The Determinants of Capital Structure in Emerging Capital Markets: Evidence from Serbia

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Abstract:
This paper explores the determinants of the capital structure of Serbian firms listed on the regulated market using panel data. We model the leverage ratio as a function of firm-specific characteristics. The findings indicate the emerging character of Serbian corporate environment. We document that Serbian firms tend to have much lower debt ratio and that they rely more heavily on short-term than long-term debt compared to firms coming from other transitional economies. The study shows that there is a significant negative impact of liquidity, tangibility, profitability and cash gap on the two debt ratios. Leverage level is significantly positively affected by the income volatility and growth opportunities of Serbian firms. Our results are consistent with the findings of previous empirical studies realized in emerging and transition economies, indicating that Serbian companies follow the modified pecking order theory.

Key Words:
Capital structure, leverage, transition economies, emerging market, liquidity, tangibility, profitability, volatility, growth, cash gap

JEL Classification: G15, G30, G32

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1.   Introduction

Study of the capital structure and the effects of financial leverage in the so-called transition economies is still a matter of current interest. This problem is differently manifested in every country, depending on numerous factors (Thalassinos and Kiriazidis 2003; Thalassinos, Kiriazidis and Thalassinos 2006). The most important ones are the completeness of privatization process, the level of progress in capital market development, availability of various financing sources, the level of investor protection, legal stability and management quality. Each of these factors could affect certain firms with different intensity, depending on the country. The differences between developed and developing markets are significant (Thalassinos 2007; 2008). In contrast to developed markets, undeveloped markets are characterized by insufficient information transparency, poor functioning of primary market, low liquidity of secondary market and slow adjustment of prices to new information signals (Thalassinos *et al.,* 2010). Under such circumstances, company management is often faced with inflexible capital structure, dominantly composed of capital and credit sources. Therefore, it is logical that usual capital structure determinants are differently manifested.

The importance of studying the peculiarities of capital structure choices of companies operating in emerging and transition economies was highlighted for the first time by Cornelli, Portes and Schaffer (1998). In the last decade, a significant number of studies emerged aiming to explore the unique features of capital structure choices in Central and Eastern European (CEE) countries. However, to the best of the authors' knowledge, no empirical research concerning the impact of various firm-specific factors on capital structure choices of listed firms has been conducted in case of Serbia. Although Serbia, as one of European transition economies, shares many geographic and historical characteristics with other transitional European countries, the Serbian economy shows unique characteristics in terms of regulatory and infrastructure environment, development of financial market as well as the economic structure. The aim of this paper is to fill this gap in the literature by exploring the case of capital structure determinants in the Republic of Serbia. This study explores the factors determining capital structure choice of Serbian firms listed on the regulated market fragment of the Belgrade Stock Exchange in the period 2008-2011. More specifically, we try to answer whether firm-specific determinants that have been recognized in Central and Eastern European corporate settings are similarly leverage-correlated among Serbian companies. The contribution of the paper is two-fold and is reflected in extending the existing empirical literature to financial policy determinants in emerging and transitional economies and broadening the possibilities for cross-country comparison in the field of capital structure determinants.

The structure of the paper is as follows. In Section 1 we give an overview of relevant theoretical and empirical evidence concerning capital structure determinants in European transitional economies. The data collection and research method are presented in Section 2. In Section 3 we discuss the empirical results of our study. Final Section provides conclusions, emphasize some limitations of the study and propose the objectives of future research.

2.   Capital Structure Research in European Transition Economies

Capital structure determines how a firm finances its operations and growth by using different sources of funds – debt and equity. Since the appearance of the seminal paper by Modigliani and Miller (1958), economic literature has recognized two important competitive theoretical models that aim to explain the capital structure decisions: the pecking order hypothesis and the static trade-off model. The first one finds its corner-stone in asymmetric information, while the second one is based on the existence of tax benefits associated with debt use, bankruptcy cost and agency cost. In the pecking order framework (Myers & Majluf, 1984; Myers, 1984), firms will prefer internal financing to issuing securities. Concerning external financing, firms prefer debt to equity. The relative costs of finance vary among different sources of finance due to the existence of information asymmetries between the firm (managers) and investors. According to the static trade-off model, there is an optimal capital structure. It is a result of trade-offs between tax advantages from interest and costs of financial distress. The tax-based models, along with agency-cost based models (Bradley *et al.*, 1984; Chang, 1999; Grossman & Hart, 1982; Harris & Raviv, 1990; Jensen & Meckling, 1976; Miller, 1977; Modigliani & Miller, 1958; Modigliani & Miller, 1963), belong to the static trade-off models.

A large body of empirical studies has been realized to test which hypothesis, the trade-off or the pecking order, is more efficient in clarifying firms' financing decisions. Knowledge about capital structure choices mostly originates from empirical data found in developed economies. De Jong, Kabir & Nguyen (2008) provide a survey of theoretical and empirical literature on the capital structure and systematize exogenous and endogenous factors influencing the capital structure. Empirical research on capital structure policies started emerging in the eighties (Marsh, 1982; Jalilvand & Harris, 1984; Titman & Wessels, 1988). Later studies emphasize the importance of institutional setting in identifying fundamental determinants of the capital structure (Rajan & Zingales, 1995; La Porta *et al.*, 1998; Demirguc-Kunt & Maksimovic, 2002; Beck *et al.*, 2005). Capital structure determinants were studied by Rajan and Zingales (1995) based on data from G-7 countries and Bevan and Danbolt (2002) who relied on data from the United Kingdom. Booth *et al.* (2001) consider data from ten developing countries (Brazil, Mexico, India, South Korea, Jordan, Malaysia, Pakistan, Thailand, Turkey and Zimbabwe), while Chen (2004) and Guihai and Song (2006) use data from China

(Table 1). The results of these studies generally indicate that financial leverage increases with share of fixed assets in total assets, non-debt tax shields, growth opportunities and firm size. On the other hand, financial leverage is negatively correlated with earnings profitability, volatility and bankruptcy probability. Yet, as it can be seen from Table 1, the results of these empirical studies are not always unequivocal.

