

Filipovic, Ana Lalevic; Demirovic, Selma

**Article**

## The relationship between debt and profitability of stock companies in Montenegro

Journal of Contemporary Economic and Business Issues

**Provided in Cooperation with:**

Ss. Cyril and Methodius University in Skopje, Faculty of Economics

*Suggested Citation:* Filipovic, Ana Lalevic; Demirovic, Selma (2016) : The relationship between debt and profitability of stock companies in Montenegro, Journal of Contemporary Economic and Business Issues, ISSN 1857-9108, Ss. Cyril and Methodius University in Skopje, Faculty of Economics, Skopje, Vol. 3, Iss. 2, pp. 19-34

This Version is available at:

<https://hdl.handle.net/10419/193466>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# THE RELATIONSHIP BETWEEN DEBT AND PROFITABILITY OF STOCK COMPANIES IN MONTENEGRO

Ana Lalevic Filipovic, PhD<sup>1</sup>  
Selma Demirovic, MsC<sup>2</sup>

---

## Abstract

*Financial structure of the company refers to the structure of financing of business assets and concerns the relationship between their own and borrowed sources of financing. One of the company's financial goals is to provide optimal financial structure that has the purpose of maximizing business performance in the sense of maximizing profitability and return on equity. The aim of this paper is to determine the degree of correlation between financial structure (debt) and profitability (measured by rates of return on equity). This paper seeks to answer the question of cause and effect in the context of financial structure and profitability of the company: whether a certain financial structure (higher or lower indebtedness) causes more or less profitability. The research used the methodology of simple linear regression between those variables. Empirical research is conducted in the case of joint stock companies in Montenegro, which according to the Law on Accounting and Auditing of Montenegro, have the obligation to draw up quarterly financial statements. It should also be noted that the legal form of companies is one of the factors of their financial structure, and consequently, this research can be the basis for further analysis in the case of other legal forms of enterprises.*

**Keywords:** financial structure, profitability, debt, joint stock companies, Montenegro

**JEL Classification:** M21, M41

---

## 1. Introduction

Economic operators, such as legal and economic entities, perform a set of activities using tangible, intangible and financial resources for the purpose of creating added value. In order to adequately manage resources, companies make business policies in which the financial strategy of the company has a dominant role. The general

---

1 Associate Professor, University of Montenegro, Faculty of Economics in Podgorica,  
e-mail: [savana@t-com.me](mailto:savana@t-com.me)

2 Teaching Assistant University of Montenegro, Faculty of Economics in Podgorica,  
e-mail: [selma987@t-com.me](mailto:selma987@t-com.me)

objectives of the company resulting from its strategy are maximization of profit in the long term and ongoing realization of liquidity, i.e. company's ability to pay its obligations from its own assets. To achieve these objectives, the financial function of the company must abide by certain principles. One of the principles is the financial stability of the company, from which also arises the financing method of resources obtained.

Resources of the company can be financed from its own sources and from other sources. The most common way is to make a certain combination of own and external sources of funding. Financial structure is visible from the balance sheet liability of the company, where the relationship between company's external and own sources is called financial structure, while it is often identified with the term structure of capital, which would be a ratio of own capital and long-term debts. There are numerous theories about the possibility of forming an optimal capital structure that should maximize the profit of the company in the long term, but also ensure its continuous liquidity. Previous studies did not lead to a general conclusion on the optimal ratio of own capital and debt, but they showed that financial structure in some cases has a direct impact on achieving company's profitability, while in others it does not.

In the empirical part of the paper the flow of debt and profitability is made within a particular period of 23 quartals, as an average for Montenegrin economy. Graphs show whether joint-stock companies in Montenegro are increasing or decreasing their debt and rates on return. Researchers analyze the ratio of debt and try to answer the question whether the optimum ratio exists or not. In this regard, usually, the optimal ratio is one that should minimize the average cost of capital, and thus maximize the value of the company and its profitability. Theory and empirical research have come to different results in terms of this dependence. This paper assesses the link between financial structure and profitability of joint stock companies in Montenegro, in order to obtain an answer to the question whether debt affects profitability, and if it does, whether it is a positive or negative correlation.

## 2. Literature overview

The ratio of debt and own sources in the total resources of the company has been a hot topic for more than fifty years, since this relationship was explored by the authors Modigliani and Miller (1958). Basically, there are three essential theories which highlight the relation between debt and profitability, namely: signaling theory, the agency costs theory and tax theory (Kebewar, 2012). According to signaling theory, debt, in the presence of asymmetric information, should be correlated positively to profitability of the company. According to the agency costs theory, there are two contradictory effects of debt on profitability of companies: firstly, it is positive in the case of agency costs of equity between shareholders and managers; secondly, its effect is negative, resulting from the agency costs of debt between shareholders and lenders. Finally, the tax theory shows its complexity in the sense that the ratio of debt and profitability depends on the tax treatment of interest and income (interest and income tax).

