CAPITAL STRUCTURE OF CROATIAN ENTERPRISES

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ABSTRACT

Due to globalization, nowadays enterprises run their businesses in a competitive and dynamic environment. Such a complex ambient has made the managers more cautious while making their business decisions. The same applies when it comes to the financing decisions since they undoubtedly affect the future value of the firm and its existence on the market. The purpose of this paper is to analyze the capital structure of Croatian firms in the time period from 2007 – 2012. Since most of the literature on capital structure studies firms in developed countries, it would be important to investigate whether the same results apply to enterprises of transition economies. The authors of this paper familiarize the readers with the most important ideas and theories developed in this area, as with the main research and empirical results that confirm or refute theoretical hypothesis. Since financing decisions have a strong influence on the value of enterprises, the aim of this paper is to encourage the development of capital structure research in transition economies. In doing so, the authors descriptively analyze the financial leverage of Croatian firms during the six-year period and examine the determinants of capital structure that seems to have the most important influence on financing decisions of firms. With that aim, the authors investigate relations between financial leverage as a dependent, and profitability, firm size, business risk, and tangibility as independent variables.

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INTRODUCTION

Capital structure can be defined as an equity-debt ratio which firms use to finance their activities and everyday operations. Financial choices brought by managers influence all the aspects of enterprise and, consequently, the firm’s value. It is what makes this area of corporate finance interesting and valuable, what can be proven by many empirical researches conducted in this area. Many scholars have devoted a lot of effort to understand the firms’ financing policies, as well as the existence of optimal capital structure. Most of that research was made by investigating firms in developed countries, while transition countries were somewhat neglected. With this in mind, the authors of this paper aim to encourage further development of capital structure research in Croatia. Using the aggregate data on Croatian enterprises, the goal is to analyze the levels and trends in debt-equity financing during the six-year period, from 2007 - 2012. Also, this study examines the impact of selected determinants such as asset tangibility, profitability, firm size, and business risk on enterprises’ financial leverage. Thus it can be seen if the same results apply to firms of transition economies, which were obtained in developed countries.

This paper is organized as follows: after the introduction, section two provides an overview of capital structure theories; section three defines the main determinants of financial choice; section four describes the data, research methodology and the obtained results; while section five concludes the paper.

THEORETICAL BACKGROUND

The capital structure is one of the most controversial areas in financial management. This fact stems from the high complexity of certain factors that affect formation of the firms’ capital structure, as well as from the questioning impact of certain capital structure on firms’ value. Capital structure can be defined as a combination of debt and equity that companies use to finance their activities. Financing decisions are closely related to other business decisions and corporate strategies and inevitably affect the value of the company. Since all the enterprises face these decisions, a lot of attention was paid to research in this area, as evidenced by a large amount of developed theories and empirical research.

Theoretical studies on capital structure date from fifties of the last century. Professor David Durand introduced two approaches: Net Operating Income and Net Income, both based on specific assumptions on movements of individual cost of capital (Orsag, S., 2011, pp.895). The main assumption of the Net Operating Income approach was that during the increase of financial leverage both the cost of debt and cost of equity remain constant. Since the cost of debt is always lower than the cost of equity, more debt in capital structure will increase the value of the firm. Accordingly, the company would be the most valuable when financed with 100%
debt. Since this is not possible in the real world, the optimal capital structure does not exist. The other approach, Net Income, states that the value of the company depends solely on business income it generates, and not on the way it is distributed between its owners and creditors (Orsag, S., 2003, pp.536). In other words, the value of the company should be the same regardless of its capital structure. This conclusion is enabled by the assumption that higher financial leverage increases only the cost of equity, while the cost of debt remains the same. In that way, the benefit of replacement of more expensive (equity) with cheaper capital (debt) will be offset by the increase in the cost of equity, so the total cost of capital will remain unchanged. Both of these approaches were considered extreme and unacceptable in the real world terms, and have not been supported by economic theory. In the year 1963, Ezra Solomon combined these two approaches in a more familiar Traditional Approach of capital structure (Baral, J.K., 2004, str.1). With this approach the moderate use of leverage may increase the value of the firm, meaning the optimal capital structure does exist. Although this approach was more widely accepted due some more realistic assumptions, the modern theory of capital structure began with the renowned paper of Modigliani and Miller (Harris, M., & Raviv, A., 1991, pp.297). Their theory is based on the perfect market assumption, meaning that enterprises operate in a completely free and competitive market without taxes or transaction costs, where any information is entirely transparent and available to each market participant. Modigliani and Miller have shown that, under these assumptions, capital structure has no impact on the company’s value. This was shown in their first proposition, where they proved that the market value of the company is equal to the sum of the total equity and total debt value, i.e. that the value of leveraged company is the same as the value of unleveraged company. According to Modigliani and Miller, the weighted average cost of capital is constant, depending only on the expected rates of returns demanded by the stockholders and creditors, and on the market value ratios of debt and equity to overall firm value (Myers, S.C., 2001, pp.84). As previously stated, the cost of debt is always less than the cost of equity (due to prior claim of debt on the firm’s assets and earnings), but any attempt to substitute cheaper debt for more expensive equity will not reduce the weighted average cost of capital because the remaining equity will become more and more expensive with the increase of the market value of debt to equity ratio. In other words, increase in financial leverage causes two opposite effects that are ultimately reversed, resulting in the constant cost of capital. Consequently, in a perfect market change in capital structure cannot increase the value of the firm. This is shown in the second Modigliani – Miller’s proposition.