Table 1 Summary of the postulates of capital structure theories and empirical evidence on financial leverage determinants

Determinants	Predicted sign by theories	Empirical evidence*
Profitability	- *(pecking order theory)*	Friend and Lang, 1988; Shyam-Sunder and Myers, 1999; Cassar and Holmes, 2003; Esperança et al., 2003; Hall et al., 2004; Deesomsak, 2004; Song, 2005, Chen, 2004; **Klapper and Tzioumis, 2008; Crnigoj and Mramor, 2009; Nivorozhkin, 2002; Dragotă and Smenescu, 2008; Bauer, 2004.**
	+ *(static trade-off theory; signaling theory)*	Givoly et al., 1992; Petersen and Rajan, 1994.
Liquidity	- *(pecking order theory)*	Lipson and Mortal, 2009; Suhaila et al., 2008; de Jong et al., 2008; De Jong et al. 2008; **Šarlija and Harc, 2012.**
	+ *(static trade-off theory; signaling theory)*	Sibilkov, 2004; Anderson, 2002.
Size	- *(pecking-order theory)*	Bevan and Danbolt, 2002 (longterm debt); Cassar and Holmes, 2003 (short-term debt); Esperança et al., 2003 (short-term debt); Hall et al. 2004 (short-term debt); Chen, 2003.
	+ *(static trade-off theory; signaling theory)*	Marsh, 1982; Rajan and Zingales, 1995; Wald, 1999; Booth et al., 2001; Bevan and Danbolt, 2002 (short-term debt); Cassar and Holmes, 2003 (longterm debt); Esperança et al., 2003 (longterm debt); Hall et al., 2004 (longterm debt); **Črnigoj and Mramor, 2009; Nivorozhkin, 2002; Dragotă and Smenescu, 2008; Jõeveer, 2006; Bauer, 2004.**
Asset structure- tangibility	+ *(pecking order theory)* + *(static trade-off theory*	Long and Maltiz, 1985; Friend and Lang, 1988; Marsh, 1982; Rajan and Zingales, 1995; Wald, 1999; Bradley et al., 1984; Esperança et al., 2003; Hovakimian et al, 2004., Chen, 2003; **Klapper and Tzioumis, 2008.**
	-	Booth et al, 2001; **Cornelli, Portes, and Schafier, 1998; Nivorozhkin, 2002; Klapper et al., 2002; Dragotă and Smenescu, 2008; Jõeveer, 2006; Bauer, 2004; Berk, 2005; Črnigoj and Mramor, 2009.**
Non-debt tax shields	+ *(static trade-off theory)*	Bradley et al., 1984; Titman and Wessels, 1988; Chaplinsky and Niehaus, 1993; Fattouh et al., 2005; **Delcoure, 2007.**
	-	Wald, 1999;; Chen, 2003; Huang and Song, 2006; **Bauer, 2004; Berk, 2005.**
Growth	- *(static trade-off theory)*	Long and Maltiz, 1985; Akhtar and Oliver, 2009; **Bauer, 2004.**
	+/- *(pecking order theory)*	Titman and Wessels, 1988; Chen, 2004; Cassar and Holmes, 2003; Hall et al., 2004; Kayo and Kimura, 2011; de Jong et al., 2008; **Klapper et al., 2002; Berk, 2005; Delcoure, 2007** (+/- total debt, + short-term debt); **Črnigoj and Mramor, 2009.**
Earnings volatility	- *(trade off)* - *(pecking order theory)*	Bradley et al.,1984; Titman and Wessels, 1988; Friend and Lang, 1988; De Miguel and Pindado, 2001; Chen, 2004; **Nivorozhkin, 2002 (Czech case); Bauer, 2004; Črnigoj and Mramor, 2009; Mostarac and Petrovic, 2013** (during the financial crisis).
	+	Esperança et al., 2003; **Nivorozhkin, 2002 (Bulgarian case); Berk, 2005; Črnigoj and Mramor, 2009; Mostarac and Petrovic, 2013** (before financial crisis).
Cash-flow based determinants	-	De Miguel and Pindado, 2001; Akhtar and Oliver, 2009.

*Empirical evidence from the transition economies of Central and South Eastern Europe is reported in bold letters.

Modern financial markets in transition countries emerged in the early 1990s. From the standpoint of financial theory, this implies that special country- and firm- level factors could be particularly significant in explaining leverage of firms in transition economies. Comparative analysis regarding capital structure determinants of firms in transition economies located in CEE has been performed in several papers

(Cornelli., 1998; Nivorozhkin, 2002; Klaper *et al.*, 2002; De Haas & Peeters, 2006; Jõeveer, 2006; Delcoure, 2007; Triandafil & Brezeanu, 2010). The authors mostly report that, with respect to firm-level characteristics, firms' capital structure in CEE economies follows different pattern compared to Western European structure.

