TESTING THE RELEVANCE OF ALTERNATIVE CAPITAL STRUCTURE THEORIES IN SERBIAN ECONOMY

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Abstract

Decisions on capital structure and leverage can significantly determine the capabilities of the company to survive, grow and develop. However, there is as yet no unified theoretical viewpoint on the capital structure that maximizes company value. The objective of this study is to investigate the relevance of alternative capital structure theories in Serbian economy by analyzing the influence of company's financial performances on the leverage. The research was conducted from 2008 to 2012 on a sample of 300 largest non-financial companies from Serbia ranked by revenue in 2012. We find that financial performances influence differently the capital structure of production and service companies. The results of our study are not in accordance with any capital structure theory taken into consideration. The relations between financial performances and capital structure observed in the study are typical of companies in developing economies.

Key words: capital structure, leverage, financial performances, production companies, service companies.

ТЕСТИРАЊЕ РЕЛЕВАНТНОСТИ АЛТЕРНАТИВНИХ ТЕОРИЈА СТРУКТУРЕ КАПИТАЛА У ПРИВРЕДИ СРБИЈЕ

Апстракт

Одлуке о структури капитала и степену задужености могу значајно одредити потенцијале предузећа за опстанак, раст и развој. Ипак, у теорији још увек нема јединственог става о структури капитала која максимизира вредност предузећа. Циљ ове студије је испитивање релевантности алтернативних теорија структуре капитала у привреди Србије анализом утицаја финансијских перформанси предузећа на степен задужености. Истраживање је спроведено у периоду од 2008. до 2012. године, на узорку од 300 највећих нефинансијских предузећа из Србије, рангираних према приходу од продаје оствареном 2012. године. Истраживањем је откривено да финансијске перформансе различито утичу на структуру капитала производних

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и услужних предузећа. Резултати наше студије нису у складу ни са једном разматраном теоријом структуре капитала. Везе финансијских перформанси и структуре капитала уочене студијом типичне су за предузећа у земљама у развоју.

Кључне речи: структура капитала, степен задужености, финансијске перформансе, производна предузећа, услужна предузећа.

INTRODUCTION

Capital structure theories have been developed in an effort to find a solution to the dilemma of whether the changes in capital structure, i.e. changes in the ratio of debt to equity, can affect the cost of capital and market value of the company. In other words, these theories are expected to offer an answer to the question whether, for a given structure of assets and costs of certain sources of funding, there is an optimal level of leverage that results in minimal cost of capital and maximum market value of the company. Although several theories of capital structure have been developed in the last 50 years, there is still no generally accepted viewpoint about the optimal capital structure. Specifically, the positions of the authors studying the capital structure are significantly different toward the question of the level of leverage that can be considered optimal, as well as toward the possible influence of relevant factors on the decisions about capital structure.

The subject of investigation in the paper is the factors affecting capital structure decisions of the companies in Serbia. Although the capital structure theories mostly analyze influence of the capital structure on the company value, these theories indirectly and implicitly indicate factors affecting the capital structure decisions. In connection to that, the objective of this paper is to investigate the relevance of the conclusions of alternative capital structure theories regarding the expected influence of financial performances on the capital structure of production and service companies in Serbia. The relations within the capital structure are approximated by the long-term debt ratio, i.e. relation of long-term debt to total assets. The research was conducted from 2008 to 2012 on a sample of 300 largest non-financial companies from Serbia ranked by revenue in 2012. The sample was divided into two strata - production and service companies.

The paper is structured as follows. The first part discusses conclusions of alternative capital structure theories about the optimal capital structure and the possible influence of financial performances on capital structure, i.e. leverage. This part also summarizes the conclusions of previous empirical research conducted in developed and developing countries in order to develop our research hypotheses. The sample, data and methodology are described in the second, while the results of the research are presented in the third part of the paper.