An ultimate goal of a company is the maximization of value of that company (Miller

and Modigliani, 1958, 1963, Miller 1977). In their study in 1958, Miller and Modigliani created their irrelevance theory, based on which they consider that the capital structure has no influence on the value of the company. However, in their research in 1966, they came to the conclusion that in the presence of income tax and cost of capital, the market value of the company is positively correlated with long-term sources of funding (long-term debt).

Myers (1984), Myers and Majluf (1984) and Shyam-Sunder and Myers (1999) claim that companies prefer first to use internal sources of funding, then borrowing and, at the end, financing through the issue of shares. Preferences are incurred as a result of asymmetric information and agency problems. However, profitable companies are more likely to choose to create profit based on external sources of funding, or on the basis of newly issued shares. This indicates a negative relation between leverage and profitability of companies. Jensen and Meckling (1976) have also supported this relationship by their research, while Kunt and Maksimovic (2001) showed once again that the company is more profitable as its ratio of debt is lower (lower leverage). Authors Kester (1986), Harris and Raviv (1991), Rajan and Zingales (1995), Hung Albert and Addie (2002) suggest that companies should choose internal sources of funding, rather than bank loans or issuance of debt securities.

On the other hand, Miller and Modigliani (1977) in their research came to the conclusion that there is a positive correlation between leverage and the value of the company. Ross's model (1977) has also suggested that the value of the company will grow with the increase in leverage. According to Ehrhard and Brigham (2003), the value of a company that respects the principle of continuity of operations is calculated as the present value of all future expected inflows of the company, which is discounted by using the average cost of capital (WACC). Therefore, the WACC has a direct impact on the value of the company (Johannes and Danraj, 2007). The capital structure has to find the relation between capital and debt that would create the lowest possible average cost of capital and thus maximize the value of the company (Messbacher, 2004).

Some authors have not found a connection between debt and profitability of companies. Long and Maliz (1986), as well as Fama and French (1998) concluded that there is no link between financial structure and profitability of companies. They even showed that companies with lowest rates of indebtedness also prefer the model of financing through the issue of shares. Brealey and Myers (2003) concluded that the relation between own and external sources of funding is solely a marketing problem.

Sarkar and Zapatero (2003) find a positive relationship between leverage and profitability. Myers and Majluf (1984) find that firms which are profitable and generate high earnings are expected to use less debt capital compared to equity than those that do not generate high earnings.

Furthermore, the disagreement exists not only in theoretical literature but also it is present in the empirical strand. A negative effect of debt on profitability was confirmed by Majumdar and Chhibber (1999), Eriotis et al. (2002), Ngobo and Capiez (2004), Goddard et al. (2005), Rao et al. (2007), Zeitun and Tian (2007) and Nunes et al.

(2009). On the other hand, Baum et al. (2006) & (2007), Berger and Bonaccorsi (2006), Margaritis and Psillaki (2007) & (2010), showed a positive influence. In addition, Simerly and LI (2000), Mesquita and Lara (2003) and Weill (2008), find both effects in their studies. Besides that, Berger and Bonaccorsi (2006), Margaritis and Psillaki (2007) and Kebewar (2012) find the presence of a non linear effect (inverse U-shaped relationship).

Mendell, et al., (2006) investigates financing practices across firms in the forestry industry by studying the relationship between debt and taxes hypothesized in finance theory. In testing the theoretical relationship between taxes and capital structure for 20 publicly traded forestry industry firms for the years 1994-2003, the study find a negative relationship between profitability and debt, a positive relationship between non-debt tax shields and debt, and a negative relationship between firm size and debt.

### **3. Determinants of capital structure**

There are external and internal factors which can affect the capital structure of the company. External factors come from the company's environment and usually can not be controlled by the company itself. Those factors are some economic and institutional factors which are more products of political, economic and social issues and conditions in the country. Holmstrom and Tirol (1997) showed that small companies have more limited external financing options, so macroeconomic performances have bigger impact on them compared to larger companies. Demircuc-Kunt and Maksimovic have found the negative impact between the capital market development and leverage of companies (1995). Schumkler and Vesperoni have searched the relation between financial liberalization and leverage. Their research showed that financial liberalization did not change the leverage, but it changed the debt structure by increasing the short-term debt (2001). Generally, De Jong (2008) searched for determinants of capital structure across the world and demonstrated that capital structure depends on various factors in various countries.