Using data from the early 1990s on firms from Hungary and Poland, Cornelli, Portes, & Schafier (1998) point out that Eastern European firms' capital structure behaves differently from Western European structure since the level of financial leverage is lower than in Western firms, and there is a negative correlation between tangibility of assets and leverage. Klapper, Sarria-Allende and Sulla (2002) contribute to economic literature with their study on the key relations between different debt ratios and leverage determinants in small and medium-sized firms in 15 CEE countries in 1999. By studying capital structure dynamics, their target leverage and adjustment speed, De Haas and Peeters (2006) emphasize that during the transition process CEE firms increased their leverage and mitigated the difference between target and existing leverage. Jõeveer (2006) explores the significance of firm-, institutional-, and country-level factors in explaining variations in leverage by using a sample of firms from nine CEE countries over the period 1995-2002. He finds that in comparison to small and unlisted companies, in which capital structure choices are mainly determined by country-specific factors, the decisions on firms' leverage in listed and large unlisted companies are predominantly driven by firm-specific factors. Delcoure (2007) indicates special factors influencing firms' leverage decisions in CEE countries, such as financial constraints of banking systems, disparity in legal systems governing firms' operations, shareholders and bondholders rights protection, sophistication of equity and bond markets and corporate governance.

Other authors contributed to economic literature by examining capital structure determinants within national frameworks. For the purpose of this research, the results of the studies conducted in Slovenia and Croatia were the most valuable, due to shared historical and cultural background with the Republic of Serbia (along with Bosnia and Herzegovina, Montenegro and Macedonia, as federal units, they formed the Socialist Federal Republic of Yugoslavia until early 1990s). Studies conducted by Mramor & Valentinčič (2001), Črnigoj & Mramor (2009), and Berk (2006) determine the factors driving capital structure choice in Slovenian firms. Berk (2006), as well as Črnigoj & Mramor (2009), conclude that the pecking order hypothesis explains capital structure choice in Slovenian firms better than the trade-off theory. Empirical tests on capital structure policies in Croatia are carried out by Mosnja-Skare & Skare (2002), Klapper & Tzioumis (2008), Deari & Deari (2010), and Sarlija & Harc (2012). Mosnja-Skare & Skare (2002), and Deari & Deari (2010) confirm that tangibility, profitability and size, are relevant determinants of leverage. Klapper & Tzioumis (2008) find a significant positive correlation between corporate

taxation and capital structure. Thalassinos and Liapis (2013) have analysed employed benefits under the IAS.

3. Empirical Analysis

3.1 Sample and data description

We tested the regression model of the capital structure on a sample consisting of real-sector publicly traded companies whose shares are quoted on the regulated market of the Belgrade Stock Exchange. We compiled the database of financial statements (Serbian Business Registers Agency) of those publicly-listed companies that were quoted on all segments of the regulated stock exchange market (Prime Listing, Standard Listing and Open Market segments), that met the size criterion in all analyzed years (big or medium-sized company)4 and operated in real sector (financial firms were excluded from the sample). We excluded from the sample companies with consolidated financial statements in any of the analyzed years, as well as those companies whose loss was over the amount of capital so that they were practically financed only from borrowed sources, and whose value of financial leverage equaled one. The sample contained the financial data for 4 years in sequence, covering the period from 2008 to 2011. The final sample comprised the total of 108 big and medium-sized non-financial companies, whose shares were quoted on the regulated segment of the Belgrade Stock Exchange. These companies were mostly the result of mass corporatization in Serbia at the beginning of the 21st century, as a part of transition process to market economy and private property. Financial statements of these companies were prepared according to the International Accounting Standards / International Financial Reporting Standards. The total number of observations for each variable was 432 (108*4). When the four-year value average or the value for one year only was considered, the total number of observations was 108.

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[4] According to the Law on Aaccounting and Auditing, legal entities in Serbia are classified as small, medium and big ones, depending on the average number of employees, annual turnover and assets value. According to the Law, the category of medium entities includes all legal entities that meet at least two of the following three criteria: 1) the average number of employees in the year of annual statement from 50 to 250, 2) the annual turnover from 2,500,000 EUR to 10,000,000 EUR in dinars equivalent, and 3) the average value of assets (at the beginning and at the end of the financial year) from 1,000,000 EUR to 5,000,000 EUR in dinars equivalent. Legal entities with lower than the lowest index amounts for at least two of the specified criteria are classified as small, while legal entities with higher than the highest index amounts for at least two of the criteria are classified as big legal entities.

3.2   *Descriptive statistics of the determinants and leverage*

Empirical studies on capital structure determinants mainly use two measures of leverage – book and market leverage. In this study, we use book instead of market values[5], and employ two measures. Total liabilities ratio, TL, is defined as total liabilities divided by total book value of assets. Book short-term debt ratio, STL, is defined as short-term debt divided by total book value of assets. As Huang & Song (2006) point out, total liabilities ratio represents more appropriate measure for capital structure for three reasons. Firstly, the creditor, while concerning credit worthiness, will consider both firm's long-term debt and how big the firm's current debt and total liabilities are. Secondly, current liabilities seem to be quite enduring part of total assets (Gibson, 2001) in case of Serbian companies, too. Finally, companies in Serbia use intensive trade credit as a means of financing, so accounts payable should also be included in measures of leverage.

Descriptive statistics of two leverage measures and explanatory variables are reported in Table 2, while the correlation matrix is presented in Table 3.

