

Duca, Florinita

**Article**

## What Determines the Capital Structure of Listed Firms in Romania

CES Working Papers

**Provided in Cooperation with:**

Centre for European Studies, Alexandru Ioan Cuza University

*Suggested Citation:* Duca, Florinita (2012) : What Determines the Capital Structure of Listed Firms in Romania, CES Working Papers, ISSN 2067-7693, Alexandru Ioan Cuza University of Iasi, Centre for European Studies, Iasi, Vol. 4, Iss. 3a, pp. 523-531

This Version is available at:

<https://hdl.handle.net/10419/198196>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>

# WHAT DETERMINES THE CAPITAL STRUCTURE OF LISTED FIRMS IN ROMANIA

Florinița Duca

The Bucharest University of Economic Studies, București, România  
florinitaduca@yahoo.com

**Abstract:** *This paper examines the relative importance of four factors in the capital structure decisions of Romanian listed firms. The existing empirical research on capital structure has been largely confined to developed countries. The Romanian Financial Market has been developing at an exponential rate and dedicated research in the field is required. We used 100 firms listed in 2010 at the Bucharest Stock Exchange. The objective of this paper is to build on previous studies model all the important factors affecting capital structure decisions. We find that factors such as tangibility of assets, firm size, liquidity, and profitability have significant influences on the leverage structure chosen by firms.*

*These results are believed to have significant implications for the theory of finance and to be of importance to the corporate treasure in choice of new financing and to the financial analyst.*

**Keywords:** Profitability, firm size, leverage, total assets turnover

**JEL Classification:** C10, G10, G30

## INTRODUCTION

Over the past several decades, theories on a firm's capital structure choice have evolved in many directions. But what are the factors that affect the firm's financing decisions? Researchers in the corporate finance area have devoted extensive time and effort to ascertain the answer to this important research question through theoretical and empirical means. Several researchers have investigated the determinants of the capital structure. However, there is still no unifying theory regarding capital structure, even after decades of serious research, which leaves the topic open for further research. The choice of capital structure for firms is one of the most fundamental premises of the financial framework of a corporate entity. The method, by which public corporations finance their assets, set up their ownership structure and influence whether their corporate governance is of a high standard. We examine 100 listed firms in Romania and test a range of hypotheses to determine which factors affect the capital structure decisions. We have found strong correlations between leverage and tangibility of assets, firm size, liquidity, and profitability.

## 1. LITERATURE REVIEW

We briefly review the literature on the determinants of capital structure. For the sake of brevity we have not presented reviews of highly cited studies of capital structure that are not explicitly related to the emerging economies. Modigliani and Miller presented behavioural approach and the modern concept of capital structure in their paper published in 1958. Corporate finance literature reveals that some researchers describe capital structure in narrow sense so as to include only long term financial instruments in its composition (Psillaki, 2009). According to Devic and Krstic (2001) “Capital structure is expressed as ratio of long term liabilities to the sum of long term liabilities and firms equity”. “Capital structure is described as long term debt divided by total assets” (Omet, 2008; Delcoure, 2007).

Farhat et al. (2009) test the trade-off and the pecking order models under a range of institutional environments. They find that civil law countries follow the pecking order model and rely more on internally generated funds. Based on the empirical results, they believe the common law countries follow the trade-off theory.

In a recent paper De Jong et al. (2008) analysed the importance of firm specific and country specific factors in the leverage choice of firms across 42 countries. They found that firm specific determinants differ across countries whereas earlier studies suggested that the determinants have an equal impact. They also looked at direct country specific determinants like capital formation, rule of law, stock market development, bond market development, etc. They found positive relationships between tangibility, liquidity and leverage. They also found non-significant inverse relationships between leverage and size, profitability, tax and risk. One of the possible reasons why they did not have strong results for India was because they had only 226 observations.

Jensen and Meckling (1976), Easterbrook (1984), and Jensen (1986) suggest a positive relationship between leverage and profitability. In contrast, the pecking order theory suggests that more profitable firms should be less leveraged because they should prefer raising capital from retained earnings first, before turning to debt, and lastly to new equity. The empirical evidence on this hypothesis is ambiguous. Our measure of profitability is the return on assets (ROA), measured as the operating income over total assets.