On the other hand, internal factors can be controlled by companies. The most important internal factors are asset structure, growth, profitability, liquidity and business risk. Therefore, according to Rajan and Zingales (1995) profitability is the factor of companies' capital structure or debt. During this research, profitability can affect debt in two directions. Since profit makes cash which can be used as an internal factor of financing, there is a negative relation between profitability and leverage: more profit - less debt. The second direction is opposite: more profit – more debt. Some research also showed that there are empirical studies which showed no relation between profit and debt, so profitability can not be a factor of debt.

## **4. Methodology**

### *4.1. Research Objectives and Hypothesis*

The relationship between capital structure and profitability cannot be ignored because the improvement in the profitability is necessary for the long-term survivability of the firm. Because interest payment on debt is tax deductible, the addition of debt in the capital structure will improve the profitability of the firm. Therefore, to Shubita and Alsawalhah, it is important to test the relationship between capital structure and profitability of the firm to make sound capital structure decisions. (2012).

The aim of this paper is to determine the relation between indebtedness (measured by the ratio of foreign sources of financing and total sources of financing) and profitability (measured by the rate of return on assets (ROA) and the rate of return on equity (ROE)) of joint stock companies in Montenegro which are listed on the stock market, and do not perform financial activity. There are two hypotheses that should be tested:

**H1:** Debt has a positive impact on the rate of return on assets of joint stock companies in Montenegro.

**H2:** Debt has a negative impact on the rate of return on equity of joint stock companies in Montenegro.

According to three groups of theories about the relation between debt and return, authors want to give an answer if debt in Montenegrin companies has a positive or negative impact on ROE and ROA, or there is no impact at all. Debt is taken as an independent variable and authors measured its influence on ROA and ROE in the sample of chosen Montenegrin companies.

### *4.2. Population, sampling design and research period*

In order to establish a link between debt and profitability, most of empirical research was conducted on companies listed on the stock exchange. Due to the order of magnitudes, it should be emphasized that in Montenegro, all joint stock companies are listed on the Montenegro Stock Exchange (about 360), while only 21 companies are listed in the so-called A and B list of the Montenegro Stock Exchange, 7 in the A list and 14 in the B list. The conditions for classification of companies in the A and B lists are that the issuer was registered at least three years ago, or one year ago; that it has a share capital of at least 2 million euros; has performed a share issue of at least 100,000 or 20,000 euros, respectively. It is essential for A list that the company did not make a loss in the previous year. From a total of 21 companies, 7 of them perform financial activities, thus due to the nature of their activities they were excluded from further analysis. Of the remaining 14 companies in the A and B list of Montenegro Stock Exchange, for the five of them it was possible to obtain quarterly data for the variables analyzed. The sample consists of 35.71% of the population (if the population viewed consists of companies in the A and B list of Montenegro Stock Exchange which do not perform financial activities).

The period of analysis conducted is from 2010 to 2015, with reference to the third quarter of 2015, given that these are the last available financial statements. As joint stock companies, in accordance with the Law on Accounting and Auditing of Montenegro and the Law on Securities, have the obligation to draw up quarterly financial statements, for the five selected companies, financial statements were available for 23 quarters.

#### 4.3. Data description

In order to quantify the relationship between debt and profitability, it was necessary to collect data on the basis of financial statements. For 23 financial statements, the authors collected data on companies' debt, putting the ratio of total liabilities to total sources of funding and profitability, measured by the ratio of business net income and total assets (ROA), respectively, measured by the ratio of net profit and own equity (ROE). In the table below, descriptive properties of series related to these variables are shown:

**Table 1.** Descriptive measures of data

Variable	DEBT	ROA	ROE
Min.	0.07385	-0.083034	-0.213222
1st Qu.	0.016683	-0.008387	-0.018614
Median	0.21497	0.004941	0.004516
Mean	0.23082	0.003648	-0.004525
3rd Qu.	0.28323	0.017569	0.015756
Max.	0.57657	0.068453	0.070599

**Source:** R statistical program

Data analysis in the table below shows that all series are stationary, which means that series have a movement that is taking place according to a set pattern in terms of immutability of its properties.