Table 2 Descriptive statistics of leverage and independent variables for Serbian-listed firms

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis	Variance
TL	0.05	0.97	0.4231	0.21043	0.303	-0.289	0.044
STL	0.01	0.87	0.3179	0.18261	0.619	0.249	0.033
TANG	0.06	0.87	0.4959	0.19730	-0.108	-0.537	0.039
LIQ	0.23	15.84	2.4009	2.47886	2.850	9.891	6.145
EVOL	0.00013	0.21407	0.04102	0.04551	2.131	4.931	0.002
GROW	-0.77	1.07	0.1077	0.22033	.863	6.393	0.049
PROF	-0.4389	0.4543	0.05436	0.13493	-0.419	3.546	0.0182
CGAP	-526.78	368.58	66.7582	135.96164	-0.999	3.634	18485.568

1. Number of observations is 108. All variables are averaged from 2008 to 2011.

2. Book total liabilities ratio, TL, is defined as total liabilities divided by total assets. Book short-term debt ratio, STL, is defined as short-term debt divided by total assets.

3. Profitability is measured by ROE, and calculated as net income divided by average equity. Tangibility is calculated as a share of tangible assets in total assets. Liquidity is measured by current ratio (current assets/current liabilities). Growth is calculated as 1 year growth rate of net sales. Earnings volatility is measured as a standard deviation of the ratio of earnings before interest and taxes divided by total assets. Cash gap is calculated as difference between operating cycle (days inventory held + days accounts receivable outstanding) and days account payables outstanding.

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[5] The Serbian capital market has not yet recovered from the financial crisis and the fall of share prices. Lack of trust and, consequently, the withdrawal of investors from the Serbian capital market, resulted in the values of the P/B ratio in this period less than one for significant number of companies, including also the most successful ones whose shares were traded on the Prime and the Standard Market. Under these circumstances, in our opinion, it would be better to base the analysis of leverage in this study on book values.

The measures of leverage, as well as the explanatory variables, were observed during the period 2008-2011. Profitability is measured by ROE, and calculated as net income divided by average equity. Tangibility is calculated as a share of tangible assets in total assets. Liquidity is measured by current ratio (current assets/current liabilities), while growth is calculated as 1 year growth rate of net sales. As a risk measure in this study we use the standard deviation of the ratio of earnings before interest and taxes divided by total assets. The cash gap is calculated as difference between operating cycle (days inventory held + days accounts receivable outstanding) and days account payables outstanding.

The results of dependent variables, reflected in Total Debt Ratio (TL) and Short-term Debt Ratio (STL), exhibit that the mean of TL (STL) of all firms analyzed is 0.42 (0.32). The distributions of TL and STL show that they are positively skewed and with kurtosis of -0.289 and 0.249 respectively, which represents the flatter tails of debt ratios' population. The independent variables denoted by TANG, LIQ, EVOL, GROW, PROF and CGAP have mean values of 0.496, 2.401, 0.041, 0.108, 0.054, and 66.758 respectively.

Table 3 shows correlation coefficients of all variables. TL and STL are dependent variables. Concerning the explanatory variables, relatively high correlation coefficients (higher than 0.5) are not observed.

Table 3 The correlation matrix of leverage and independent variables for listed firms at the Belgrade Stock Exchange

	TL	STL	TANG	LIQ	EVOL	GROW	PROF	CGAP
TL	1							
STL	(0.875)**	1						
TANG	(-0.298)**	(-0.397)**	1					
LIQ	(-0.634)**	(-0.613)**	-0.031	1				
EVOL	0.160	0.094	0.015	-0.097	1			
GROW	(0.226)*	(0.205)*	-0.092	-0.024	-0.018	1		
PROF	-0.091	-0.083	(-0.261)**	(0.199)*	0.136	(0.399)**	1	
CGAP	(-0.308)**	(-0.406)**	(-0.218)*	(0.384)**	-0.047	-0.035	0.109	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

3.3   Regression model

In order to empirically analyze the relationship between leverage and five independent variables, we use panel data fixed effect model approach. The basic regression model is as follows:

$$LEV = \alpha + X'_{it}\beta + \varepsilon_{it};$$ (1)

Where:
i=1, ….108,
t=1,...4,

LEV is the one of two debt ratios (explained below) for the ith firm at the time t, α is the intercept,

Xit′ is a 1×k vector of observations on k explanatory variables for the ith firm in the tth period,

β is a k×1 vector of parameters,

εit is a disturbance term.

The analysis utilizes fixed effect regression model for the whole sample (Table 4). Table 4 shows that R-squared value is 0.591 (0.676), indicating that 59.1% (67.7%) variance in total (short-term) leverage as dependent variable can be explained through six independent variables used. The values of Durbin-Watson test indicate that there is no autocorrelation in the sample.

Table 4 Regression model results for two dependant variabes: total and short-term leverage

Independent variable	Dependent variable: Short-term leverage				Dependent variable: Total leverage			
	Coeff.	Std. Err.	t-statistic	Sig.	Coeff.	Std. Err.	t-statistic	Sig.
(Constant)	0.64369	0.034	(18.972)**	0.000	0.70963	0.044	(16.157)**	0.000
TANG	-0.47085	0.056	(-8.437)**	0.000	-0.40035	0.072	(-5.541)**	0.000
LIQ	-0.03401	0.005	(-7.280)**	0.000	-0.04515	0.006	(-7.467)**	0.000
EVOL	0.28689	0.233	1.232	0.221	0.63412	0.301	(2.104)*	0.038
GROW	0.17501	0.052	(3.375)**	0.001	0.23845	0.067	(3.552)*	0.001
PROF	-0.00249	0.001	(-2.762)*	0.007	-0.00289	0.001	(-2.473)*	0.015
CGAP	-0.00042	0.000	(-4.902)**	0.000	-0.00023	0.000	(-2.122)*	0.036
Weighted statistics								
R square	0.676				0.591			
Adjusted R square	0.656				0.566			
SE of regression	0.107				0.139			
F-statistic	35.079				24.302			
Durbin-Watson	1.921				1.793			

