# Impact of the financing decision on the company's value

**Name : Pîrlog I. Mihaela**

## ABSTRACT

For decades, specialized researchers have studied the capital structure and had different opinions on the positive or negative impact of the capital structure on the company value. A large part of the literature on this subject begins with the theory of Modigliani and Miller in 1958. Subsequently, several researchers have supported or have not agreed with their statements. The purpose of this paper is to assess whether the increase in companies' degree of indebtness will negatively or positively influence their value. The company's indebtness being measured by the financial leverage, the degree of indebtness and the share of long-term debts in total assets, and the value of the company was represented by the growth in market capitalization, PER, ROE, ROA, MBV (market to book value) and Tobin's Q ratio.

According to the results obtained in this paper, of the six variables which determine the value, only five were correlated positively or negatively with the companies' degree of indebtness. PER variable, has not obtained a statistically significant correlation with the variables of the degree of indebtness. In most of the results obtained there was an inverse relationship between the degree of indebtness and the company's value, excluding the positive influences of: the financial leverage on the market capitalization growth.

## 1. Introduction

In order to cope with the competitive environment in which they operate, companies must develop , thus increasing their value. To be able to do so, it is important for the companies to know how the investment financing will affect their value, in order to be able to take the best decisions.

The capital structure is a mix of debts and equity capital maintained by a company. The capital structure is referred to as being the financial structure of a company and it is very important, because it is related with the company's ability to meet the needs of the stakeholders.

The aim of this dissertation paper is to analyze the relationship between the degree of indebtness and the value of the companies listed on the Bucharest Stock Exchange. The main question of this paper is the following: ***How does the indebtness affect the Romanian companies belonging to the energy sector?***

The company value will vary depending on the stakeholders. This may be different for the shareholders, managers, and investors. Using traditional methods based on the profit and loss account and the balance sheet of the company, we can find out the company book value expressed by profitability of the equity capital and return on assets. To be more specific, the profit obtained by the shareholders following their investment in equity capital or in company assets. Including the market's impact as well, we get the market value expressed through market capitalization. This measures not only the value of a company on the free market, but also the market perception towards its prospects for the future, because it reflects what investors are willing to pay for its shares. And if we combine the accounting results and the market impact we get Tobin's Q ratio (the ratio between the market value of the company and the replacement cost of the capital), MBV (the value which the market places on the book value of a company) and PER (shows the time of return on investment through profit ).

In an attempt to maximize the company value, and, therefore, shareholders' wealth, companies are using internal and external funds for the financing of their investment projects, Internal Funds being, mainly, represented by the result reported and non-cash expenses. External funds may relate, mainly, to the income from issuing new debts and new equity capital.

According to the results obtained we can conclude that, of the six variables which determine the value, only five were positively or negatively correlated with the companies' degree of indebtness. The PER variable, has not obtained a statistically significant correlation with the degree of indebtness variables. In most of the results obtained by the variables of the companies that are active on the Romanian market, there has been an inverse relationship between the degree of indebtness and company's value, excluding the positive influencesof: the financial leverage and the ratio between the long-term debts and total assets on the market capitalization growth. As regards the results obtained by the variables of the companies which are active on markets outside Romania, the impact of the degree of indebtness on the value is mixed. More specifically, the financial leverage and the share of the long-term debts in total assets have had negative influences on the market capitalization growth; the degree of indebtness and share of the long-term debts in total assets on ROA. Positive influences: the financial leverage - ROA, the financial leverage and the share of long-term debts in total assets - Tobin' s Q ratio and MBV, the degree of indebtness and share of the long-term debts in total assets - ROE.

## 2. Theories on the capital structure

One of the theories underlying the explosive development that science and the financing practice have registered, is represented by the model of economists Modigliani and Miller (1958), according to which (a model without taxation ) the degree of indebtness does not influence the company's value. After 5 years (1963) they published a second article in which they introduced taxation, and stated that to a degree of indebtness of 100%, the weighted average cost of the capital is minimum, and the company's value is maximum.

According to the theory of compromise[1] (trade-off), an increase in debts has a positive influence on the company's value through taxation (interest deductibility) and a negative influence due to bankruptcy costs.

The agency theory (Jensen and Meckling - 1976) suggests that a method of reducing the agency costs is the financing from borrowed sources. In the case of an indebted enterprise, the high risk of bankruptcy, which can be interpreted as a challenge for managers, will stimulate them to be as performant as possible in increasing the profits and company's value.

The Pecking Order Theory developed by Myers and Majluf in 1984 and by Myers in 1984, predicts that companies prefer to use internal financing when available and choose debt at the expense of equity capital when external funding is required.

## 3. Determinants of the capital structure

In the specialized studies have been identified certain characteristics of the company that influence the capital structure , but in its turn, the capital structure influences the value. Thus, apart from indebtedness, the most important factors which may influence value are: the company size, company age, opportunities for growth, liquidity of assets.

