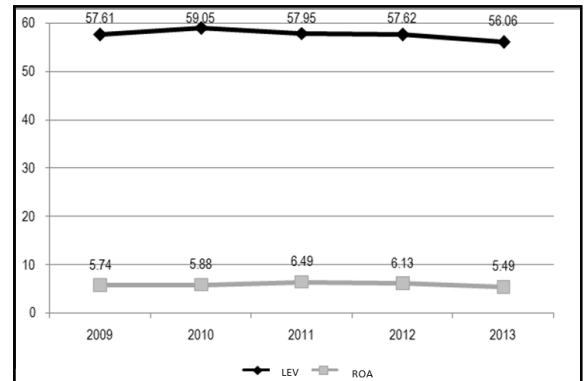
The descriptive statistical analysis also indicates that the LEV is in the range from a minimum of 0% to the maximum 100%. This means that there are companies in the Republic of Serbia which are financed entirely from capital, or from liabilities. Only 5 of the 42,057 observations of companies showed financing their activities exclusively from equity. On the other hand, 3,177 or 7.5% of companies were financing their activities entirely from the liabilities. Figure 2 shows the distribution of companies according to the level of indebtedness.

**Figure 2** Distribution of the companies according to the level of indebtedness

Source: The authors' illustration

The indebtedness of companies in the Republic of Serbia was relatively balanced and it does

not record significant fluctuations since it ranged from 56.06% to 59.05% (Figure 3). Since 2010 it reveals the constant improvement of the structure of financing in terms of reducing the share of liabilities.

**Figure 3** Indebtedness and profitability of companies in the Republic of Serbia in the period 2009-2013

Source: The authors' illustration

The following table shows the profitability of companies in the Republic of Serbia in the period 2009-2013.

Table 4 The profitability of Serbian companies in the period 2009-2013

Year	2009	2010	2011	2012	2013	2009-2013
Number of companies	8,279	8,634	8,401	8,290	8,453	42,057
ROA	5.74	5.88	6.49	6.13	5.49	5.95
Min.	-35.63	-35.50	-35.56	-35.29	-35.51	-35.63
Max.	55.26	55.28	54.50	55.29	55.28	55.29
St. dev.	12.32	12.09	11.94	11.87	10.79	11.82

Source: The authors' calculation

The profitability of companies in the Republic of Serbia in the period 2009-2013 is positive and the average value of 5.95% means that companies generated 5.95 RSD from 100 RSD of total assets invested. Although the profitability of companies in the Republic of Serbia is positive, it is not at the satisfactory level of 10%. Further analysis shows that the profitability of companies in Serbia ranges from -33.56% to 55.29%. Negative profit-

ability indicates that the companies made a loss. Figure 4 presents the distribution of companies according to the level of ROA.

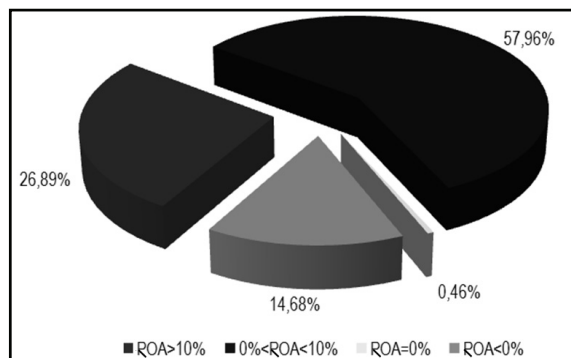


Figure 4 Distribution of the companies according to the level of ROA
 Source: The authors' illustration

The results of distribution of companies based on the level of ROA show that 26.89% of companies achieved satisfactory profitability (above 10%). Most of the companies (83.85%) operated with profit. The neutral result was achieved by only 0.46% of companies, while 14.68% of companies achieved a loss.

3. Correlation analysis between indebtedness and profitability

In order to investigate whether the borrowing of companies in Serbia is related to the effective investment of resources and higher profitability the following hypothesis is set:

H₀: There is a strong positive relationship between LEV and ROA of the companies in the Republic of Serbia.

In order to test the hypothesis, a non-parametric test correlation based on Spearman coefficient was conducted (according to Field, 2009). The statistical test was carried out using the statistical software package SPSS Statistics IBM version 21. The results of the correlation analysis for the period 2009-2013 are presented in the following table.

Table 5 Correlation analysis


2009		ROA	LEV
Spearman correlation coefficient	ROA	1.000	-0.360
	LEV	-0.360	1.000
	p		0.000
	Number of observations	8.279	8.279
2010		ROA	LEV
Spearman correlation coefficient	ROA	1.000	-0.393
	LEV	-0.393	1.000
	p		0.000
	Number of observations	8.634	8.634
2011		ROA	LEV
Spearman correlation coefficient	ROA	1.000	-0.392
	LEV	-0.392	1.000
	p		0.000
	Number of observations	8.401	8.401
2012		ROA	LEV
Spearman correlation coefficient	ROA	1.000	-0.422
	LEV	-0.422	1.000
	p		0.000
	Number of observations	8.290	8.290
2013		ROA	LEV
Spearman correlation coefficient	ROA	1.000	-0.390
	LEV	-0.390	1.000
	p		0.000
	Number of observations	8.453	8.453
2009-2013		ROA	LEV
Spearman correlation coefficient	ROA	1.000	-0.391
	LEV	-0.391	1.000
	p		0.000
	Number of observations	42.057	42.057

Source: The authors' calculation

In the period 2009-2013 the value of correlation coefficients were constantly negative and ranged from -0.360 to -0.422 with a level of significance of 0.01. Results indicate the existence of asignificant negative correlation between the level of indebtedness (LEV) and profitability (ROA) of companies in the Republic of Serbia during the period 2009-2013. It can be concluded that the additional borrowing in the Republic of Serbia is not accompanied by the achieving of a better level of profitability. Thus, the null hypothesis H₀ is rejected and the alternative hypothesis is accepted. According to results it can be concluded that the additional borrowing and higher level of indebtedness are followed by an inefficiency of investment and lower profitability ratio.

Conclusion

According to the Chamber of Commerce and Industry of Serbia (Privredna komora Srbije, 2015), the period 2009-2013 was a period of economic growth, relatively stable level of indebtedness and a positive profitability. Analysis of indebtedness of companies in the Republic of Serbia shows that companies on average have more liabilities than own capital. The average indebtedness of companies in the period 2009-2013 was 57.67%, which means that 57.67% of company's activities were financed by debt.

Analysis of the relationship between the level of indebtedness and the level of profitability indicates that companies in Serbia do not make an efficient investment from borrowing which is above the traditional level. A higher level of indebtedness is not accompanied by the higher rate of return on assets. Namely, there is a significant negative correlation between the level of indebtedness and the level of profitability, which means that companies which have a higher level of indebtedness generate lower (worse) profitability. This may be a problem for the survival and growth of companies with the higher level of indebtedness. 

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