**Significant at 1% significance level; *significant at 5% significance level.

Generally speaking, our results are consistent with the predictions of theoretical studies and the results of previous empirical studies realized in European transition economies. Table 4 shows a significant negative impact of two independent variables, LIQ and PROF, on two debt ratios. These highly significant results are in accordance with the prediction of the pecking order theory and similar to the results of other studies conducted in CEE countries. Tangibility is found to statistically negatively correlate with leverage in the Serbian case, which is contradictory to both the trade-off and the pecking order theory, but in line with previous studies in CEE economies. As predicted by the pecking order theory, we observe a positive impact of growth opportunities on leverage, which is statistically significant during the studied period. Firms faced with higher earnings volatility are setting higher targets for debt, but this relation is statistically significant only in the case of total debt ratio.

4.   Results and Discussion

4.1   *Descriptive statistics: total and short-term leverage*

Research conducted in this paper shows that the companies whose shares are traded on the regulated segment of the Belgrade Stock Exchange are specific in many aspects. Within the scope of this paper, special attention must be given to the level of indebtedness and profitability. Debt financing should contribute to the growth of ROE, but at the same time it increases financial risk. The measure of indebtedness effect (capital structure) on owners' returns finds its quantitative expression in financial leverage.

The examination of the capital structure of companies whose shares are traded on the stock exchange shows that, in the analyzed period, the average relation between debt and equity was 42 to 58%. The dominant share of equity compared to debt indicates that the financial structure of these firms is quite strong, which speaks in favor of their long-term stability. However, comparing capital structure of companies listed on the regulated market to the average capital structure in the Serbian economy reveals an interesting situation. Namely, the Serbian economy is characterized by debt share of 61% and equity share of 39% (Malinić & Milićević, 2012). At first sight, it might be concluded that the Serbian economy uses financial leverage in a better way. However, the fact that profitability of the entire economy is worse compared to profitability of companies whose shares are traded on the regulated market implies that such a conclusion would be wrong.

In order to obtain the notion of capital structure in Serbian companies, a comparison of the extent of leverage for Serbia and European transitional economies would be valuable. In the study of nine CEE countries, Joeveer (2006) reports total leverage ratio in 2000 in the range from 53% (Lithvania) to 76% (Romania). Crnigoj & Mramor (2009) find that the average total leverage ratio in Slovenia in the period 1999-2006 reaches 60%, while Sarlija & Harc (2012) report that average leverage of Croatian firms is 63% in 2009. Even though these studies cover different periods, they could be conditionally comparable with the Serbian case. According to macroeconomic indicators, at the end of the first decade of XXI century, due to the civil war and economic isolation, Serbia goes through the same stage of economic and market development which the Central and Eastern Europen countries - present EU member states, passed in the early 2000s. Data show that, Serbian companies whose shares are traded on a regulated market have lower leverage than all the transition economies of CEE countries, which indicate that country-specific factors (such as capital market development, financial system, GDP growth) have a marked influence on capital structure.

Why is the share of debt in the capital structure of companies whose shares are traded on the regulated market relatively small? Do these companies miss the opportunity to make better use of the effects of financial leverage? More intensive reliance on companies' own internal sources than on debt could be explained by several key motives.

Firstly, although the profitability of companies whose shares are traded on the regulated market is not at substantial level, they still operate in profit zone. That enables them to finance their growth with retained earnings. Financial analysis of these companies' performances shows that they retain, on average, about 45% of reported income during the analyzed period. Positive cash flows from operations cover about 83% of capital investments on average. On the other hand, the growth of these companies is quite modest (on average, operating assets grows at the rate of 3% in 2009 and 2011 and at the rate of 12% in 2010). It is partly the result of economic crisis, while modest return growth indicates insufficient competitiveness. Thereby, equity rose by 21.4% in the periods when the growth of assets of all companies whose shares were traded on the regulated market was the highest (in 2010), which resulted in the reduction of debt share in the same year. Under such conditions, companies manage to maintain a stable relation between equity and debt.

Secondly, undeveloped capital market in Serbia causes mostly inflexible capital structure composed of companies' own (internal and external) and credit financing sources. Financial sources are undiversified, not allowing the creation of more flexible capital structure. The lack of confidence in the capital market, high issuance costs and non-stimulating business environment resulted in the shortage of corporate bonds. We believe that wider range of financial sources would contribute to the reduction of cost of capital and raising the quality of managing capital structure.

Thirdly, undiversified financial sources are main determinant of high costs of credit financing. It is well known that high financing expenses raise the financial risk. Additional problems for Serbian companies are reflected in the fact that financial expenses are fluctuating, which further raises the financial risk. Namely, there are three components in financial expenses' structure: interest rate, exchange differences and the effects of incorporated currency clause on synchronizing credit liabilities with the exchange rate fluctuations or rise in retail prices. Under the conditions of monetary instability, such a structure of financing costs affects their high value (Malinić & Milićević, 2012a). Our calculation shows that average costs of debt financing (calculated as the ratio between financial expenses and average long-term and short-term financial liabilities) reaches incredible 20% in the analyzed period. The burden of such high financial expenses is quite unbearable and further borrowing at such terms could lead companies into losses and jeopardize their survival.