Despite the fact that some of the initial assumptions of the Modigliani – Miller’s model were unrealistic, the obtained results are extremely important. Namely, indicating condition under which the capital structure is irrelevant for the firm’s value, it also provides an insight to what conditions need to be changed in order for capital structure to influence the value of the company (Brigham, E.F., & Ehrhardt, M.C., 2001, pp.642). For this purpose, imperfections of the real world were introduced in order to gain more realistic theories of capital structure, such as trade-off theory, signaling theory and pecking order theory. Those theories are considered to be classical ones, and they all differ in their relative emphasis on the key factors affecting the capital structure choice.

In the trade-off theory the benefits of increased leverage are weighted against the costs of increased leverage in order to determine the optimal capital structure (Mostarac, E., & Petrović, S., 2013, pp.154). In other words, the company should balance between the tax shelter benefits and the increased possibility of bankruptcy in order to determine the critical level of debt at which the debt financing should be stopped. This level would be considered as an optimal level, after which additional unit of debt incurs greater costs than benefits of leverage. Signaling theory and pecking order theory are both based on the informational asymmetries problem, which is common in the real word and refers to the situation when managers of the firm have information that investors do not. This problem can lead to investors’ misevaluation of the company’s true value. In order to overcome informational asymmetries problem, the investors put lots of effort to collect and analyze available information in order to find valuable investment opportunities. Since these activities are both time and money consuming, managers may decide to signal the quality of the firm by issuing debt. According to signaling theory, debt financing suggests higher quality of the company because it increases the fixed interest liability that company must pay regardless of its earnings. Accordingly, managers should be able to estimate firms’ future earnings properly, so as to be sure it will be possible to meet interest commitment on due date. If they fail to meet their obligations, they will end up in a financial distress. Thus, firms with low expected cash flows find it more costly to incur higher levels of debt, so they will not use it as a false signal of their quality. The pecking order theory argues that investors interpret issuing equity as a sign that shares are overvalued on the market, and vice versa issuing debt as a sign that they are undervalued. With this in regard, this theory describes the order in which firms prefer to finance their activities and growth: internal funds such as retained earnings, debt when internal funds are insufficient, and new equity as the last resort. In that way, according to the pecking order theory the

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1 The cost of debt is constant because in the case of bankruptcy, thanks to the perfect market assumptions, creditors of the company would take over the company’s assets at no cost.
optimal capital structure does not exist, and the current financial leverage is just an indicator of company’s needs for funds.

**DETERMINANTS OF THE CAPITAL STRUCTURE**

Different capital structure theories suggest there are determinants that may affect the firm’s financing decisions, such as asset structure, profitability, earnings volatility, firm size, growth rates, financial flexibility, industry classification etc. In this section only determinants used in the research will be described in more details. In many empirical analyses these determinants were mentioned as the most important and influential determinants of capital structure: asset structure, profitability, firm size and earnings variability.

Most capital structure theories find positive correlation between asset tangibility and financial leverage. The more assets are subject to collateralization, the more debt a company may use in its capital structure (Orsag, S., 2011, pp. 944). In the case of financial distress, the creditors may require sellout of the company’s assets for the settlement of their claims. The more potentially collateralized assets there are in a company, the more creditors willing to finance the company. As a result, firms with a greater share of tangible assets are likely to have higher debt capacity (Cook, D.O., & Tang, T., 2010, pp. 77). Positive correlation between asset structure and financial leverage was found in empirical researches by Frank and Goyal (2009), Hovakimian and Titman (2011), Bevan and Danbolt (2000) etc.

