



AN ANALYSIS OF THE CAPITAL STRUCTURE FOR COMPANIES LISTED ON THE BUCHAREST STOCK EXCHANGE

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Abstract This paper employs a new database, which contains the market and accounting data from more than 50 Romanian listed companies, between 2010-2012, to document the characteristics of these firms in terms of capital structure. The study used five measures of the degree of capital structure: Debt to Equity, Debt to Total Assets, Debt to Economic Assets, Debt to Market Value, Long term Debt to Equity. The results of the analysis demonstrate that it is preferred financing from own funds. This conclusion supports the Pecking Order Theory; the highest preference is to use internal financing before resorting to any form of external funds. If a firm must use external funds, the preference is to use the following order of financing sources: short debts, long debts and equity issues. This order reflects the motivations of managers to retain control of the firm, reduce the agency costs of equity, and avoid the seemingly inevitable negative market reaction to an announcement of a new equity.

Key words:

Capital structure, trade – off theory, pecking order theory

JEL Codes:

M41

1. Introduction

Capital structure refers to the firm's financial framework which consists of the debt and equity used to finance the firm. Capital structure is one of the popular topics in finance field. The ability of companies to carry out their stakeholders' needs is tightly related to capital structure. This study aims to analyze the sources of financing for companies listed on the Bucharest Stock Exchange. The study used five measures of leverage (Debt to Equity, Debt to Total Assets, Debt to Economic Assets, Debt to Market Value, Long term Debt to Equity.) as variables that quantify the degree of leverage. The sample for this study consists of 53 companies listed on the Bucharest Stock Exchange, 2010-2012. Companies were selected based on the availability of information needed for the study, information available in the annual reports for the financial years 2010 to 2012. This paper was structured as follows: Section II provides an overview of the existing literature on the subject. Section III explains the database, while Section IV presents the results of the study.

2. Literature review

Capital structure in financial term means the way a firm finances its assets through the combination of equity, debt, or hybrid securities (Saad, 2010). In short, capital structure is a mixture of a company's debts

(long-term and short-term), common equity. Capital structure is essential on how a firm finances its overall operations and growth by using different sources of funds. Modigliani-Miller theorem is the broadly accepted capital structure theory because is it the origin theory of capital structure theory which had been used by many researchers. According to Modigliani-Miller Theorem, these capital structure theories operate under perfect market. Various assumptions of perfect market such as no taxes, rational investors, perfect competition, absence of bankruptcy costs and efficient market. Modigliani-Miller theorem states that capital structure or finances of a firm is not related to its value in perfect market.

The decision for a particular financing structure must take into account the range of risks associated with leverage, which may offset or even cancel its positive effects. You must consider the following categories of risk associated with debt:

- *The risk of any loss* - occurs when the operating revenues are insufficient to cover interest costs, and so the firm cannot take advantage of the tax benefits of debt.

- *Constraints in relation to third parties* - if a company is unable to repay the borrowed funds, this situation represents a warning to lenders, but also for others, for other business partners. Commonly call to

debt can lead to unbalanced structure, the increased risk, involving direct and other business partners.

- *Liquidity risk* - often borrowing is the main source of solving problems related to temporary lack of liquidity because the borrowed money come the fastest in the company. Companies should not consider the ease with which attract borrowed funds because it can create imbalances in the financing structure.

- *The risk of bankruptcy* – once that debt is rising; it appears the inevitable risk of the firm of insolvency. Imbalances in the operating activities are more difficult to control in this situation. From a certain level of debt leverage of benefits will be outweighed by the risks of bankruptcy.