THE THEORETICAL AND EMPIRICAL BASIS OF THE RESEARCH

The origins of the modern capital structure theory can be traced back to 1958 when Modigliani and Miller (1958) developed a comprehensive theoretical model of the influence of the leverage on the cost of capital and company value under uncertainty. Starting from the assumption that there are no market restrictions (e.g. taxation, bankruptcy and agency costs), Modigliani and Miller (MM) have established a proposition that decisions about capital structure do not affect the company's market value and cost of capital, i.e. two companies identical in every aspect except in capital structure will have the same market value and cost of capital. This proposition had its followers, as well as its critics who indicated inconsistency of theory assumptions with the real business environment. Being aware of the justification of some critique, MM recognized in the paper from 1963 that capital structure is not irrelevant anymore after the introduction of the income tax in the analysis (Modigliani & Miller, 1963).

The modified MM theory was the basis for developing the static tradeoff theory which suggests that the optimal capital structure can be determined by finding the balance between benefits and costs of debt (Martin, Cox, & MacMinn, 1988; Fama & French, 2005). Given that tax legislation treats the interest expenses as tax-deductible reducing taxable income, basic benefit of using debt is tax shield. If only the tax shield is taken into consideration, it could be concluded that the company value changes with the change in the leverage and reaches its maximum if company uses only debt. However, increase in leverage causes increase in the bankruptcy (financial distress) and agency costs (Gitman, 2003) which leads to cost of capital increase and company value decrease (Jensen & Mackling, 1976). That is, with the increase in leverage, growing bankruptcy and agency costs gradually cancel out the positive impact of tax shield leading to a reduction in company value.

The pecking order theory was developed by observing the companies' preferences in the selection of financial sources (Myers, 1984; Myers & Majluf, 1984). According to this theory, mangers are reluctant to issue equity due to the high information asymmetry and transaction costs (Todorović, 2011). Actually, under the conditions of asymmetric information (managers have more information than investors), investors monitor signals of the managerial activities. Given that investors interpret a new equity issue as a signal that the shares are overpriced, they are ready to pay a lower share price which leads to an increase in the cost of equity and a decrease in company value. Therefore, managers tend to use internal financial sources (retained earnings and depreciation expenses) whose price is not affected by information asymmetry and transaction costs, while debt issue is preferred to equity issue (Fama & French, 2005).

Baker and Wurgler (2002), creators of the market timing theory, point out that the optimal capital structure does not exist. That is, capital structure

does not result from strategic planning and actual financial needs, but is an outcome of past managers' efforts to time the equity market. According to this theory, rational managers carefully choose the moment when they change the capital structure, i.e. issue equity when it is overpriced and repurchase underpriced outstanding shares. Although Baker and Wurgler (2002) find that managers are indifferent toward the various financial sources (they choose those sources that are the least expensive at the moment when needed), market timing theory is implicitly consistent with the pecking order theory given that the internal sources are less expensive than the external (debt and equity issue).

There is no doubt that the theoretical positions about capital structure have changed over time by including the real market phenomena. Newer theories include psychology in the analysis and focus on the human behavior and the rationality in decision-making. It can be noted that the theoretical discussions and research usually indicate the existence of the objective borrowing limit after which further borrowing is neither possible, nor financially rational (Stančić, 2007), but there is still no single position about the level of this borrowing limit (optimal capital structure).

Capital Structure Determinants

Titman and Wessels (1988) point out that the differences in viewpoints about the optimal capital structure are primarily caused by the different viewpoints about the relationship between company's financial performances and capital structure. In this part we summarize the viewpoints of the static tradeoff and the pecking order theory toward the influence of profitability, assets structure (share of fixed assets in total assets), liquidity and company size on the capital structure.

According to the pecking order theory, the relationship between profitability and leverage is inverse, given that very profitable companies have more internal financial sources which are preferable to external financial sources. Baker and Wurgler (2002) point out that this view is a "neutral mutation" from the dividend policy irrelevance in an MM environment, or from the tax-advantaged earnings retention in a more realistic (tax) environment. On the other hand, according to the static tradeoff theory, very profitable companies face lower bankruptcy risk and use more debt to exploit tax shield benefits, i.e. the relationship between the company profitability and leverage is positive. This relationship is in accordance with Jensen's "control hypothesis" stating that the increase in leverage can mitigate a problem of free cash flow abuse by the company's management (Jensen, 1986).