There are conflicting theoretical assumptions about the impact of profitability on the financial leverage. Profitability can affect leverage in at least two different ways. According to the trade-off theory, highly profitable companies should use as much debt as possible to exploit debt tax benefits. The same stands for signaling theory where more debt signals higher quality of the firm. On the other hand, the pecking order theory suggests that higher profitable companies can be able to ensure enough internal funds to finance all business activities and opportunities. Because of that, these companies will operate with lower debt ratios, and use debt only when the value of investments exceeds their retained earnings. Most of empirical research finds negative correlation between these variables (Frank, M. Z., & Goyal, V. K., 2005, pp. 39), for example Rajan and Zingales (1995), Titman and Wessels (1988), Graham (1999) etc.

In addition, different theories are not unanimous about the effect of firm size on the capital structure either. Larger firms tend to be more diversified, more profitable, to have lower income volatility and better access to financial markets. According to the trade-off theory, bigger firms are less likely to become financially distressed so they will use more debt to provide higher tax shelter. Also, for the purpose of signaling higher quality of the firm, large corporations may be willing to use significant levels of debt to prove they are able to meet their obligations on time. On the contrary, the pecking order theory suggests negative correlation between firm size and leverage. Larger companies, usually more profitable than small ones, have enough internal funds to finance their operations, meaning there will be no need for debt financing. Most of empirical researches confirm positive relation between firm size and leverage, such as Rajan and Zingales (1995), Bevan and Danbolt (2000) and Oolderink (2013).

Higher earnings volatility indicates higher probability of financial distress. If the company uses high levels of debt, because of unfavorable dynamics of future cash flows, the company might not be able to pay interest liabilities on due date. As a result, as business risk increases, it is expected that the debt level in capital structure should decrease. This assumption is found in most empirical research, for example Banerjee, Heshmati and Wihlborg (2000) and Bradley, Jarrell and Kim (1984).

**ANALYSIS AND RESULTS**

**A. Data**

Data for this research is taken from the Register of Annual Financial Reports which is kept by the Financial Agency (FINA), and from annual financial statements of corporations listed on the Zagreb Stock Exchange (ZSE), that are announced on ZSE web sites. It is the aggregated data of Croatian enterprises that are used in this descriptive analysis. The observed data are from the period between 2007. - 2012.

**B. Dependent and independent variables**

In this analysis the dependent variable is financial leverage which is defined as the ratio of total debt to total capital. Total debt includes long-term and short-term financial debt (where non-financial liabilities are excluded, such as accounts payable, taxes payable, compensations and benefits ("wages payable") etc.). Total capital, the denominator of calculation in financial leverage, is equal to the sum of total debt and shareholder’s equity. Since the market values of total debt and equity are not available, book values are used instead.
As already mentioned above, four independent numerical variables are used in this analysis: asset structure, profitability, firm size and business risk (income volatility). Tangibility or the structure of firms’ assets is one of the fundamental determinants of capital structure, so it was inevitable to use it in this analysis. As proposed and commonly used in other empirical research, tangibility of assets is approximated by proportion of long-term assets in the total assets of the firm. Second independent variable used in this research is profitability of enterprises. The most common variable used for profitability is return on assets (ROA), i.e. ratio of earnings before interest and taxes (EBIT) to total assets, so the same measure is used in this paper. Enterprises are divided in groups of small and medium versus large enterprises according to Croatian Accounting Act\(^2\). Given this classification, no approximation for firm size is necessary. The last independent variable is business risk, expressed as standard deviation of earnings before interest and taxes.

C. Results

In order to study financial leverage of Croatian firms, descriptive analysis was used in this paper. The collected data are presented using tables and graphs in order to determine whether certain trends in financial leverage and correlation among selected variables can be observed.

**FIGURE 1. FINANCIAL LEVERAGE OF CROATIAN ENTERPRISES FROM 2007. – 2012. (a) financial leverage calculated as total debt to total capital; b) financial leverage calculated as long-term debt to total capital)**

Figure 1 shows level and trend of financial leverage of Croatian firms from 2007. – 2012. Left part (a) of Figure 1 presents financial leverage calculated as long-term debt to total capital, while the right part (b) presents financial leverage calculated as total (long- and short-term) debt to total capital. As can be seen, Croatian enterprises use a large share of short-term debt in their financing. This fact makes it important to observe the total debt in the next analysis, instead of long-term debt only. In both cases there is a positive trend of financial leverage, meaning that Croatian enterprises use more debt in their capital structure each year. When observing the first and the last year of the given period (part a), it is obvious that the financial leverage has increased by 22.11%, what makes debt the main form of capital in Croatian companies.