Literature provides several ways to quantify leverage. A first way of defining leverage as expressed in the following equation:

$$D/E = \text{TOTAL DEBT} / \text{EQUITY}$$

This measure of leverage used in studies following authors: *Harris and Raviv (1991)*, *Krishnan and Moyer (1997)*, *Chakraborty (2010)* and the present capital employed in the company, its size is a consequence of previous decisions on financing decision. Another way of expressing the leverage is defined as the ratio between total debt and total assets of the company.

$$\frac{D}{TA} = \text{TOTAL DEBT} / \text{TOTAL ASSETS}$$

Although this indicator has the weakness of not shown as the amount of debt is debt providers it can still quantify the leverage of the company, giving us information on shareholders' wealth after liquidation of the possibility of an eventual bankruptcy, but it isn't a good indicator to measure firm risk in the near future. *Zeituni and Tain (2007)*, *Arbiyan and Safari (2009)*, *Abor (2005)* authors have used this method of indebtteness expression in their studies. A form often used to define the leverage is:

$$\frac{D}{AE} = \text{TOTAL DEBT} / \text{ECOMONIC ASSET}$$

Therefore leverage is defined as the ratio between total debt of the company and the economic asetss (assets plus net assets, equity plus financial liabilities), diminishing thus total asset value with the one of the operating liabilities. This manner of expression is seen in the literature (*Rajan, Zingales, 1995*), one of the best. Two ways of expressing leverage are a it follows:

$$\begin{aligned} LD/E &= \text{LONG TERM DEBTS} / \text{EQUITY} \\ D/MV &= \text{TOTAL DEBT} / \text{MARKET VALUE} \end{aligned}$$

Trade – off theory; Jensen and Meckling (1976) suggest that the firm's optimal capital structure will involve the tradeoff among the effects of corporate and personal taxes, bankruptcy costs and agency costs, etc. Agency costs rose from separation of ownership and control and conflicts of interest between categories of agents. One of the problems that cause conflict between managers and shareholders is free cash flows. *Jensen (1976)* defined debt as a disciplinary tool to ensure that managers give preference to wealth creation for the equity-holders. Thus, in the companies that have high cash flow and profitability, increasing of debts can be used as a tool of reducing the scope for managers until resources of company may not be waste as a result of their individual purposes.

Pecking order theory; the alternative theory, discussed by Meyers (1984), Myers and Majluf (1984) and Fama & French (2002), describes a firm's debt position as the accumulated outcome of past investment and capital decisions. In this theory, commonly called the "Pecking Order theory", firms with positive net present value investments will finance new investments first using internal funds, and in the absence of internal funds will finance them with safe debt, then risky debt, but only if there is no other alternative. Thus, financing investments using internally generated funds may be the cheapest source, and the firm's financial structure is the outcome of past cash flows and investment opportunities. The conflict between benefits of shareholders and creditors has consequences like increase of interest rate by creditors, addition of supervision costs and decrease of investment. So, this conflict demonstrates that high leverage leads to poor performance (*Williams J, 1987*).

3. Description of data base

In this study we aimed to identify sources of funding of companies listed on the Bucharest Stock Exchange. We chose as a sample of 53 companies listed on the Bucharest Stock Exchange and financial data were selected for 2010-2012. Initially we selected 61 companies but we removed from the sample banks and investment companies, because for these companies leverage is influenced by several exogenous factors. Secondly we have excluded companies for which we do not have sufficient financial data prepared for this study. So we've removed the number of listed companies in the year 2012 and those listed companies after 2010, companies for which financial statements have not been found specific to the period 2010 to 2012 and for which we had incomplete information.

Thus to identify funding sources for practice of listed companies, it was made a sample of 53 companies listed on the Bucharest Stock Exchange, Class I and II. Necessary financial information (balance sheet and profit and loss account) were collected from several sources: the site of Bucharest Stock Exchange, website of Investment Consulting Company KTD Invest SA.

4. Results

The table below shows the values of indebtedness, measured by the five methods of expression, 2010-2012. Using the values of the indicators in the table below the annual averages and medians are presented corresponding to the five ways of expressing leverage: *D/E, D/TA, D/AE, LD/E, D/MV*.