Many authors (Myers, 1977; Shyam-Sunder & Myers, 1999; Drobetz & Fix, 2005) point out that the fixed assets significantly determine the leverage. In this regard, Myers (1977) points out that larger share of fixed assets in total assets allows easier access to debt financing which results in a

higher level of leverage. According to the static tradeoff and pecking order theory, companies with a larger share of fixed assets have more valuable collateral, thus the creditors face lower risk and companies can access to debt financing easier. In other words, theories assume positive relationship between the share of fixed assets in total assets and leverage.

According to the pecking order theory, companies with high liquidity rely on internal financial sources and do not need additional borrowing, while companies with low liquidity use more external financial sources, primarily debt, which suggests inverse relationship between liquidity and leverage. It should be noted that high liquidity in companies planning to implement development projects does not cancel out the use of debt if projects are very profitable. On the other hand, according to the static tradeoff theory, liquidity does not affect leverage directly, although it can affect company's credit score, meaning that higher liquidity indirectly leads to a higher level of leverage (positive relationship between liquidity and leverage).

Concerning the company size, some authors (Titman & Wessels, 1988; Wald, 1999) suggest that large companies are more diversified and have fewer fluctuations in earnings, which allows them to operate with a higher leverage. In accordance with the static tradeoff theory, creditors are ready to grant a loan to a large company rather than to a small one due to lower agency costs related to debt (Abor, 2008). Also, given that the bankruptcy costs are in inverse relationship with the company size, a relationship between the company size and leverage is positive (Bas, Muradoglu, & Phylaktis, 2009). In accordance to the pecking order theory, this relationship is inverse. As Rajan and Zingales (1995) point out, company size can mitigate the problem of information asymmetry, which should increase the share of equity relative to debt (growing willingness of investors to purchase a new issue of shares at a higher price).

The Analyses of the Results of Previous Research

With the development of the MM theory and other modern capital structure theories, there has been a rising number of empirical studies investigating capital structure and its determinants. The most common subject to research are American companies (Titman & Wassels, 1988; Kim, Mauer, & Sherman, 1998; Hovakimian, Opler, & Titman, 2001), companies whose shares are quoted in the most developed capital markets in the world (Friend & Lang, 1988; Lipson & Mortal, 2009) and European companies (Drobetz & Fix, 2005). Rajan and Zingales (1995) conducted a research in the G7 countries, but they found no statistically significant differences in capital structure and its determinants between countries. However, they found the differences in the nature of the influence of specific determinants on company's capital structure in different countries, explained by the specifics of institutional framework, primarily orientation of the financial

system (market or bank oriented). The results of empirical studies presented in Table 1 usually show that profitability and liquidity have negative, while the share of fixed assets has a positive influence on leverage.

Although theoretical views about capital structure were primarily tested on the samples of companies from developed countries, in the last twenty years the number of studies analyzing companies in developing countries is growing. One of the most cited empirical studeis investigating capital structure in developing countries is the study by Booth et al. (2001) conducted on the sample of companies from Asia, Africa and Latin America. The study showed that the determinants which have an important role in capital structure composition in developed countries have the same importance in developing countries, although the direction and level of their influence can be different from country to country. This study was the impulse and benchmark for most other studies in developing countries. Some of them analyzed the capital structure in one country (Bauer, 2004; Abor, 2008; Sakatan, 2010), and some in a group of countries at different levels of development (Bas et al., 2009; Hernádi & Ormos, 2012). These studies (Table 1) usually find negative influence of profitability and liquidity on the leverage. In the case of the share of fixed assets in total assets, studies usually find positive relationship, although there are some studies that find negative relationship with the leverage.