**Table 2.** Stationarity of time series by Maddala-Wu Unit-Root Test

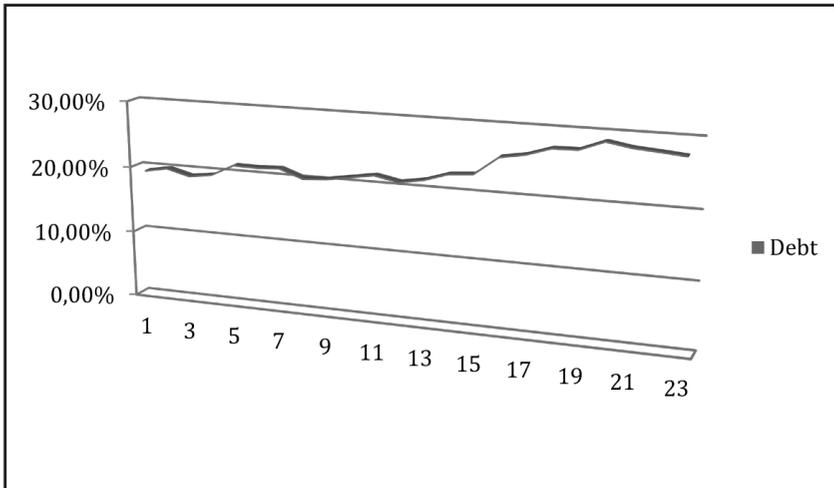
Variable	DEBT	ROA	ROE
chisq	8.3481	35.8654	34.6402
df	2	2	2
p-value	0.01539	-1.629e-08	3.006e-08

**Source:** R statistical program

The stationarity check was performed by Maddala Wu-Unit-Root Test, and all three variables are stationary ( $p < 0.05$ ).

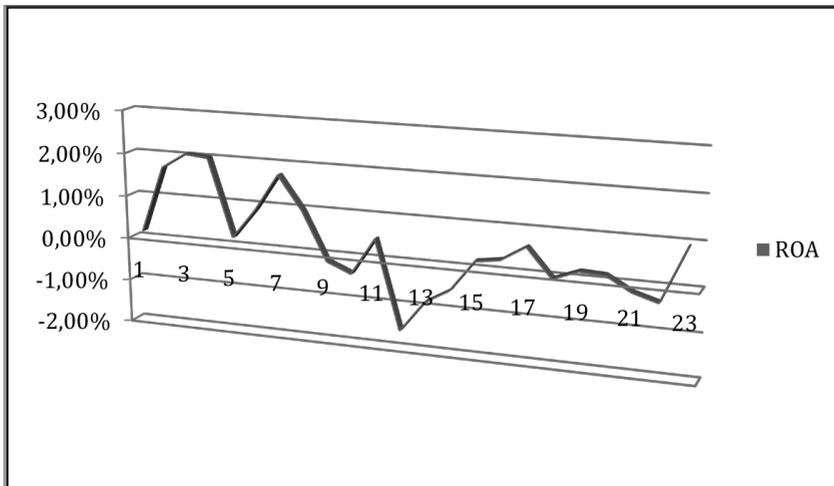
In the following graph, the average indebtedness of Montenegrin joint-stock companies can be seen:

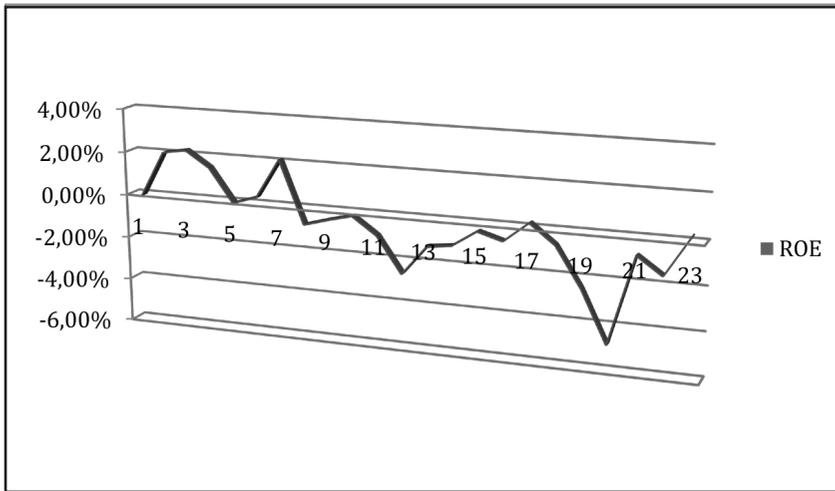
**Graph 1.** Average indebtness of Montenegrin joint-stock companies, 2010-2015



The graph shows that the average debt of chosen companies in Montenegro increased from 2010 to 2015, from average 20% to approximately 30%. There is also a small fall in 2015. The highest increase is between the 11th and 13th quarter, but directly after the crisis, there were no big changes in debt ratios. It shows that external factors can impact debt with some delay. Graphs 2. and 3. show the average rate of return on assets and equity for the chosen period of 23 quarters.

**Graph 2.** Average ROA of Montenegrin joint-stock companies, 2010-2015



**Graph 3.** Average ROE of Montenegrin joint-stock companies, 2010-2015

Graph 2. and Graph 3. show the lowest return rates in the first quarters, which is expected because both revenues and expenses are flow variables. The highest rates are at the end of the year (4<sup>th</sup> quarter). Also, ROA decreased during that time and had very low positive levels recently. The ROE has negative values from 2012 onwards, which is an alarm for shareholders.