The above-stated limitations clarify the reason why companies whose shares are traded on the regulated market restrain from higher debt share. Apart from the indebtedness level, other potential problem is related to the debt structure. The share of total liabilities in total assets equals about 42%, and the share of short-term liabilities equals approximately 32%. This leads to a conclusion that the maturity structure of total liabilities is not favorable. The share of long-term debt in total assets is about twice as lower compared to the share of short-term liabilities. In that sense, there are no significant differences compared to the pattern of the same measures in the whole Serbian economy.

In our opinion, there are three key reasons for the dominance of short-term liabilities over long-term ones. The first one is related to chronic problems of illiquidity present in the Serbian economy, whereby the companies whose shares are traded on the regulated market are not the exception. Under such circumstances, management is often forced to use short-term loans. The other reason is related to the attitude of the banking sector towards the credit risk. Due to higher exposure to systematic and unsystematic risk, banks used to prefer the approval of expensive, short-term loans, without taking into account the need to synchronize loan maturity structure with the structure of financed assets of the company. The third reason comes from the fact that a part of financing burden is transferred to the suppliers. Prolongation of liabilities to the suppliers results in the fact that their share in financial structure grows. In this particular case, average time of settling liabilities to the suppliers is almost 100 days. In this way, companies mostly provide non-interest financing. The problem is that neglecting the suppliers' interest is not sustainable on a long term basis.

4.2   *Liquidity*

Regarding the relationship between liquidity and the capital structure, theories generally state that liquidity is positively related to the ratio of long-term debt to assets since firms with higher liquidity have easier access to debt. Morallec (2001) points out that the relevance of liquid assets depends on the way it is measured – by the liquidation value of a firm's assets or by the selling price of assets over the entire life of the firm. In her study based on a sample of American firms, Sibilkov (2007) shows that more liquid assets increase leverage.

On the other hand, according to the pecking order theory, accumulated cash and other liquid assets could serve as an internal financing source and would be preferably used to debt. This type of relationship is confirmed both by Lipson & Mortal (2009), and Suhaila, Wan & Wan (2008), who show that more liquid firms are less leveraged. De Jong *et al*. (2008) indicate that the relation between leverage and liquidity in cases of Croatia, Hungary and Poland is negative, but not statistically significant. The negative relation between liquidity and leverage in the Croatian case has been confirmed by Sarlija & Harc (2012).

Statistically relevant negative correlation between financial leverage and liquidity implies that the share of debt in assets rises when liquidity falls. Such a correlation is understandable in conditions under which Serbian listed companies operate. It has already been pointed out that, in the analyzed period, the Serbian economy was characterized by chronic illiquidity. Under such circumstances, illiquidity problems also burden companies whose shares are traded on the regulated market, although to a lesser extent compared to the rest of the economy since they have slightly stronger financial structure. When profitability is not satisfactory and available cash flows are not sufficient to cover capital investments, service credit liabilities and pay current operating liabilities, it is clear that management, in the absence of other sources, uses bank loans, mostly short-term ones. Therefore, liquidity problems imply more intensive borrowing, when financial leverage rises. Since short-term debt is mostly used to resolve liquidity problems, the increase of total financial leverage is the result of the increased short-term financial leverage, which also explains statistically relevant negative correlation between financial leverage and liquidity. Having in mind that this relation is stochastic, individual cases may show departure from the usual tendency. In addition, statistically significant relation between these variables speaks nothing about the effects of financial leverage, i.e. whether they are positive or negative. The increase of financial leverage certainly increases the financial risk, but the borrowing capacity will be determined by the equivalence of ROA and the cost of capital.

4.3 Tangibility

The asset structure has a significant role in determining the capital structure of a firm. Firms with high levels of tangible assets have higher liquidation value and will be in a position to provide collateral for debts. The agency theory indicates the same nature of relationship. In a situation when debt is secured by tangible assets, agency costs of equity are reduced. The asset structure is particularly important as a criterion for long-term loans. A positive relationship between tangibility and leverage is anticipated in both the trade-off model and the pecking order hypothesis.

Indeed, studies from the developed countries indicate a significant positive relationship between tangibility and total debt (Rajan & Zingales, 1995; Esperanca et al., 2003). On the other hand, conclusions from developing countries are mixed. Booth *et al*. (2001) find a negative relationship in the case of developing countries. The findings of Nivorozhkin (2002), Dragota and Semenescu (2008), Jõeveer (2006), Berk (2006), and Bauer (2004) also indicate negative and statistically relevant correlation between tangibility and leverage in firms operating in European transition countries, confirming the results of previous study by Cornelli, Portes, and Schafier (1998). A positive relationship between these two variables is reported by Klapper and Tzioumis (2008), and Mosnja-Skare & Skare (2002) in the Croatian case.

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In this paper, the mean (median) of tangibility indicators equals 49.6% (50.2%). Such information leads to a conclusion that analyzed companies are on average quite inflexible and that their orientation towards some other activities is not so simple. There are two possible explanations of the negative relationship between leverage and tangibility. The first one is more theoretical and related to the view that fixed assets (as long-term-related assets and consequently the riskiest part of assets) should be financed from sources of funds of the highest quality, i.e. from internal sources or share issuance. In that sense, the increase of fixed assets share should be followed by the increase of equity, which leads to the decrease of debt share. The other explanation is closer to the real corporate environment in Serbia. It has already been mentioned that borrowed sources of funding were quite limited and practically reduced to very expensive bank loans. Under such circumstances, many companies have no choice but to rely on their own sources in the process of growth financing.