Table 1. Summary of the results of empirical studies on the influence of financial performances on capital structure

	Profitability	Liquidity	Fixed assets
Studies in developed countries			
Titman & Wassels, 1988	−	/	+
Friend & Lang, 1988	−	/	+
Rajan & Zingales, 1995	−	/	+
Kim et al., 1998	/	−	/
Drobetz & Fix, 2005	−	/	+
Lipson & Mortal, 2009	/	−	/
Studies in developing countries			
Booth et al., 2001	−	/	− (+)
Bauer, 2004	−	/	−
Abor, 2008	−	/	+
Bas et al., 2009	−	/	+
Sakatan, 2010	−	−	−
Hernádi & Ormos, 2012	−	−	+

Source: authors.

Notes: Sign + represents a positive relationship, sign (−) represents a negative relationship, sign (+) represents the predominant nature of the relationship, while sign / indicates that the determinant was not analyzed in the study.

It can be concluded from table 1 that most empirical studies in developed and developing countries confirm the views of the pecking order theory. By taking into account the results of the empirical studies, primarily those in developing countries, we developed the following research hypotheses:

Hypothesis 1: *Profitability has a statistically significant negative influence on company leverage.*

Hypothesis 2: *Liquidity has a statistically significant negative influence on company leverage.*

Hypothesis 3: *Share of fixed assets in total assets has a statistically significant positive influence on company leverage.*

Testing of the developed hypotheses is expected to result in the assessment of statistical and economical significance, as well as the nature of the influence of relevant determinants on the leverage of Serbian companies. It is also expected that the results of the hypothesis testing will allow for the assessment of the level of conformity of practical approaches to the capital structure development with the viewpoints of alternative capital structure theories. Considering the significant differences in their assets structure, the influence of relevant determinants will be analyzed separately for production and service companies.

SAMPLE, VARIABLES AND METHODOLOGY

The study was conducted on the sample of 300 non-financial companies from Serbia in the period from 2008 to 2012. A criterion for the selection of the companies was the level of their revenues in 2012, and we selected the top 300 companies accordingly. In accordance with the current business activity classification in Serbia[1], the sample was divided into two strata - production (53%) and service (47%) companies. Financial statements for the analyzed period were collected from the website of the Serbian Business Registry Agency. An examination of the financial statements of the sample companies revealed that 27 companies (14 production and 13 service) have the debt ratio (the ratio of total debt to total assets) larger than one and loss in the excess of the equity capital, which is why these companies are excluded from the analysis. Also, 103 observations were excluded due to the missing data, so the analysis includes 1,262 observations - 674 for production and 588 for service companies.

Capital structure (leverage) is proxied by the variable *LDA* calculated as the ratio of long-term debt to total assets. Short-term liabilities are excluded from the analysis given that they do not constitute a part of the

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[1] Statistical Office of the Republic of Serbia (Republički zavod za statistiku, 2010). Production companies belong to sectors A, B, C, D, E and F, while service companies belong to sectors G, H, I, J, K, L, M, N, O, P, Q, R, S, T and U.

company's capital structure. Like in some previous studies (Jensen, Lundstrum, & Miller, 2010; Barclay, Heitzman, & Smith, 2013), profitability is proxied by the variable *ROA* (return on total assets) calculated as the ratio of earnings before interest, taxes, depreciation and amortization (*EBITDA*) to total assets. We use *EBITDA* instead of net income because it allows a more accurate assessment of business performance and comparison between companies with different capital structure and business activity. Share of fixed assets in total assets is represented by the variable *TANG*, while the liquidity is proxied by the variable *LIQU*, calculated as the ratio of current assets to current liabilities.

Control variables are company size and the inflation rate. The company size is proxied by the variable *SIZE*, calculated as the natural logarithm of total assets. Having in mind the viewpoints of the static tradeoff and pecking order theory presented earlier in the paper, it is possible that the company size can significantly influence the relations between financial performances and capital structure. Information about the inflation rate is taken from the official annual documents of the Ministry of Finance of the Republic of Serbia (Ministarstvo finansija Republike Srbije, 2015) to take into account the impact of the macroeconomic environment during the period. In this study, inflation rate is represented by the variable INF.