Feidakis and Rovolis (2007) analyzed capital structure determinants for large European construction firms from 1996-2004. Despite important cross-country differences, the authors found size and profitability to be positively and negatively related to leverage, respectively.

## **Benefits of the study**

There are several benefits from the study of determinants of capital structure for listed companies in Romania. First, this study will show the determinants of capital structure of listed companies by using the ratio of total debt to total assets as a proxy for leverage. Next, this study will supply evidence whether factors identified by previous studies are the same as the ones found to be determinants of capital structure of listed companies in Romania.

## **2. MODEL AND VARIABLES**

### **The model**

The study uses various sources that have been used for data collection. The book value based yearly financial data from 2010 has been collected from the financial statements. Leverage is the dependent variable while size, profitability, tangibility, liquidity are selected as independent variables.

The study tried to find the answers of the following research questions

- What are the major determinants of capital structure?
- What are the variables which have major effect on the leverage of the firm?

All financial data is nominated in terms of Romanian coin. The basic estimation strategy is to pool the observations across firms and apply the regression analysis on the pooled sample. That is, a pooled OLS (POLS) equation will be estimated in the form of:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu \quad (1), \text{ Where;}$$

- Y represents Leverage.
- X1 represents Liquidity
- X2 represents Profitability
- X3 represents Size
- X4 represents Tangibility
- $\mu_{it}$  = Error term.

### **Variables**

#### ***Leverage***

As it can be seen in the literature, various definitions of leverage exist. All these characterizations of leverage revolve around some form of debt ratio. The definitions depend on whether market value or book values are used. In addition, definitions also depend on whether short

term debt, long-term debt or total debt is used. Firms have several types of assets and liabilities and there can be further adjustments made to the definition. Leverage: Represents the value of debt divided by book value of total asset.

### ***Liquidity***

Firms prefer internal financing to external financing. Therefore, firms are likely to create liquid reserves from retained earnings. If the liquid assets are sufficient to finance the investments, firms will have no need to raise external funds. Hence, liquidity is expected to be negatively related to leverage. Here we use the current ratio (calculated as current assets over current liabilities) as a proxy of liquidity. Firms with higher liquidity ratios are preferred to acquire more debt because of great ability to meet short term obligations (Ozkan, 2001).

**Hypothesis 1:** There is a negative relationship between leverage and liquidity of the firm

### ***Profitability***

Theoretical predictions yield no consistent conclusions for the correlation between profitability and leverage.

Trade-off models argue that profitable firms have greater needs to shield income from corporate tax and should borrow more than less profitable firms. While pecking order theory suggests an inverse relationship between profitability and the level of debt. Firms are assumed to prefer internal financing to external financing in a pecking order framework. This preference leads firms to use retained earnings first as investment funds and move to external financing only when retained earnings are insufficient.

Hypothesis 2: There is positive relationship between leverage and profitability of the firm.

### ***Size***

Size is considered a key factor that can influence the financial structure of the firm. Firm size has been suggested to be an important variable related to the leverage ratios of the firm. It is also argued that relatively large firms tend to be more diversified and thereby less prone to bankruptcy. Shah A (2005), and Rajan and Zingales (1995), suggested the negative relationship between size and leverage of the firm. While there are many different proxies for size, in this study, the natural logarithm total assets of the firm is used.

**Hypothesis 3: There is positive relationship between size and leverage of the firm**

### ***Tangibility of asset***

Theories generally state that tangibility is positively related to leverage. Since the tangible assets can be used as collateral in external borrowing, the presence of a large fraction of tangible assets of a firm help to get bank loans at a lower interest rate and it also helps to reduce the risk the

lender suffering from the agency cost of debt. Negative relationships have been reported between leverage and fixed assets in small and medium firms (Daskalakis and Psillaki, 2009) and in less developed economies (Joever, 2006). The proxy used in this study to measure the value of tangible assets of the company is the ratio of fixed assets to total assets.