4.4   Profitability

The type of correlation between profitability and leverage of a company is theoretically unclear. According to the pecking order theory, there is a negative relationship between firm's profitability and its capital structure: firms prefer internal financing to external financing sources. Profitable firms can rely on retained profits and oppose to dependence on debt as an outside source. However, authors like Ross (1977) or Leland & Pyle (1977) claim that the capital structure is used as a signaling instrument of firm's performances and perspectives, and thus, a positive value of the correlation coefficient between leverage and profitability is expected. Givoly *et al.* (1992) and Petersen & Rajan (1994) find a significantly positive association between profitability and debt ratio.

Most studies realized in European transition economies (Nivorozhkin, 2002; Bauer, 2004; Jõeveer, 2006; Klapper & Tzioumis, 2008; Črnigoj & Mramor, 2009) consistent with the pecking order theory, find a negative relationship between profitability and capital structure.

As we previously pointed out, Return on Equity (ROE) chosen as a profitability measure, is calculated as the ratio of net income after tax and average equity. Such a measure comprises the effects of indebtedness (Total asset/Equity), profitability of sales (EBIT/Sales), efficiency of asset management (Sales/Total Assets) and the interest burden (Net income/EBIT). In other words, ROE summarizes the effects of decisions concerning operating, investing and financing activities (Stickney *et al.*, 2007).

Our study shows that there is a weak negative correlation between profitability and leverage (total and short-term). Regression analysis indicates a negative relationship at 5% statistical significance. There are several possible explanations of such a relationship between these variables. In the first place, our study covers the period in

which the effects of the financial crisis came to the fore. The average return on equity (5.44%) is not at a satisfactory level. In this period, even 21% of the total number of analyzed companies (23 companies) operated at a loss. Second, it is especially important to emphasize that, in the analyzed period, the average return on assets (6.66%) was higher than the average ROE (5.44%), indicating a negative effect of financial leverage. This suggests that the cost of financing was higher than the return on assets, which affected the decline of ROE. There is, therefore, an absurd situation where lenders earn more than the shareholders who bear a higher risk. Third, high rates of financial costs, which incorporate high risk premiums, forced profitable companies to rely on internal sources of financing, rather than on expensive bank loans. For example, in the most profitable telecommunications sector, the average rate of financial costs in the period 2008-2011 was 14.26% (Malinić & Milićević, 2013). During the same period, the average rate of financial costs at the level of the whole economy was 16.94%. Fourth, the tax shield effect was not significant since one part of the companies recognized losses, and in such situation there were no tax savings. Besides that, profitable companies did not gain much benefit from tax savings, since the rate of income tax in Serbia was 10%, and such savings in most companies could not offset the negative effects of expensive borrowing. Fifth, such a relationship between profitability and leverage could also be supported by the fact that, in addition to expensive bank loans, debt market was not developed, and borrowing opportunities were quite modest.

Serbian companies are in a very difficult situation. Generally, the lack of primary issue of shares (especially during the crisis period) and unsatisfactory profitability indicate higher borrowing. On the other hand, underdeveloped debt market and expensive bank loans prevent differentiation and higher proportion of debt. Under these circumstances, companies often rely on suppliers as a (free) financing source to which they shift the burden of financing. The problem is that this situation is not sustainable. The lack of quality sources of financing significantly reduces the opportunities for growth. Under these circumstances, it seems that the results of the relationship between profitability and leverage fairly reflect the situation in Serbian companies and are in line with the pecking order theory.

4.5 Growth

According to the pecking order theory, it is expected that fast-growing firms would need to increase their long-term operating assets, and since internal sources of financing are not likely to meet their needs, they would borrow more intensively. On the other hand, as reported by the trade-off theory, firms characterized by higher growth opportunities are inclined to use less debt since growth opportunities are intangible and cannot be used as collateral. The standpoint of the agency theory is that firms with great growth opportunities have a tendency to expropriate wealth from debt holders, and, thus, have lower debt.

There is no clear empirical evidence on the relationship between leverage and growth. Some researchers find positive relationships between sales growth and debt ratios (e.g. Titman & Wessels, 1988; Cassar & Holmes 2003, and Hall *et al.* 2004). The evidence presented by Rajan & Zingales (1995), Long & Maltiz (1985), and Akhtar & Oliver (2009) suggests that higher growth firms use less debt. Conclusions from CEE countries are also mixed. While Bauer (2004) shows negatively and statistically significant relationship between growth opportunities and leverage in the case of Czech companies, evidence given by Klapper *et al.* (2002), Berk (2005), and Črnigoj & Mramor (2009) point out that growth opportunities increase leverage in the analyzed transition economies. Finally, in her study of companies in the CEE countries, Delcoure (2007) find a positive relation between growth and short-term debt for the whole sample, while the relation between growth opportunities and total debt ratio is mixed.

As for the Serbian large and medium firms quoted on the regulated market, the growth variable is significantly and positively related to both total and short-term leverage. The profitability level of the analyzed Serbian companies is relatively low in comparison to firms from developed countries and other European transitional economies. The analyzed time framework coincides with the crisis period, the capital market is undeveloped, and the short-term debt is the prevailing method of debt financing. Therefore, it is not surprising that a higher rate of sales growth of the Serbian companies, which predicts stronger revenue generation in future period, is associated with more debt financing.

4.6 Risk
Both the pecking order theory and the trade-off theory argue that higher earnings volatility is connected with more conservative use of debt financing. In line with the trade-off theory, higher earnings volatility increases the probability of financial distress and bankruptcy costs and decreases firms' leverage. The standpoint of the pecking order theory is that companies with higher exposure to risk would retain spare debt capacity in order to avoid financing using more costly debt in the future period.