The research methodology is similar to that used in the studies by Rajan and Zinglez (1995), Booth et al. (2001), and Henadi and Omos (2012). In most studies that have dealt with similar issues, capital structure is analyzed as the dependent variable of the regression analysis under the influence of various independent variables (determinants). In this study, on the unbalanced panels of 674 production and 588 service companies, we analyze the following model of multiple ordinary least squares regression:

$$LDA_{i,t} = b_0 + b_1 ROA_{i,t} + b_2 TANG_{i,t} + b_3 LIQU_{i,t} + b_4 SIZE_{i,t} + b_5 INF_{i,t} + \varepsilon_{i,t} \quad (1)$$

where i is company and t is year. The above regression model (1) allows the analysis of the influence of independent and control variables on *LDA* of the sample companies.

STUDY RESULTS

Descriptive Statistics

The results of the descriptive statistical analysis are presented in Table 2. Although the analyzed companies mainly (99.33% of observations) belong to the group of large companies (according to the regulations in Serbia), the maximum and minimum value of the variable *SIZE* reveal significant differences in the total assets of the sample companies. The average annual inflation rate in the analyzed period was 8.94%, and ranged from 6.60% in 2009 to 12.20% in 2012.

The leverage is on average greater for production companies (14.30%) than for service companies (13.50%). It should be noted that there are companies (product and service) that do not have long-term debt in its capital structure, as well as companies with *LDA* slightly higher than 60%. Given the average value of *LDA* found in some earlier studies on samples of companies from developing countries (22.40% in Booth et al., 2001; 15.90% in Hernadi & Ormos, 2012), it can be concluded that Serbia belongs to the group of developing countries with a lower level of long term indebtedness. Also, given the average *LDA* found in developed countries (26.90% in Demirguc-Kunt & Maksimovic, 1999), it can be concluded that developing countries have lower level of long term indebtedness.

Table 2. Results of the descriptive statistical analysis
for sample companies from 2008 to 2012

	Mean	Median	Standard deviation	Minimum	Maximum
Panel 1: Production companies, 674 observations					
LDA	0.143	0.091	0.157	0.000	0.614
ROA	0.110	0.107	0.103	-0.207	0.425
TANG	0.496	0.488	0.224	0.000	0.997
LIQU	1.528	1.264	0.973	0.021	4.390
SIZE	15.946	15.751	1.131	13.662	19.317
Panel 2: Service companies, 588 observations					
LDA	0.135	0.073	0.171	0.000	0.639
ROA	0.088	0.084	0.100	-0.209	0.400
TANG	0.377	0.321	0.280	0.000	0.972
LIQU	1.216	1.090	0.688	0.133	3.592
SIZE	15.434	15.261	1.302	12.313	19.320

When it comes to profitability, it can be noted that production companies are more profitable than the service companies. It can also be noted that in both of the strata *ROA* ranges from about -20% to about 40%. Given that some studies conducted in the developing countries reveal an average *ROA* of about 8% (8.32% in Booth et al., 2001; 7.92% in Bauer, 2004), the average profitability of companies in Serbia is relatively high. The average liquidity of the companies in both strata can be considered satisfactory, although it is slightly higher in production companies. Some production and service companies, nevertheless, have very small values of variable *LIQU* which bring into question their survival. The average liquidity of the companies in Serbia is satisfactory compared to developed countries (1.53 in Lipson & Mortal, 2009), and relatively high compared to Croatia (1.03 in Šarlija & Hartz, 2012). It should be noted that the conclusions about profitability and liquidity of companies in our sample should not be viewed as final, because they are made on the basis of only one profitability and one liquidity ratio.