*Liquidity*

As regards the relationship between liquidity and financial leverage, the Pecking Order Theory shows a negative relationship between the two. Deesomsak et al. (2004) [2]shows that the companies which hold more liquid assets will engage less in debts, aspect confirmed also by Janbaz in 2010. [3] At the same time, there can be a positive relationship

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[1] Myers S. C. (2001). *Capital structure.* Journal of Economic Perspectives, 15(2), pp. 81-102.
[2] Deesomsak R. P. et al. (2004). *The Determinants of Capital Structure: Evidence from the Asia Pacific Region*. Journal of Multinational Financial Management 14(4–5), pp. 387-405.
[3] Janbaz M. (2010). *Capital Structure Decisions in the Iranian Corporate Sector*. International Research Journal of Finance and Economics 58, pp. 24-31.

also, starting from the premise that companies which have liquidity, by default, have lower debt costs, which gives them an advantage when borrowing. [4]

*Growth opportunities*

According to the theory of compromise, the debt is subject to the payment of interest, leaving fewer liquid funds for new projects, which makes that the relationship between the economic growth and financial leverage to be negative. [5]

*Size of the company*

Titman and Wessels (1988) argue that large firms are more diversified and are less prone to bankruptcy than smaller businesses. Rajan and Zingales (1995), also claim that there is a positive relationship between the company size and the financial leverage. [6] In accordance with the theory of compromise and the pecking order theory, the large-sized companies proved they have lower risks and bankruptcy costs. The company size is an important determining factor of its performance, being represented by the total assets. Larger companies have a variety of capabilities and can benefit from the economies of scale which are likely to have a positive impact on performance. [7] Shepherd (1986) claims that large firms may exploit market power both in product markets, as well as in factor markets. Williamson claims that large firms have also problems of coordination which adversely affect performance. [8]

*The companies age* is also a determining factor of performance, measured as the number of years from the beginning until the end of the observation, introduced as a control variable. Larger companies can gain experience based on economies based on learning and can avoid new obligations (Stinchcombe, 1965); however, the company age rigidities lead to poorer results (Marshall, 1920).

*The ownership structure* (or, more exactly, State involvement in the company financing). The literature suggests that companies with joint control (by the state and private) do not receive effective control, because neither owners nor the state have enough property to

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[4] Gungoraydinoglu A., Oztekin O. (2011). *Firm- and Country-Level Determinants of Corporate Leverage: Some New International Evidence*. Journal of Corporate Finance 17(5), pp. 1457-1474.
[5] Kayo E. K. and Kimura H. (2011 **)** . *Hierarchical Determinants of Capital Structure*. Journal of Banking & Finance 35(2), pp. 358-371.
[6] Rajan R.G., Zingales L. (1995**)** What *do we know about capital structure? Some evidence from international data*. The Journal of Finance, 50(5), pp. 1421-1460.
[7] Penrose E.T. (1959). *The theory of the growth of the firm*. Oxford: Basil Blackwell.
[8] Majmudar S.K., Chhibber P. (1999). *Capital structure and performance: Evidence from a transition economy on an aspect of corporate governance*. Public Choice 98, pp. 287–305

fully exercise their performance.[9]. Nigel (2009) argues that these companies are experiencing ambiguity and conflicts between the company's objectives to maximize the profit and the non-commercial objectives, such as maximizing the social welfare.

## 4. The Case Study

The period provided for the analysis is 2005-2014 and the total number of companies used is 10. The analysis has been carried out on 10 Romanian companies belonging to the energy sector. In order to make a comparison of the results obtained I have conducted also an analysis on 10 companies in countries similar to Romania from an economic perspective, in the same sector of activity, and for the same time period. The countries similar to Romania chosen for comparison are: Poland, Hungary, Bulgaria, Ukraine, Slovenia and Slovakia. The activity sector chosen is one of timeliness and extreme importance at present, because these resources as it is well-known are not infinite and, at the same time, the conditions in which we live are directly dependent on them. Due to increasing demand, the costs of oil, natural gas and raw materials are increasing, thereby creating a particularly complex environment.

We have used two sources of data for conducting this study. In the first place, from the Reuters database available within AES (Academy of Economic Studies), I have collected the financial indicators of Romanian companies listed on the Bucharest Stock Exchange. Using this database I have collected: the market capitalization, PER , ROA, ROE, the ratio between long-term debts and total assets, total assets, current liquidity, turnover, ownership structure. The main advantage of using this database is the fact that it helped me to reduce the search time. Although this database is a complex one, I have not managed to collect all indicators used in the study, for this reason, the degree of indebtness, the financial leverage, the Tobin's Q ratio and MBV (market to book value) have not been calculated. In order to find out the companies age I have used their official Internet sites.

