CAPITAL STRUCTURE ON ROMANIAN LISTED COMPANIES – A POST CRISIS INSIGHT

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Abstract

There are a number of studies performed using Romanian companies' samples that have tested the capital structure theories. Most of them evaluated the relation between leverage ratios and companies' financial indicators in periods including years of financial crisis. With negative economic effects fading out of the Romanian economy, it is considered that a new positive economic cycle has started as in 2017 the total number of jobs in economy exceded the pre-crisis values. This paper aims to indicate how the dynamic of capital structure of Romanian listed company changed during a post-crisis time period, as companies' financial indicators have shown consistent improvements.

Keywords: Capital structure, post-crisis, performance, listed companies, leverage

JEL classification: G32

1. Introduction

The subject of capital structure has been given growing attention lately in Romanian corporate finance's studies. As the macroeconomic indicators are starting to resemble more and more to the ones of fully developed economies, information about capital structure of Romanian companies can be more precisely obtained through empirical analysis.

Most of them tested *pecking order theory* concluding that this is valid for Romania, in line with results obtain in studies over other developing economies.

However, older studies which used samples covering years of financial crisis (circa. 2008-2011) have the flaw of inconsistency. Trying to

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include a sample of companies with financial indicators observed over periods with different economic enviroment can distort the empirical results.

This study tries to empirically test the dependence of capital structure to some financial indicators of companies. By evaluating the relation between the capital structure and some financial indicators over the 2013-2015 period it is expected to conclude over patterns of financing behavior for a sample of Romanian listed companies.

As many studies indicate, Romanian companies prefer self-financing when the level of rentability is sufficient, and only tend to borrow from external sources when low financial performance occures.

As far as other financial indicators are concerned, past results on Romanian companies' have not shown clear results. Expectations for emerging markets were that size and market to book ratio of shares to be favourable factors for eligibility for borrowings.

2. Literature review

Recent studies on capital structure using Romanian companies' samples investigated various factors in determining how the equity-debt ratio is structured. Among those possible determinants there were tested as explanatory variables different performance indicators (return on equity, return on assets etc), size, tangibility of assets, liquidity, business growth, market-to-book ratio, earnings per share, taxation or risk related variables, inflation, management related variables etc.

Sumedrea (2015) tested a number of variables using data on 66 BSE-listed[3] companies on crisis-marked 2009-2011 period and confirmed *pecking order theory*. The paper found only performance (return on equity) and size determinant (turnover) as variables influencing capital structure. Performant companies tended to borrow less, while bigger companies had a higher level of indebtedness during the years of financial turmoil. Another important aspect underlined in the paper is that of the increasing commercial credit generated by the reluctance of banks to lend because of high market risk.

Serghiescu and Văidean (2014) also analysed a sample of 20 BSE-listed companies operating in construction sector with data covering crisis years 2009-2011. Profitability and lichidity negatively influenced the total debt ratio of Romanian companies, confirming the pecking order theory.

Tangibility also had a negative impact on the level of indebtedness, confirming previous studies where this indicator was found negatively influencing debt level in emerging markets. Size was found to be a positively determinant as in previous mentioned paper work.

It can be resumed that both above-mentioned studies found the profitability as the most important determinant and negatively correlated with debt ratio. Moreover, size was the second most important and found to positively influence the level of debt of a company during crisis period.

Analysing a sample of 196 Romanian companies listed on Bucharest Stock Exchange and operating in manufacturing sector over an eight-year period (2003-2010), Vătavu (2015) found that the most profitable companies were those with a lower debt ratio. Total debt and short term debt variables had a negative relationships with both return on equity and assets.

Țaga and Stanică (2016) gathered a sample of 27 Romanian listed companies to test the dependence of capital structure and different firms' financial indicators, considering 2006-2014 as observed period. Performance indicator was most significant and negatively dependent on debt ratio, in line with pecking order theory. Size variable also confirmed past findings, larger firms having higher level of indebtedness.

In a study using Romanian companies listed on Bucharest Stock Exchange and a sample of companies from Eastern-Europe countries, Țaga (2015) found in both cases that during years of financial crisis, between 2009 and 2012, the coefficient of performance became positive when regressed against capital structure proxy variable. This was in sharp contrast with the perfomance coeficient during the period before 2009 and after 2012, when pecking order theory was empirically validated.

Moscu (2014) also analysed capital structure-profitability relation for a sample of 53 listed companies on BSE over 2010-2012 period. Empirical results have shown that performance of company, proxied by return on assets, is negatively influenced by the degree of capital structure expressed as total debt over equity ratio. This supports same theory according to which profitable companies borrow less, using internal resources to finance their investments. The order of finance is own resources first, debt issue second and only as a last resort, shares issuing.

3. Data sample and methodology

In order to determine which financial indicator has statistical significance in explaining capital structure variations, liniar regression ecuations were computed. Because of the shortness of the observed period (only four years) and dealing with annual observation frequence, a panel data model was consider suitable for the empirical analysis. This method is using time and cross sectional data series, which makes it possible for a higher number of observations to be included in the regression.