The average share of fixed assets in total assets is higher in production companies compared to service companies. Given the results of previous studies, the average share of fixed assets in total assets of the companies in Serbia is comparable to the average found in developing countries - about 45% (45.48% in Booth et al., 2001; 45.69% in Bauer, 2004). Given that the share of fixed assets in total assets in developed countries is about 35% (35.34% in Rajan & Zingales, 1995; 35.29% in Bauer, 2004), it can be concluded that the companies in Serbia, especially production companies, have a relatively high share of fixed assets in total assets. Table 3 reveals that some production companies do not have fixed assets, which can be explained by the specifics of the business activity in only two companies. Their business activity is the production, distribution and trade of electricity, gas and steam, i.e. they belong to the production sector, although, given the nature of their business, they belong to the group of service companies.

Correlation and ANOVA Analysis

The results of the correlation analysis are presented in Table 3 and indicate that there is a significant negative relationship between leverage and profitability in both strata. Inflation has a negative influence on the leverage in both strata, but not statistically significant. The influence of other variables on the leverage differs between the strata. The relationship between the share of fixed assets in total assets and the leverage is significant and negative for production companies, and significant and positive for service companies. The relationship between company size and the leverage is significant and positive for service companies, and insignificant and negative for production companies. Liquidity has no statistically significant influence on the leverage of production and service companies. The independent and control variable are not significantly intercorrelated, so there is no problem of multicollinearity.

Table 3. Pearson's correlation coefficients
for sample companies from 2008 to 2012

	LDA	ROA	TANG	LIQU	SIZE	INF
LDA		-0.221**	-0.111**	-0.075	-0.007	-0.036
ROA	-0.152**		0.066	0.240**	-0.129**	0.056
TANG	0.321**	0.035		-0.122**	0.536**	-0.030
LIQU	0.001	0.273**	-0.240**		-0.037	-0.042
SIZE	0.354**	-0.159**	0.523**	-0.124**		0.055
INF	-0.015	0.053	-0.041	0.055	0.033	

Notes: Production companies are above the diagonal. Service companies
are below the diagonal. Statistically significant at 1% (**) and 5% (*).

To complement the correlation analysis, we conducted the repeated measures of the ANOVA analysis given that the study covers a 5 year

period characterized by the emergence of the financial crisis. The objective of this analysis is to examine if any of the variables have statistically significant variations over the years that should be taken into consideration when drawing the conclusions. The results shown in Table 4 indicate that the values of the variables did not differ significantly over time, i.e. the entire period is relevant for the analysis and drawing the conclusions.

Table 4. Repeated measures ANOVA for capital structure determinants for sample companies from 2008 to 2012

	Wilks' lambda	F – value	Partial eta-squared	p - value
Panel 1: Production companies, 674 observations				
LDA	0.985	0.494	0.015	0.740
ROA	0.955	1.482	0.045	0.211
TANG	0.973	0.883	0.027	0.476
LIQU	0.987	0.414	0.013	0.799
Panel 2: Service companies, 588 observations				
LDA	0.995	0.145	0.005	0.965
ROA	0.935	1.906	0.065	0.115
TANG	0.942	1.664	0.058	0.164
LIQU	0.977	0.628	0.023	0.644

Regression Analysis

Table 5 presents the results of the multiple regression analysis conducted using the model (1) on the sample of companies from Serbia in the period from 2008 to 2012. Model (1) was applied separately for production and service companies, and the results of the analysis on the sample of service companies explain more of the changes in the leverage ($R^2 = 0.183$) than the results of the analysis on the sample of production companies ($R^2 = 0.061$).

Profitability has a significant negative impact on the leverage, i.e. with increase in profitability the leverage of production and service companies decreases. Myers (1993) points out that the inverse relationship between profitability and the leverage found in many empirical studies is the most convincing argument against the static tradeoff theory propositions. This finding confirms the conclusion of the pecking order theory that, assuming a relatively stable dividend policy, the least profitable companies have to use more debt. Often cited reasons for the inverse relationship between profitability and leverage in developing countries are poor corporate governance, underdeveloped or undeveloped capital market (Green, Murinde, & Suppakitjarak, 2002), high inflation rate, low GDP growth rate and very high interest rates (Booth, et al., 2001). Long-term loans in Serbia are usually denominated in the euro, whose exchange rate against the Serbian

dinar (RSD) rose significantly in the analyzed period. The middle exchange rate of the National Bank of Serbia at the end of 2008 was $€1 = 88.5RSD$ and at the end of 2012 it was $1€ = 113.7RSD$. In other words, the increase of the share of expensive long-term debt in the capital structure leads to the capital cost increase, and profitability decline or losses increase in Serbian companies. Given the results of the regression analysis, we conclude that we should not reject the first research hypothesis.