Table 1. Analysis of leverage of companies listed on the Bucharest Stock Exchange in the period 2010-2012

Years	D/E		D/TA		D/AE		LD/E		D/MV	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
2010	1.892	0.373	0.397	0.341	1.64	0.38	0.338	0.027	0.003	0.001
2011	2.712	0.294	0.338	0.280	-0.35	0.29	2.710	0.023	0.004	0.001
2012	-0.60	0.321	0.556	0.344	0.38	0.32	-0.63	0.049	0.014	0.001

It appears that the values recorded by this indicator *D/E* are quite varied, negative average value recorded in 2012 due to the negative equity recorded by 4 companies listed on BSE. If we remove these values, the average of this indicator should be positive and equal to 0.2451. If we look at the median note, we notice that they are lower and more stable for the period 2010-2012, reducing indebtedness less in 2011. For the indicator *D/TA* we can observe average and median values close without registering negative values in any year. So simply by replacing the denominator with total asset, the values of leverage are more stable without major discrepancies between years and between averages and medians. Also we notice a decrease in debt in 2011. The *D/AE* indicator registers negative values because for some companies we find null values of financial liabilities and negative equity, leading to negative values of economic assets. Eliminating the value of operating liabilities (with suppliers, employees, the state) we observe that the amount of leverage (*LD/E*) decreases in 2010, a sign that these short-term debts, hold a significant share in the first year of analysis in 2010. Otherwise the average values are close to those recorded by the first indicator *D/E*. For the indicator *D/MV* it is observed that the lowest average was obtained in 2010, which shows that there is a much higher value of the market

capitalization compared to the value of equity, explanation being an overestimation of exchange instruments. For 2011 it is also observed a decrease of the indicator compared to the value recorded for the average value of the variable *DAT/CPR*, so we talk about an overvaluation of securities (investments).

As a first conclusion it is noted that for the sample of companies listed on the Bucharest Stock Exchange in the period 2010-2012, the debt is quite high in 2010, due to high values of short-term debt, and in the period 2011-2012 due to an important impact that liabilities also have, not interest free. Differences between the degree of indebtedness calculated as having to the numerator the total debt and the one calculated using only the value of financial liabilities related to equity are quite pronounced in developing countries because in these countries they do not prefer bank debts (responsibilities), medium and long term or banks themselves do not grant these loans easily.

To present a clearer structure of the modalities of financing of companies listed on the Bucharest Stock Exchange in the following table we summarizes the average values of the indicators of financial structure for the period 2010-2012 : Equity / total assets (*E/TA*), long term debt/ total assets (*LD/TA*) and short term debt/ total assets (*SD/TA*).

Table 2. Financing total assets of companies listed in period 2010-2012

Years	Average values of financial structure (%)		
	<i>E/TA</i>	<i>LD/TA</i>	<i>SD/TA</i>
2010	60.3089	10.8705	28.8205
2011	66.1612	10.5543	23.2845
2012	44.4127	10.4675	45.1198

The data presented in Table 2 show that in each year the prevailing financing is the one from own sources, the average value reaching 66.16 % in 2011. If in the first two years of analysis there is a growing preference for funding from own sources in 2012 there is a diminishing of this due to doubling its percentage of the operating obligations in total assets. So in 2012 it is preferred the short-term financing in the detriment of financing from own funds. Medium and long-term indebtness, in average covers 10% of the total assets of listed companies.

The obtained results show that companies listed on the Bucharest Stock Exchange respect the theory of hierarchy of financing funds. The main source of financing of the asset remains its own sources. Thus over 68 % of companies are turning to their sources in a proportion greater than 50 %. The hierarchy theory of financing funds of capital demonstrates that companies prefer to reinvest profit installment to be their main source of financing on investments and second place it is opting for indebtness (*Myers and Majluf, 1984*). According to this theory, profitable firms rely mainly on reported profits to finance the investments and they finance their activities based on the current debts.