During this graph analysis, it can be shown that debt is increasing and profitability is decreasing, which is the basis for negative correlation, but it should be proven by statistical tools in the following parts.

#### 4.4. Research variables and models

To test the defined hypotheses, it is necessary to set up independent and dependent variables of the model. According to the primary research goal, profitability of the company, measured by ROA and ROE ratios, is set as the dependent variable of debt. For modeling the process, a simple linear regression model of the form is used :

$$\begin{aligned} ROA_{i,t} &= \beta_0 + \beta_1 DEBT_{i,t} + \varepsilon_{it} \text{ or} \\ ROE_{i,t} &= \beta_0 + \beta_1 DEBT_{i,t} + \varepsilon_{it} \end{aligned}$$

where "i" refers to the analyzed company, and "t" represents the moment in time. ROA and ROE are dependent variables, while DEBT is the independent variable of debt.

In the further analysis, the Durbin-Wu-Hausman test pointed to the consistency of both models, thus it is advisable to use a random effects model. The null hypothesis of this test can not be rejected (p-value = 0.5266, that is far greater than 0.05), which claims that both models (fixed effects and random effects) are consistent.

## 5. Results

### 5.1. Correlation between variables

The first part of the analysis of the data series collected refers to determining the correlation between the given variables. The correlation is shown by Pearson correlation matrix, which is found in Table 3.

**Table 3.** Pearson correlation matrix

Variable	DEBT	ROA	ROE
DEBT	1	-0.413007007	-0.549885832
ROA	-0.413007007	1	0.892946378
ROE	-0.549885832	0.892946378	1

Source: R statistical program

Table 3 shows a high positive correlation between ROA and ROE (0.89), and a negative correlation between indebtedness and ROA (-0.41), or indebtedness and ROE (-0.54). Since ROA and ROE indicators are related to the assessment of profitability, and considering that their degree of correlation is positive and high, this raises the question whether the two models defined could be reduced to the impact of debt to only one of the given dependent variables. The mere correlation of dependent variables with the independent variable shows the negative impact of debt on company's profitability.

### 5.2. Regression analysis

After the regression analysis performed regarding the relationship between DEBT and ROA, the results obtained are shown in the following table:

**Table 4.** Coefficients for regression model of DEBT and ROA

Coefficients	Estimate	Std. Error	t-value	Pr ( t )
(Intercept)	0.0221080	0.0085351	2.5902	0.010854
DEBT	-0.0799760	0.0304732	-2.6245	0.009878

Source: R statistical program

The parameter with the independent variable is statistically significant, while the residual tests showed the fulfillment of all prerequisites of the model, so the model can be shown as follows:

$$ROA_{i,t} = 0.0221080 - 0.0799760 \text{ DEBT}$$

If the debt increases by 1%, profitability measured by ROA indicator would be reduced by 7.99%. Given that debt and profitability are measured in percentage terms, this would mean that debt of, for example, 20%, after an increase of 1% is 20.2%, and profitability which was 5%, after the reduction of 7.99% is 4.6005%.

Because of that high positive correlation between ROA and ROE, similar results are

also expected in the regression model of ROE dependence on DEBT. The results are shown in the following table:

**Table 5.** Coefficients for regression model of DEBT and ROE

Coefficients	Estimate	Std. Error	t-value	Pr ( t )
(Intercept)	0.042699	0.012758	3.3467	0.001111
DEBT	-0.204590	0.045175	-4.5289	1.478e-05

Source: R statistical program

The parameter with the independent variable is statistically significant, while the residual tests showed the fulfillment of all prerequisites of the model, so the model can be shown as follows:

$$ROE_{i,t} = 0.042699 - 0.204590 \text{ DEBT}$$

If debt increases by 1%, profitability measured by the ROE indicator would be reduced by 20.46%. Given that debt and profitability are measured in percentage terms, this would mean that debt which was, for example, 20% after an increase of 1% is 20.2%, and profitability which was 5%, after the reduction of 20.46% is 3.977%.

## 6. Conclusions and recommendations

Based on the analysis performed regarding the relationship of debt and profitability measured by the rate of return on assets (ROA) and the rate of return on equity (ROE), it can be concluded that the models that quantify this relationship showed consistency, and as such can be used to reach a conclusion about the existence of a link between these variables in the case of joint stock companies in Montenegro, which are listed in the A and B list of the Montenegro Stock Exchange. Research has shown that there is a negative impact of debt (leverage) on the profitability of joint stock companies measured by ROA and ROE ratios, by which the hypothesis two is proven. The increase in debt is more reflected on the decrease in return on equity, which is a confirmation of the theoretical point of view. Due to the increase in financing costs, the net result, as return on equity is significantly reduced.