**TABLE I: PROFITABILITY OF SMALL AND MEDIUM SIZED VS. LARGE ENTERPRISES**

<table>
<thead>
<tr>
<th>Profitability (ROA)</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>small and medium sized</td>
<td>1.53%</td>
<td>0.09%</td>
<td>-0.90%</td>
<td>-2.57%</td>
<td>-1.18%</td>
<td>-1.24%</td>
</tr>
<tr>
<td>large enterprises</td>
<td>1.10%</td>
<td>0.25%</td>
<td>-0.66%</td>
<td>-0.07%</td>
<td>0.14%</td>
<td>0.19%</td>
</tr>
</tbody>
</table>

**FIGURE 2. FINANCIAL LEVERAGE OF SMALL AND MEDIUM SIZED VS. LARGE CROATIAN ENTERPRISES FROM 2007. – 2012.**

\(^2\) To be a small entrepreneur, two of three conditions should be met: the value of total assets up to 32.5 million HRK (circa 4.3 million EUR), revenue up to 65 million HRK (circa 8.6 million EUR), number of employees up to 50. For a medium large entrepreneur, two of three previously mentioned criteria must be exceeded, but not more than 130 million HRK (circa 17.3 million EUR) of total asset, 260 million HRK (circa 34.6 million EUR) of revenues or 250 employees. Large entrepeneurs are those who exceed at least two of three criteria defined as upper limitations for medium sized entrepreneurs.
According to Figure 2, small and medium sized enterprises use more debt financing in their capital structures than large ones. Moreover, in the observed time period small and medium-sized enterprises are increasing the level of financial leverage, while the financial leverage of large companies is relatively stable over the last three observed years. This can be explained by a relatively lower profitability and greater need for external funds of small and medium sized enterprises during the observed period (as it is shown in Table I).

**FIGURE. 3. PROFITABILITY (a) AND FINANCIAL LEVERAGE (b) OF CROATIAN ENTERPRISES FROM 2007. – 2012.**

Figure 3 indicates movements of profitability and financial leverage of Croatian enterprises in the six-year time period. As the profitability of Croatian enterprises is decreasing, the proportion of debt in capital structures is increasing. Since the profitability of enterprises is relatively low, negative relation between these two variables can be explained by the lack of retained earnings and consequently higher needs for external funds.

**FIGURE 4. ASSET STRUCTURE (a) AND FINANCIAL LEVERAGE (b) OF CROATIAN ENTERPRISES FROM 2007. – 2012.**

Based on Figure 4, positive relation between asset structure and financial leverage can be observed. As the share of long-term assets in total company’s assets is increasing, financial leverage records positive trend. This motion is expected and confirms theoretical assumptions.

**FIGURE 5. BUSINESS RISK (a) AND FINANCIAL LEVERAGE (b) OF CROATIAN ENTERPRISES FROM 2010. – 2012.**
As it can be seen on Figure 5, business risk of Croatian enterprises is decreasing, resulting in an increase of their financial leverage. This negative trend in business risk can somewhat be explained by the crisis reduction, or at least stabilization, where earnings are less volatile than in the previous years. Still, since the business risk for each year was calculated as standard deviation of earnings realized in the previous four years, these results should be considered with caution. Namely, longer observed period would probably give more precise data and potentially different results.

CONCLUSION

The purpose of this paper was to analyze the capital structure of Croatian firms in the time period from 2007. – 2012. Along with the trends of the capital structure, the aim was to question theoretically assumed correlation between selected determinants of capital structure and the financial leverage. In doing so, descriptive analysis of aggregated data of Croatian enterprises was used. The results show that financial leverage in this period is increasing, with strong emphasis on short-term debt rise. The observed time period covers time of financial crisis, when lower business activity causes decline in profitability and consequently sharp downfall of retained earnings. In order to maintain business activity and everyday operations, it is assumed that enterprises had to increase debt financing. Because of credit rationing and lower price of short-term financing, short-term debt had higher share in capital structure of Croatian enterprises year by year. This is why the authors of this paper assume that profitability is the most important and influential determinant of capital structure of Croatian enterprises in this time period. Likewise, small and medium sized enterprises use more debt in their financing than large enterprises. This can also be attributed to their lower realized profitability in the observed period. The increase of leverage of Croatian enterprises is supported by the rise of long-term assets in total assets. As explained in theory, this positive relation is expected because that kind of assets serves as collateral in debt financing. Finally, business risk of Croatian enterprises seems to decline from 2010. – 2012., as the financial leverage is increasing. This result should be taken with caution because of the short observation period.

These results match with the most empirical research in developed countries. Still, more research should be conducted in Croatia, as in other transition economies. It is recommended to include more years in observation, more determinants of capital structure such as financial flexibility, industry affiliation, managerial conservatism, credit rating etc., to use data of individual enterprises, and also to use other appropriate methodologies to obtain more precise results.

REFERENCES