Although priority is internal financing, companies also prefer foreign financing - trade and bank credits. It is considered that external financing is more risky given the fluctuations in the results recorded at the end of the three years of analysis. Thus the vast majority of companies have registered fluctuations in terms of profits or losses. Given these results, the creditors have not provided anymore long-term loans easily.

Third place regarding financing funds note that the approximate 10% preference is for long-term indebtness. Managers consider the appeal to indebtness a positive signal to the market investors. Indebtness provides "confidence" to investors that they have made the best choice. As the debt ratio is higher, the more profitable the company is, and vice versa, in terms of high profitability the company may take a loan so that from the own and borrowed sources to fund profitable investments projects. The result demonstrates the company's managers desire to fund projects by calling loans; the money thus obtained being used optimally to maximize the shareholders performance. According to this result, if the banks will want to lend money, they will study the feasibility of the projects that they would want to fund, before offering the loan. An underperforming firm may have a low market value, but managers will be able to demonstrate that, in fact, their company is undervalued when they would turn to indebtness and they would be able to support debt service. Knowing that in case of wrong signals managers will incur surcharges; investors will

have good reasons to believe that the company's situation is much better.

We believe that if a company obtains sufficient incomes by calling short-term indebtness to be able to cover its expenses, it can benefit from the tax savings associated with indebtness; it can be a company that gets a good level of profitability. According to *Champion (1999)*, short-term indebtness is a way to improve the firm's performance as short-term indebtness is cheaper than the long term one.

5. Conclusions

This research aims to examine the relationship that is established between degree of leverage of company for a sample of 53 companies listed on the Bucharest Stock Exchange, in 2010-2012. The results of the analysis demonstrate that it is preferred financing from own funds. This conclusion supports the Pecking Order Theory, according to which profitable companies are less leveraged, because they use internal resources to finance their investment projects and not debts. In terms of Asymmetry of Information the company prefers to begin to finance their investment projects initially from own sources, then from debts and only ultimately from the issue of shares, because a new issue generates a beneficiary rate decrease.

Equilibrium Theory developed by Modigliani and Miller in 1963 is positioning indebted companies into an advantage contrary to the unlevered companies. *Miller (1977)* argues that the tax savings generated by indebtness are lost as debts increase.

Ross (1977), by the signal theory provides a new explanation for the preference of companies to use debt as a means of financing. Through debt companies transmit signals to investors in market, signals regarding risk and profitability. The model has however a weakness, for although the manager's remuneration depends on signals provided to market investors, the current investors will be able to provide hidden incentives to managers for them to make greater use of debt, to send a wrong signal from which will benefit the current shareholders as increased levers implies an increase of their property .

Jensen (1976) believes that an increase of debt will cause shareholders to profit from creditors. Conflicts of interest between shareholders and creditors are considered indirect costs of bankruptcy. These conflicts are rooted in the behavior of shareholders of desiring to maximize personal wealth, objective not always consistent with the objective of maximizing the total value of the company, which includes the amount of debt. Experienced creditors may foresee such behavior and they will act by changing interest rates or by concluding some contracts, agreements specifying

priority right of creditors or the maximum amount that can be distributed as dividends.

Financing through debts arises as a way to reduce agency costs, due to the conflict situation between shareholders and managers, financing by the indebtedness call reducing the cash flow available to managers, which explains why companies in economic sectors characterized by reduced opportunities of growth and significant cash -flows tend to have high rates of levers.

Also increasing leverage determinates appearance of agency costs between shareholders and creditors, conflict due to moral hazard: increasing of the degree of indebtedness leads to motivate shareholders to compel managers to conduct risky projects, a phenomenon known as the problem of substitution projects. The company wants to take a loan to finance sure projects, benefiting from low interest rates and the funds thus obtained are used to finance risky projects from which benefit only the shareholders, and in case of failure it will generate losses to the creditors.

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