According to the existence of three groups of research results about the relationships of indebtedness and profitability (positive impact, negative impact and lack of impact), the impact in the case of joint stock companies in Montenegro can be classified in the group of negative impacts. It should be concluded that there were numerous reasons for contradictions of empirical studies results, which are primarily reflected in different analysis samples (different countries, industries, the sample size, the size of companies, periods of analysis, etc). Also, especially for measuring profitability, different instruments, such as ROA, ROE, ROI, Tobin's Q, the operating profit, EBIT are used. The final reason is also reflected in different methodologies for determining this relationship.

The authors of this paper also point out the shortcomings of the conducted research, which in the coming period could be reduced due to the increase of the sample, inclusion of other legal forms of companies, introduction of new variables to create a multiple model, as well as increase of the time horizon of the analysis.

At the end, based on these results the following recommendations are suggested that the firm using an optimal capital structure must consider. The optimal capital structure includes some debt, but not 100% debt. In other words, it is the "best" debt/equity ratio for the firm, which in turn, will minimize the cost of capital, i.e., the cost of financing the company's operations. In addition, it will reduce the chances of bankruptcy.

## References

- Baum, C.F., Schafer D. & Talavera, O. (2006). The effects of short-term liabilities on profitability: a comparison of German and US firms, *Boston College Working Papers in Economics* 636, Boston College Department of Economics.
- Berger A. & Bonacrossi, E. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry, *Journal of Banking and Finance* Vol. 30. pp. 1065-1102.
- Brealey, R.A. & Myers, S.C. (2003). *Principles of corporate finance*, Boston: McGraw-Hill Irwin.
- Demirguc-Kunt, A. & Maksimovic, V. (1995). Stock market development and firm financing choices, *Policy Research Working Paper Series 1461, The World Bank*.
- Ehrhardt, M.C. & Brigham, E.F. (2003). *Corporate finance: A focused approach*, Mason, Thomson, 1st Edition.
- Eriotis, N., Franguoli Z. & Neokosmides, Z. (2002). Profit margin and capital structure: an empirical relationship, *The Journal of Applied Business Research*, Vol. 18, pp. 85-89.
- Fama E. & French K. (1998). Taxes, financing decisions, and firm value, *Journal of Finance*, Vol. 53, pp. 819-843.
- Goddard, J., Tavakoli, M. & Wilson, J. (2005). Determinants of profitability in European manufacturing and services: Evidence from a dynamic panel data, *Applied Financial Economics* Vol. 15, pp. 1269-282.
- Harris, M. & Raviv, A. (1991). The theory of capital structure, *Journal of Finance, The American Finance Association*, Vol. 46, pp. 297-355.

- Holmstrom, B. & Tirole, J. (1997). Financial Intermediation, Loanable Funds and Real Sector, *The Quarterly Journal of Economics*, Vol. 112, No. 3, pp. 663-691.
- Hung, C. Y, Albert, C.P.C. & Eddie, H.C.M, (2002). Capital structure and profitability of the property and construction sectors in Hong Kong, *Journal of Property Investment and Finance*, Vol.20. pp. 434-453.
- Jensen, M. & Meckling, W. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure, *Journal of Financial Economics*, Vol. 3, pp. 305-360.
- Johannes, H. & Dhanraj, K. (2007). Unlocking shareholder value by moving closer to the optimal capital structure, *Accountancy SA: Accounting and Tax Predictions*, pp.28-32.
- Kebewar, M. (2012). The effect of debt on corporate profitability – evidence from French service sector, *MPRA Paper 42446, University Library of Munich, Germany*.
- Kester, W. (1986). Capital and ownership structure: A comparison of United States and Japanies manufacturing corporations, *Financial Management*, Vol.15, pp. 5-16.
- Kunt, A. & Maksimovic, V. (2001). Capital structures in developing countries, *The Journal of Finance*, The Amercian Finance Association, Vol. 56, pp. 87-130.
- Long, M. & Malitz I. (1986). The investment financing Nexus: Some empirical evidence, *Midland Corporate Finance Journal*, Vol.3, pp. 53-59.
- Majumdar, S. & Chhibber, P. (1999). Capital structure and performnce: Evidence from transition economy on an aspect of corporate governance, *Public Choice* Vol. 98, pp. 287-305.
- Margaritis D. & Psillaki M. (2010). Capital structure, equity ownership and firm performance, *Journal of Banking and Finance*, Vol.34, pp. 621-632.
- Margaritis, D. & Psillaki, M. (2007). Capital structure and firm efficiency, *Journal of Business Finance and Accounting* Vol. 34., pp. 1447-1469.
- Messbacher, U. (2004). Does capital influence firms value?, University of Ulster.
- Miller, M.H. (1977). Debt and tax, *Journal of Finance* Vol.32, *Papers and Proceedings of the Thirty-Fifth Annual Meeting of the American Finance Association, Atlantic City, New Jersey*, pp. 261-275.