Along with the quantitative approach, a descriptive analysis was used in trying to explain the assumptions made.

Data was collected from a sample of Romanian companies listed on Bucharest Stock Exchange. The collection was done on a yearly frequence starting with 2011 and ending 2015, the last year completely available in financial reports.

Financial data included in the empirical analysis has been extracted from the companies' financial reportings based on listing requirements. Stock exchange-based financial reportings constituted as a primary source, while secondary sources were used where necessary.

The gross sample included a large number of companies listed on different categories. It was decided to refine the sample in order to make it a panel balanced sample, meaning all companies should have reported values for all indicators for all the years. This measure is opted for in order to increase statistical significancy. Moreover, banks, financial companies, mutual funds/nominee/trusts, foundations, research institutes and other types of financial companies have been excluded. These kind of companies have different reporting standards and their financial indicators may bias the intended empirical analysis.

Another important criteria in selecting companies in the final sample has been the reporting of financial data over the observed period. Only companies with complete reported financial data has been selected. Analysing the sample it has been concluded that only 2013-2015 years contain complete financial reportings on indicators useful in the empirical tests. This is probably due to the changes implemented starting with 2012 on the Romanian financial accounting standards.

The final sample included in the empirical analysis contains 95 companies traded on all categories of the Bucharest Stock Exchange with data selected over 2013-2015 period.

In order to empirically test the relation between capital structure and the its determinants it was necessary to build the dependent variable and the independent variables. Each variable has been proxied by a financial indicator or formula as indicated below:

Capital structure:

Total debt ratio = (Current Liabilities + Non-Curr. Liabilities) / Shareholder funds,

Short term debt ratio = Current Liabilities / Shareholder funds,

Long term debt ratio = Non-Current Liabilities / Shareholder funds,

where "*current/non-current*" accounts for debt with exigibility at less/more than one year;

Performance (Profitability) was proxied by using two formulas:

Return on assets = Operating EBIT / Total Assets,

Return on equity = Operating EBIT / Shareholder funds,

Size of the company (values has been stationarized by applying logarythm):

Size = log (Operating Turnover),

Taxation variable has been extrated from the financial reports as the amount declared by the company as paid over a fiscal year. Values has been stationarized by applying logarythm.

Market-to-book ratio: Price of the share / Book value of the share, both in values at year end.

Performance, size, taxation and market-to-book ratio are the independent variables and the capital structure is considered dependent variable in the model.

Independent variables' coeficients were estimated using *panel least squares* in Eviews 8.1 software.

The basic regression we estimate is:

Leverage [Firm i] = $\alpha + \beta_1$ Return on equity$_i + \beta_2$ log Turnover$_i + \beta_3$ log Taxation$_i + \beta_4$ log Market to book Ratio$_i + \varepsilon_i$.

4. Main findings

Before seting the regression analysis, descriptive statistics and multicollinearity are performed. For the case of multicollinearity problem, correlations between independent variables are executed.

According to Lewis-Beck (1993), the correlations must be smaller than 0.8 not to face multicollinearity problem in multiple regression analysis. As Table 1 shows, there is no correlation coefficient larger than 0.8.

Exceptions are met in cases of performance and capital structure variables for evident reasons. Those variables will not be used in the same regressions anyway.

Table 1: Correlation matrix

	D_TOTAL	D_SHORT	D_LONG	ROA	ROE	SIZE	TAX	MTBV
D_TOTAL	1.00	0.96	0.65	0.13	0.50	0.40	0.11	0.01
D_SHORT	0.96	1.00	0.41	0.08	0.43	0.34	0.03	0.03
D_LONG	0.65	0.41	1.00	0.18	0.46	0.38	0.29	-0.04
ROA	0.13	0.08	0.18	1.00	0.89	0.27	0.42	0.44
ROE	0.50	0.43	0.46	0.89	1.00	0.34	0.40	0.35
SIZE	0.40	0.34	0.38	0.27	0.34	1.00	0.71	0.06
TAX	0.11	0.03	0.29	0.42	0.40	0.71	1.00	0.15
MTBV	0.01	0.03	-0.04	0.44	0.35	0.06	0.15	1.00

Source: own calculations in Eviews 8.1

Performance variables (ROE and ROA) are positively correlated with the leverage variables. This is contrary to expectations of pecking order theory. Romanian companies being expected to borrow less when profitable.

Signficant positive correlation is recorded between taxation and performance indicators. This is natural taking into account that profitable companies pay more taxes.

Market-to-book is also positively correlated with performance indicators, indicating that price of shares rise when companies recorded good operating results. Important correlation is read between size and leverage ratios, indicating that larger companies borrow easier and more.

Table 2 shows the descriptive statistics for the variables.