Table 5. Influence of the relevant determinants on the leverage
for sample companies from 2008 to 2012

	Panel 1: Production companies	Panel 2: Service companies
Constant	0.180*	-0.390**
	(1.879)	(-4.257)
ROA	-0.301**	-0.284**
	(-4.948)	(-4.111)
TANG	-0.085**	0.152**
	(-2.636)	(5.393)
LIQU	-0.007	0.032**
	(-1.073)	(3.185)
SIZE	0.004	0.029**
	(0.705)	(4.891)
INF	-0.002	0.000
	(-0.862)	(-0.237)
R^2	0.061	0.183
F	8.702**	21.701**

Note: Panel 1 is estimated on 674 observations for production companies, and Panel 2 is estimated on 588 observations for service companies. Dependent variable is LDA. Statistically significant at 1% (**) and 5% (*).

The share of fixed assets in total assets has a statistically significant influence on the leverage of production and service companies. However, contrary to the expectations and the results of previous studies, this influence is negative for production companies. Production companies in 2010 have the same, and in 2012 about the same leverage as service companies, though it would be expected that the leverage is significantly higher for production companies due to the higher share of fixed assets in total assets. Also, the fixed assets of Serbian companies, due to their technological obsolescence, do not represent a valuable collateral in obtaining long-term loans under better terms, making long-term financing expensive for production companies. The situation is somewhat different for service companies given that they have a lower level of fixed assets in relation to production companies, and it is obvious that they have no problem with the matching argument that the long-term debt ratio increases with the increase in the share of fixed assets in total assets. More specifically, the observed positive relationship in service companies

is consistent with the theoretical viewpoint, confirmed in many empirical studies, that the increase of fixed assets increases the value of the collateral and thus opens the possibility to increase the leverage. We conclude that the results of the regression analysis indicate that the second hypothesis should be rejected in the part referring to the production, but not when it comes to service companies.

Liquidity has no statistically significant influence on the leverage of production companies, while the influence is positive and statistically significant for service companies. According to the pecking order theory, liquidity increase should lead to the leverage reduction, because the high level of information asymmetry leads to an increase in the cost of debt. Given that the information asymmetry has no particular significance on the banking oriented financial market (Rajan & Zingales, 1995; Antoniou, Guney, & Paudyal 2002) such as the one in Serbia, the observed positive relationship is no surprise. More liquid companies have a lower risk of bankruptcy and therefore may have a higher level of debt, which is consistent with the static tradeoff theory. Given the results of the analysis, we can conclude that we should reject the third hypothesis.

Similarly to the case of liquidity, firm size has no statistically significant influence on the leverage of production companies, while the influence is positive and statistically significant for service companies. A positive relationship can be explained with the argument that banks consider large service companies as less risky borrowers granting them loans under better terms, which leads to the leverage increase. Changes in the inflation rate have no influence on the level of leverage in Serbian companies, given the low value of regression coefficients and the absence of statistical significance. Previous empirical studies generally found that inflation as a monetary phenomenon causes a higher interest rate and monetary risk, which may result in the leverage reduction (Booth et al., 2001; Bas et al., 2009). However, DeAngelo & Masulis (1980) point out that inflation leads to the leverage increase, given that the cost of debt decreases and the demand for loans increases in the period of high inflation.

CONCLUSION

Although the conclusions of numerous empirical studies on the optimal capital structure in both developed and developing countries are not uniform, they generally confirm the viewpoints of the pecking order theory and indicate the prevailing relations between company's financial performances and capital structure. Our study, conducted on a sample of non-financial companies from Serbia, shows that the level of leverage in production companies increases with the decrease in profitability and share of fixed assets in total assets. Liquidity and company size do not affect the level of leverage in production companies. Also, the results show that the level of

leverage in service companies increases with the decrease in profitability, and increase in the share of fixed assets in total assets, liquidity and company size.