- Modigliani, F. & Miller, M.H. (1958). The cost of capital, corporate finance and the theory of investment, *American Economic Review* Vol. 48, pp. 267-297.
- Modigliani, F. & Miller, M.H. (1963). A reply and corporation income taxes and the Cost of capital, *American Economic Review* Vol. 53, pp. 433-443.
- Myers, S. C. (1984). The search for optimal capital structure, *Midland Corporate Finance Journal* Vol 1, pp. 6-16.
- Myers, S.C. & Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* Vol. 13, pp. 187-221.
- Rajan, R. & Zingales, L. (1995). What do we know about capital structure?, *Journal of Finance, The American Finance Association*, Vol. 50, pp. 1421-1460.
- Rao, N.V., Al-Yahyaee, K.H.M. & Syed, L.A.M. (2007). Capital structure and financial performance: evidence from Oman, *Indian Journal of Economics and Business* Vol. 7., pp. 1-14.
- Ross, S. (1977). The determination of financial structure: The incentive-signalling approach, *The Bell Journal of Economics*, Vol. 8, pp. 23-40.
- Schmukler, S. & Vesperoni, E. (2001). Globalization and Firms' Financing Choices: Evidence from Emerging Economies. *Financial Structure and Economic Growth*, Cambridge MA, MIT Press, pp. 347-375.
- Shubita, M., F. & Alsawalhah, J. M. (2012), The Relationship between Capital Structure and Profitability, *International Journal of Business and Social Science*, Vol. 3 No. 16 Special Issue – August 2012, pp. 105.
- Shyam-Sunder, L. & Myers, S.C. (1999). Testing static tradeoff against pecking order models of capital structure, *Journal of Financial Economics*, Vol. 51, pp. 219—244.
- Zeitun, R. & Tian, G. (2007). Capital structure and corporate performance evidence from Jordan, *Australasian Accounting Business and Finance Journal* Vol.1, pp. 40-53.

## Appendix

**Table 6.** Data calculated from financial statements of joint-stock companies in Montenegro

No	Year	Q	DEBT	ROA	ROE
1	2010	Q1	0,178300	0,002968	0,003576
1	2010	Q2	0,175880	0,023010	0,027190
1	2010	Q3	0,174830	0,032272	0,038420
1	2010	Q4	0,182861	0,039090	0,041427
1	2011	Q1	0,145914	0,003398	0,003537
1	2011	Q2	0,160998	0,013008	0,014435
1	2011	Q3	0,163485	0,020595	0,022451
1	2011	Q4	0,164843	0,019433	0,021644
1	2012	Q1	0,158808	0,014371	0,017919
1	2012	Q2	0,160998	0,013008	0,014435
1	2012	Q3	0,175129	0,029616	0,035904
1	2012	Q4	0,168818	0,028294	0,043701
1	2013	Q1	0,171508	0,003409	0,005726
1	2013	Q2	0,181816	0,003404	0,006055
1	2013	Q3	0,183691	0,011627	0,016171
1	2013	Q4	0,201874	0,018987	0,017699
1	2014	Q1	0,195099	0,023050	0,028379
1	2014	Q2	0,229089	0,039119	0,046153
1	2014	Q3	0,222080	0,056742	0,070599
1	2014	Q4	0,234307	0,058056	0,070283
1	2015	Q1	0,224715	0,011236	0,011657
1	2015	Q2	0,218179	0,013167	0,013766
1	2015	Q3	0,214663	0,019866	0,022524
2	2010	Q1	0,174431	0,008901	0,001375
2	2010	Q2	0,184396	0,010145	0,010077
2	2010	Q3	0,215047	0,012115	0,012082
2	2010	Q4	0,188508	0,027262	0,026564
2	2011	Q1	0,177730	0,002401	0,000225
2	2011	Q2	0,186034	0,013019	0,010609
2	2011	Q3	0,197537	0,017053	0,013391
2	2011	Q4	0,196587	0,046383	0,032484
2	2012	Q1	0,194682	0,003635	0,000205
2	2012	Q2	0,203963	0,003124	0,011490
2	2012	Q3	0,210249	0,003879	0,013109
2	2012	Q4	0,215478	0,032193	0,035451
2	2013	Q1	0,211648	-0,013352	-0,019931
2	2013	Q2	0,203244	0,002961	-0,005626