However, in spite of the general theoretical consensus about the inverse relation between firm risk and leverage degree, empirical studies show contradictory results. A number of studies point to an inverse relationship between risk and debt ratio (Bradley *et al.*, 1984; Titman & Wessels, 1988; Friend & Lang, 1988; De Miguel & Pindado, 2001; Chen, 2004), while other researches indicate a positive relationship (Huang & Song, 2002; Esperanca *et al.,* 2003). Judging by available empirical evidence from emerging and transitional economies, earnings volatility is an important determinant of firm leverage, but the nature of the relationship between these two variables is not unique. It differs across countries, periods and leverage measures (Table 1).

This study presents evidence on the relationship between risk and leverage which contradicts both the trade-off theory and the pecking order theory. At first sight, the conclusion that earnings volatility positively correlates with leverage, and that this relationship is statistically significant only in the case of total debt ratio, is surprising. However, one should have in mind that the most profitable Serbian companies from the sample experienced high income volatility in the analyzed period primarily due to the financial crisis. They are faced with inflexible capital structure and long-term debts inherited from the pre-crisis period. In such a situation, a higher variability of a firm's income leads to a lower risk-aversion of the managers and corresponding higher debt targets. On the other hand, as it is presented in Section 2, the main feature of the Serbian economic and institutional environment is undeveloped capital market – the absence of corporate bond market and the fact that equity market is shallow and not liquid. Banks, even though in a monopolistic position, are bound with real sector and financially support companies to which they approved (long-term) loans in the pre-crisis period in spite of the high risk exposure of these companies.

4.7 Cash gap

The cash gap is the difference between the total number of days for which the company is to provide financing of its working capital and the number of days for which it provided funding from the suppliers. The cash gap indicates how long a company has to finance current assets from additional sources. Thereby, companies often opt for short-term borrowing. Shortening the cash gap should logically imply reduction in requests for additional funding sources. Small cash gap generally refers to efficient operating and effective cash management. Conversely, increasing the cash gap indicates cash shortfalls and increases financing cost. Therefore, it is reasonable to expect that there is a positive correlation between the cash gap and leverage, which means that shortening of the cash gap follows the decline of indebtedness, and vice versa. Our regression model shows the opposite, there is a negative relationship between the cash gap and leverage (both total and short-term).

The uniqueness of companies doing business in Serbia is that cash gap shortening is neither the consequence of inventory holding reducing nor speeding up the collection of receivables, but the result of slowing down the payments to the suppliers (Malinić, 2013). In this regard, the situation is so serious that even 27.8% of the companies from the sample operate with the negative cash gap as the consequence of increasing days payable outstanding. In other words, the inability of additional borrowing causes the abuse of the suppliers by shifting the burden of the cash cycle finance. In our case, 30 companies (27.8%) had the negative cash gap, while 60 firms (55.6%) had smaller cash gap in the last than in the first year analyzed. Among 60 companies with reported cash gap reduction, in 49 companies (81.7%) the increasing of payables is found.

Higher statistical significance of the impact of such processes on the short-term compared to the total leverage is understandable, since the increase of days payable outstanding results in the fact that their share in short-term debt rises faster than in long-term liabilities. Under such circumstances, when companies shift the financing burden to the suppliers, the suppliers do the same with their suppliers, and that causes many companies to slide towards bankruptcy. It is known that the increase in accounts payable over an accepted level produces not sustainable long-term cash flow (Wild *et al.,* 2004). The conclusion is that the increase in current liabilities is a very serious warning signal about the chronic lack of liquidity of the Serbian economy and an indication of serious financial failures.

5.   Conclusions

This study explores the determinants of capital structure decisions of companies listed on the regulated market in the Republic of Serbia in the period 2008-2011. The results suggest that firm-specific factors affecting firms' capital structure in other emerging and transitional countries work in a similar way in Serbia. More precisely, leverage, measured either by total debt ratio or short-term debt ratio, decreases with profitability, liquidity, tangibility and cash gap, and increases with growth opportunities. These findings indicate that Serbian companies follow the "new pecking order"(Chen, 2004) – retained profit, then equity, and lastly debt.

This research has pointed to some specific features of the capital structure of Serbian companies listed on the regulated market. First, since the capital market in Serbia is undeveloped and financial sources are undiversified, the capital structure of Serbian firms is mostly inflexible. Second, Serbian firms prefer short-term finance and have less total liabilities and higher shareholders' equity compared to their matches in both developed and some developing countries. Third, in the absence of primary issues and differentiated sources of borrowing, particularly during the financial crisis, companies shift the financial burden to their suppliers. Prolongation of trade payables has contagious effect and pulls healthy companies into insolvency as well. This situation, which is partly the result of a weak enforcement of the law on bankruptcy, is not sustainable and bears serious risks for the successful functioning of the national economy. The findings of the study imply that the specific attributes of the Serbian corporate environment, such as the ownership concentration and the corporate governance structure of the listed firms, the concentration and financial constraints in the banking sector, poor functioning of the primary market and low liquidity and depth of the secondary capital market, are all factors influencing the debt structure and the impact of firm-specific factors on firms' leverage decision.

This study is featured by at least two main limitations. In the first place, it is based on the data obtained from Serbian non-financial firms listed on the regulated market. Secondly, the correlation and regression analysis is conducted using the total and

short-term book leverage as dependent variables, and six explanatory variables. In this respect, future research should comprise the market leverage measures and other set of explanatory variables (such as cash-flow based indicators) and should be based on a larger and comprehensive database (public and private companies).

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