**Hypothesis 4:** There is negative relationship between leverage and tangibility of assets of the firm

### 3. EMPIRICAL RESULTS

#### Descriptive Statistics

**Table 1 - Descriptive Statistics**

	LEVERAGE	LIQUIDITY	ROA	SIZE	TANGIBILITY
Mean	0.2862	4.1124	0.0524	17.2690	0.5541
Median	0.2232	1.9966	0.02407	17.4433	0.5391
Maximum	0.9312	24.8757	0.5716	23.3589	1.5972
Minimum	0.0086	-5.2860	0.0080	11.0559	0.0748
Std. Dev.	0.2165	5.4886	0.0853	1.9483	0.2344

The table above shows the descriptive statistics for the dependent variable and independent variables from among the companies listed at Bucharest Stock Exchange. The descriptive statistics show how the companies listed at the Bucharest Stock Exchange characterized or vary in term of size, profitability, liquidity and assets tangibility. The average value of leverage is approximately 0.28 and there are high variations of independent variables among the companies.

#### Regression Model Results

Table 2 presents the results of pooled regression analysis, the OLS method. The model explains almost 42 % of variation in leverage, with significant F-statistic. So, this means that the choice of capital structure is mainly defined by these four variables, more definitely by two variable- liquidity and tangibility.

**Table 2 - Results of regression analysis**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIQUIDITY	-0.0238	0.0034	-6.8674	0.0000
ROA	0.1184	0.2121	0.5583	0.5779
SIZE	0.0096	0.0097	0.9987	0.3204
TANGIBILITY	-0.3016	0.0799	-3.7711	0.0003
C	0.3781	0.1946	1.9423	0.0551

Table 2 shows that p-value of ROA is 0.5779. So, the coefficient of ROA implies that it is statistically significant at the 57.79 percent level. As can be seen, the coefficients of tangibility are statistically highly significant for leverage, but the results show that tangibility has a negative relationship with debt. The results reveal that size is an insignificant determinant of leverage, but while size is positively correlated with debt ratio. Thus, we can say that based on p-values, in our model for listed companies, just liquidity and tangibility assets are statistically significant, all the other determinants are statistically insignificant. This is verified also by t-statistics. Results in Table 2 show that t-statistics for parameters estimated are lower than 2 in absolute values, except liquidity and tangibility asset at companies. This is in conformity with the rule of thumb for using t-statistic which declares that if the absolute value of a t-statistic is greater than or equal to 2, then the corresponding parameter estimate is statistically different from zero.

### Examination of corelation

A correlation analysis was performed to verify a possible association between and among the variables, in order to test whether there is any linear correlation between and among the variables. Collinearity explains the dependence of one variable to other. When variables are highly correlated they both express essentially the same information. The highest correlation between liquidity and tangibility asset of 34% is negative, the second highest (26.95%) between ROA and tangibility asset is also negative.

**Table 3 - Correlation Matrix of Independent Variables**

	LEVERAGE	LIQUIDITY	ROA	SIZE	TANGIBILITY
LEVERAGE	1.0000				
LIQUIDITY	-0.5468	1.0000			
ROA	0.0935	0.0407	1.0000		
SIZE	0.3118	-0.3463	-0.1895	1.0000	
TANGIBILITY	-0.1845	-0.2658	-0.2695	-0.0728	1.0000

## 4. DISCUSSION

Profitability/ROA is positive correlated with leverage (0.1184; Table 2) but it is statistically insignificant. The results reject any significant relationship between leverage and profitability. This suggests that leverage does depend upon profitability of firm.

The results of regression model indicate that the variable liquidity with the negative coefficient value  $-0.0238$  (Table 2) is statistically significant at 1% level. Therefore, companies

with high liquidity ratios or more liquid assets preferred to utilize these assets to finance their investments and discourage to raise external funds.

Table 2 reports that the beta value of explanatory variable tangibility of assets is 0.3016 with the negative coefficient sign. This negative relationship shows that companies with large portion of fixed assets discourage to employ debt capital. A possible explanation is that firms with lots of tangible assets may have already found a stable source of return which provides them more internally generated funds and discourage them from turning to external financing. These results also confirmed with results of empirical studies for developing countries whereas studies for developed countries exhibit a positive relationship.