Table 2: Descriptive statistics

	D_TOTAL	D_SHORT	D_LONG	ROA	ROE	SIZE	TAX	MTBV
Mean	0.50	0.36	0.14	0.06	0.09	8.77	3.96	0.64
Median	0.30	0.22	0.05	0.04	0.06	8.84	3.80	0.48
Maximum	5.31	4.12	1.24	0.30	0.49	13.40	10.17	3.41
Minimum	0.01	0.01	0.00	-0.07	-0.12	3.69	-1.50	0.03
Std. Dev.	0.64	0.54	0.20	0.06	0.10	1.93	2.12	0.54
Obs.	285							

Source: own calculations in Eviews 8.1

As shown in the table, mean value for total debt ratio is exactly 0.50, which means that, on average, debt is half the value of the shareholder funds, As somehow expected for an emerging market country and taking into account the size, companies finance themselves more through equity than they do it by borrowing. Median value for debt ratio/capital structure is 0.30, meaning that aproximately half of the companies have a leverage ratio smaller than 0.30.

When looking at how the debt is structured, it can be observed that short debt is the main component. Median value for long term debt ratio (0.05) is very low, showing that companies hardly borrow funds on terms longer than one year.

Next, panel least squares method has been applied in order to estimate the coefficients of the variables.

Table 3 – Estimations results

Variable	Panel: 2013:2015 (95 companies)			Panel total debt yearly (95 companies)		
	Total Debt	Short Term Debt	Long term-debt	2013	2014	2015
ROA	1.39** (0.17)	0.92 (0.57)	0.46** (0.21)	3.17** (1.29)	0.54 (1.37)	0.86 (1.07)
Size	0.21*** (0.02)	0.17*** (0.02)	0.03*** (0.00)	0.23*** (0.04)	0.19*** (0.04)	0.21*** (0.03)
Taxation	-0.12*** (0.02)	-0.12*** (0.02)	0,00 (0.00)	-0.13*** (0.04)	-0.08* (0.04)	-0.13*** (0.03)
Market to book	-0.03 (0.07)	0.01 (0.05)	-0.04** (0.02)	-0.16 (0.15)	0.03 (0.12)	-0.00 (0.10)
Number of obs.	285	285	285	95	95	95
R^2	0.22	0.21	0.16	0.27	0.18	0.27

F-stat	20.70	18.98	13.53	8.33	4.95	8.33
(Prob)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

*, **, and ***, significant at 10, 5 and 1 percent level, respectively.
Source: own estimations

The main finding included in Table 3 is that of the positive dependence between profitability and debt over equity ratio. This is valid for total debt and long term debt, practically meaning that performant companies tend to borrow more. This is contrary to the findings of the previous studies which have validated pecking order theory. However, short term debt coefficient was not statistically significant.

Size's coefficients have been found positive and statistically significant over all regressions. This supports past studies which found that the larger the companies is, the easier is for it to borrow external funds. The size of the company may contribute in reducing information assymetry when crediting.

Taxation's coefficient is statistically significant only for total debt and short term debt's equations. The dependence with the capital structure is inverse, meaning that the higher is the tax amount paid by the company, the lower is the level of indebtedness. This could be linked with the trade-off theory stating that companies borrow more to reduce the fiscal burden. Indebted companies may have higher financial expenses, thus reducing their final amount owned for taxation purposes.

Regarding market to book ratio, its coefficient was found statistically significant ony for the case of long term. Negative dependence indicated by the estimation may be in line with the statements of market timing theory. When price of the shares rises, companies issue more equity, financing itself on the capital market. This reduces the debt over equity ratio. Inversely, when prices of the shares are lower, company management may decide to contract credits or bonds in order to reduce its market capitalisation in favourable terms.

R-squared values are highest for the total debt ratio estimation. Independent variables explain around 22 percent of the dependent variable variation. This is an indication that more variables could be included in the analysis

5. Conclusions

This final section of the paper summerizes and reviews previous findings regarding capital structure. The aim of the study was that of examining possible relationships between the leverage and determinants from the companies' financial indicators. The research has been conducted using a sample of 95 listed Romanian firms on Bucharest Stock Exchange for a time period from 2013 to 2015.

Capital structure has been analysed considering total debt ratio, short term ratio and long term ratio.

When total debt ratio is used as a dependent variable the results are more significant. However, the most important variable is still return on assets but the relation is positive. This is contrary to previous findings using Romanian companies's samples. This change may be caused by the period observed in the paper. The distance from the moment of financial crisis, easier access to external financing and a fast-growing economy may constitute in reasons for this change

Size of company was confirmed as an variable postively influencing the level of indebtednes. The majority of past findings found the size of the company as an very important factor in external financing exigibility. The larger the turnover, the higher the level of debt-to-equity will be.

While performance has been found as positively dependent on the debt ratio, taxation was not. This divergence may rise some questions marks, as it was expected that a larger amount of taxes paid should occur on more profitable companies. This inverse dependency may be explained by the fact that highly indebted companies face large financial expenses, reducing the fiscal burden. The different sign on performance estimator may be caused by the chosen indicator. EBIT is a operating financial indicator and does not include the financial expenses.

Limitations on this study should be firstly linked with the eliminations of the companies with incomplete reportings. Cutting out the sample by this criteria could influence the final result. Further researches could use an imbalanced panel data series. Moreover, other variables could be included in the study. Tangibility of assets and volatility/risk variables could offer more statistically relevant findings. Another improvement could be considering shareholder funds at market value, when determining the leverage.

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