Based on the results of our study, we conclude that the influence of the analyzed variables on the capital structure of Serbian non-financial companies is not in accordance with any relevant capital structure theory. The results are mostly, but not entirely, in line with the results of the empirical studies conducted on the samples of companies from developing countries. There is an obvious difference between the production and service companies, which should be kept in mind during the capital structure development. It should also be noted that the general business environment in Serbia is characterized by high inflation, although the analysis suggests that the impact of inflation on the capital structure is not statistically significant. Serbian capital market is still developing, the availability of different sources of funding is very limited, so the companies primarily use bank loans for financing the business.

Our study represents the first detailed empirical research on capital structure in Serbia, and contributes to the development of the scientific field of business finance and the development of business practice in Serbia. The results of our study will serve as a basis for future theoretical and empirical research on this issue and they provide guidelines for managers to make decisions on capital structure. Future research should cover a longer time period and larger number of relevant variables, in order to, by using various econometric and statistical methods, acquire new knowledge about the capital structure and its determinants in Serbia. The key limitation of our study is a way of sampling, because we took into account only the companies that can be labeled as large and relatively successful given their revenues.

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ТЕСТИРАЊЕ РЕЛЕВАНТНОСТИ АЛТЕРНАТИВНИХ ТЕОРИЈА СТРУКТУРЕ КАПИТАЛА У ПРИВРЕДИ СРБИЈЕ

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Резиме

Порекло модерних теорија о структури капитала може се пратити све до 1958. године, када су Модиљани и Милер развили свеобухватан теоријски модел који се односи на утицај односа прихода и дуга на цену капитала и вредност компаније са пословним ризиком. Ако кренемо од претпоставке да нема ограничења које тржиште поставља (нпр. опорезивање, банкрот и цена агенције), Модиљани и Милер су дали претпоставку да одлуке о структури капитала не утичу на вредност компаније на тржишту и цену капитала. Друге битне модерне теорије о структури капитала, укључујући статистички компромис и теорију хијерархије, развиле су се из Модиљанијеве и Милерове теорије и реалних претпоставки. Свака теорија даје другачије претпоставке о финансијским перформансама на структуру капитала не-

ке компаније. У овом погледу, они који заговарају теорију статистичког компромиса говоре да раст у профиту, удео основних средстава у комплетним средствима, ликвидности и величини компаније доводи до раста односа прихода и дуга компаније. С друге стране, они који заговарају теорију хијерархије говоре да раст у профиту, односу прихода и дуга и величини компаније, као и пад у уделу основних средстава у комплетним средствима – доводе до пада односа прихода и дуга компаније.

Иако резултати многих истраживања нису јединствени, сви у начелу потврђују ставове теорије хијерархије. Наше истраживање, изведено на узорку који сачињавају нефинансијске компаније у Србији, показује да ниво односа прихода и дуга у производним компанијама расте уз пад у профиту и уделу основних средстава и комплетних средстава. Ликвидност и величина компаније не утичу на ниво односа прихода и дуга у производним компанијама. Такође, резултати показују да ниво односа дуга и капитала у услужним компанијама расте уз пад у профиту, а уз раст у уделу основних средстава у комплетним средствима, ликвидности и величине компаније. Можемо закључити да се резултати нашег истраживања не слажу ни са једном релевантном теоријом структуре капитала. Резултати су углавном, али не у потпуности, у складу са резултатима истраживањима која су спроведена на узорку који чине компаније из земаља у развоју. Постоји очигледна разлика између производних и услужних компанија и њу треба узети у обзир приликом развијања структуре капитала. Такође, треба нагласити да пословно окружење у Србији карактерише висока инфлација, иако даља анализа наговештава да утицај инфлације на структуру капитала није статистички битан.