Theoretical expectation about the relationship of size and leverage, on the other hand, is ambiguous. Empirical studies experienced mainly positive relationships. Size was found to have positive relationships with the leverage of companies in this study. The sign of the coefficient confirms the direction of our relationship of size with the degree of indebtedness i.e. leverage.

## CONCLUSIONS

Through this study, we analyzed a sample of 100 Romanian firms by using a pooled regression model to measure the determinants of capital structure of the firms. We have selected four independent variables with purpose to see their effect on capital structure. In the analysis, we have found the affect of liquidity, profitability, size and tangibility (all are independent variables) on the leverage (dependent variables) position of the company. With the help of regression, we found that only two characteristics - liquidity and tangibility of assets determine the capital structure of companies. We have found that liquidity and tangibility have the negative relationship and profitability and size have the positive relationship with the leverage. However, the results for size and profitability are not statistically significant. Based on this we are not in a position to conclude that size and profitability have the negative or positive relationship with leverage due to their insignificant results so we reject our hypothesis related with the size and profitability.

We believe that companies with lower level of tangible assets are more subject to information asymmetry problems, and consequently, more willing to use debts to finance their activities. Profitability/ROA and size were confirmed not to have effect in capital structures decisions for Romanian listed companies.



## REFERENCES

- Delcours, N. (2007) *The determinants of capital structure in transitional economies*, International Review of Economics and Finance.
- Devic, B., Krstic, B. (2001) *Comparatible Analysis of the Capital Structure in Polish and Hungarian Enterprisesempirical Study* , Journal of Economics and Organization Vol. 1, pp. 85 – 100.
- Easterbrook, F. (1984) *Two-agency cost explanations of dividends*, American Economic Review, vol. 74.
- Farhat J., Cotei C., Abugri B. (2006) *The Pecking Order Hypothesis vs. the Static Trade-off under Different Institutional Environments*, Working paper.
- Feidakis, A., Rovolis A. (2007) *Capital Structure Choice in European Union: evidence from the construction industry*, Applied Financial Economics, vol. 17, pp. 989-1002.
- Jensen, M., (1986) *Agency costs of free cash flow, corporate finance, and takeover*, American Economic Review.
- Jensen, M., Meckling, W. (1984) *Theory of the firm: Managerial behaviour, Agency costs and ownership structure*, Journal of Financial Economics.
- Jong A., Kabir R., Nguyen T. (2008) *Capital Structure Around the World: The roles of firm- and country-specific determinants*, Journal of Banking & Finance, Vol. 32.
- Joever, K., (2006) *Sources of capital structure: evidence from transition countries*, Center for Economic Research and Graduate Education, Academy of Sciences of the Czech Republic Economics Institute, Working Paper Series, Available at SSRN: <http://ssrn.com/abstract=1130306> or <http://dx.doi.org/10.2139/ssrn.1130306>.
- Modigliani F., Miller M. (1958) *The Cost of Capital, Corporation Finance and the Theory of Investment*, The American Economic Review.
- Omet G.S. (2008) *The Capital Structure in Stable and Extremely Unstable Political and Economic Environments*, Second Singapore International Conference on Finance, Available at SSRN: <http://ssrn.com/abstract=1083082> or <http://dx.doi.org/10.2139/ssrn.1083082>.
- Ozkan, A. (2001), *Determinants of Capital Structure and Adjustment to Long Run Target: Evidence from UK Company Panel Data*, Journal of Business Finance & Accounting, developed economies.
- Psillaki, M., Daskalakis, D. (2009) *Are the Determinants of Capital Structure Country or Firm Specific? Evidence from SMEs*, Working Paper.

Rajan, R.G., Zingales, L. (1995) *What do we know about capital structure? Some evidence from international data*, Journal of Finance.

Shah, A., Hijazi S. (2005) *The Determinants of Capital Structure in Pakistani Listed Non-Financial Firms*, presented at 20<sup>th</sup> AGM & Conference of Pak Society of Development Economics.

\*\*\*www.bvb.ro.