2	2013	Q3	0,215306	0,013988	0,007811
2	2013	Q4	0,221128	0,024535	0,015342
2	2014	Q1	0,214466	-0,004685	-0,007981
2	2014	Q2	0,220354	-0,015151	-0,027644
2	2014	Q3	0,216862	-0,004260	-0,018761
2	2014	Q4	0,218124	0,021766	0,010850
2	2015	Q1	0,202427	-0,003326	-0,005967
2	2015	Q2	0,214971	-0,035683	-0,050183
2	2015	Q3	0,198524	0,008070	0,001957
3	2010	Q1	0,232360	0,011813	0,013270
3	2010	Q2	0,230667	0,038200	0,043792
3	2010	Q3	0,228949	0,055070	0,063091
3	2010	Q4	0,223999	0,068453	0,065492
3	2011	Q1	0,227865	0,016540	0,017658
3	2011	Q2	0,215192	0,033082	0,031088
3	2011	Q3	0,206503	0,040079	0,042434
3	2011	Q4	0,221178	0,028229	0,009047
3	2012	Q1	0,238737	-0,020306	-0,027290
3	2012	Q2	0,268684	-0,056451	-0,060173
3	2012	Q3	0,252442	-0,057253	-0,079103
3	2012	Q4	0,277122	-0,083034	-0,121802
3	2013	Q1	0,297569	-0,020030	-0,028969
3	2013	Q2	0,307397	-0,017034	-0,027242
3	2013	Q3	0,299926	-0,007779	-0,016288
3	2013	Q4	0,286997	-0,010035	-0,010275
3	2014	Q1	0,290467	0,018084	0,005498
3	2014	Q2	0,299652	-0,005962	-0,007599
3	2014	Q3	0,295168	-0,007948	-0,086619
3	2014	Q4	0,306645	-0,016892	-0,112734
3	2015	Q1	0,305574	0,003921	0,006239
3	2015	Q2	0,285931	0,028777	0,023697
3	2015	Q3	0,284480	0,027214	0,031779
4	2010	Q1	0,281981	-0,016030	-0,021215
4	2010	Q2	0,312196	0,007442	0,012895
4	2010	Q3	0,240489	-0,008826	-0,015988
4	2010	Q4	0,281981	-0,064120	-0,084859
4	2011	Q1	0,412051	-0,010782	-0,023057
4	2011	Q2	0,423904	-0,019513	-0,046315
4	2011	Q3	0,425934	-0,000157	0,018295
4	2011	Q4	0,329909	-0,053927	-0,104718
4	2012	Q1	0,330156	-0,010814	-0,019870

4	2012	Q2	0,317937	0,017018	0,020693
4	2012	Q3	0,343900	0,046092	-0,018466
4	2012	Q4	0,268142	-0,058458	-0,084318
4	2013	Q1	0,272418	-0,012917	-0,019411
4	2013	Q2	0,315313	-0,017953	-0,029226
4	2013	Q3	0,323405	-0,015761	-0,032157
4	2013	Q4	0,455490	-0,028640	-0,062563
4	2014	Q1	0,494366	-0,007206	-0,016125
4	2014	Q2	0,504915	-0,020487	-0,043316
4	2014	Q3	0,526243	-0,040989	-0,092713
4	2014	Q4	0,572266	-0,061985	-0,213222
4	2015	Q1	0,569545	-0,021481	-0,051804
4	2015	Q2	0,570737	-0,030338	-0,072783
4	2015	Q3	0,576572	-0,019515	-0,054187
5	2010	Q1	0,099486	-0,000081	-0,000135
5	2010	Q2	0,094677	0,006409	0,006847
5	2010	Q3	0,093997	0,011890	0,012440
5	2010	Q4	0,099428	0,029232	0,025399
5	2011	Q1	0,099724	-0,001496	-0,001823
5	2011	Q2	0,073849	0,004941	0,004659
5	2011	Q3	0,075060	0,009325	0,008889
5	2011	Q4	0,093740	0,007893	0,002717
5	2012	Q1	0,095296	0,005638	0,006055
5	2012	Q2	0,095376	0,004192	0,004415
5	2012	Q3	0,094154	0,001335	-0,000098
5	2012	Q4	0,111357	0,002110	-0,003677
5	2013	Q1	0,117157	-0,000559	-0,000639
5	2013	Q2	0,119294	0,001467	0,000213
5	2013	Q3	0,119478	0,007005	0,005748
5	2013	Q4	0,110825	0,008181	0,004516
5	2014	Q1	0,112355	0,001016	0,000431
5	2014	Q2	0,110542	0,000227	-0,001166
5	2014	Q3	0,107713	0,005181	0,003740
5	2014	Q4	0,106384	0,006461	0,002418
5	2015	Q1	0,104675	0,001052	0,000582
5	2015	Q2	0,103589	0,006946	0,006484
5	2015	Q3	0,103199	0,011054	0,010504