### 4.1 Analysis of the proposed variables

The use of case studies has become increasingly important, because quantitative techniques are now considered to be an effective aid in solving management problems. [10]

[9] Shleifer A., Vishny R. W. (1997). *A Survey of Corporate Governance*. Journal of Finance, 52(2): pp.737-83.
[10] Richard, I.L. (1992) *Quantitative approaches to management* , 8th edition, McgrawHill Inc. , Singapore

The company value is the key variable of this paper. Basically, when we talk about value we are referring to certain indicators that reflect both the market value, as well as the performance of companies. In this paper I have chosen as dependent variables the market capitalization growth, PER , ROA, ROE, the Tobin's Q ration and MBV (market to book value), and as independent variables I have used the degree of indebtness, the financial leverage and the ration between the long-term debts and total assets.

### 4.4.1 Financial leverage , the degree of indebtness and the share of the long-term debts in total assets

The manner in which a company uses their debts or credits has implications upon it. With the help of raising funds through debts, the shareholders are in a position to maintain control without increasing investments. If a company earns more from an investment financed externally than the interest due, then the shareholders agree with the indebtness. [11] Firer and collaborators (2004) [12]argue that the capital structure is the relative amount of debts and equity capital which a company uses to finance its operational activities. According to the theory of compromise, debts provide the benefit of a tax shield, but also increase the risk of bankruptcy.

Financial leverage refers to the solvency ratios which "addresses the company's long-term ability to meet their obligations." [13]. Financial leverage is usually measured by dividing the book value of the total financial liabilities by the book value of the equity capital.

The degree of indebtness may be represented also by the ratio between the book value of the long-term debts and total assets. The authors Zeitun and Tian (2007), Saeedi and Mahmoodi (2011) have used long-term debts and short-term debts as a measure of indebtedness. They justified their choice by the fact that not only the proportion of indebtness matters, but their maturity can influence the value of companies, as well.

The last indicator used for highlighting indebtness is the degree of indebtness of companies, the latter representing the ratio between book value of the total debts and book value of the total assets.

### 4.1.2. Tobin's Q Ratio, Market to Book Value, PER, Market Capitalization Growth

[11] Ehrhardt, M.C., and Brigham, E.F. (2003) *Corporate Finance – a focused approach.* Mason: Thomson
[12] Firer, C. , Ross, S.A., Westerfield, R.W. and Jordan, B.D. (2004) *Fundamentals of Corporate Finance* , 3rd edition, Berhshire: Mc Graw-Hill , Hill.
[13] Hillier, D., Ross, S., R.W. Westerfield, J. Jaffe, and B. Jordan (2010), *Corporate Finance : European Edition* , McGraw-Hill.

The market value of companies has been measured with the help of market capitalization growth, Tobin's Q ratio, MBV (market to book value) and PER. These indicators are important because in their calculation have been used the market values of the companies, while other alternatives for measuring the value are calculated with book values. In this case, performance is not seen from the perspective of accountants which draw up the financial statements, but instead the market impact is highlighted. Therefore, the market value is more of a "bargain" than an indicator of performance.

Tobin's Q ratio is a mixture of market values and book values : the amount of market value of equity capitals and the book value of total debts divided by the book value of total assets. MBV (market to book value) is a method which allows investors to identify the stocks with low price. This ratio provides also an idea, namely, if an investor pays too much for what he would have obtained if the company were to go bankrupt immediately. The ratio between the market value of equity capital and the book value of total assets is the way of calculating this indicator. PER is a ratio between a company's share price and the net profit per share. PER gives an indication on what the market is willing to pay for a share, based on the future revenues of the company. [14] Market capitalization is only a complicated name for a simple concept. This value is the selling price of the shares multiplied by the total number of shares in circulation.

### 4.1.3 ROE and ROA

Return On Equity (ROE) measures the return on investments resulted following the investment in the company. Since it measures the net profit after taxation / equity capital, all costs, including the cost of debt and the tax, are considered. [15] ROE is, therefore, an important indicator for highlighting a company's performance from the shareholders' perspective. Generally, shareholders continue to invest in a company for as long as they get a good turnover. [16]

Return On Assets (ROA) is an indicator which shows how efficient is a company in relation to its total assets. The method of calculating this indicator is the ratio between the annual earnings of the company and its total assets. ROA provides an idea of how efficient is the management of the company assets for generating income, investors being interested also

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[14] Firer, C. , Ross, S.A., Westerfield, R.W. and Jordan, B.D. (2004) *Fundamentals of Corporate Finance* , 3rd edition, Berhshire: McGraw Hill.
[15] Ibidem 8
[16] Bardia, S.C. (2008) , *Evaluation of Financial Performance : A Dialectics.* Icfai Journal of Accounting Research, 7(1), 36-49.

whether the investment carried out maximizes the value. It is, therefore, an indicator of the operating performance. [17]

### 4.2 The assumptions and the empirical study model

The objective of the present paper is to test the influence of indebtness of the companies in the energy sector on their value. In order to better interpret the results, the relations between the company's characteristics and its value were tested also, but also the effect of companies being financed by the state.

It is assumed that the companies resort to external financing for carrying out new investments which are able to further develop the company, thereby increasing also their value. Therefore, if a company's degree of indebtness increases will affect positively its value as well. This impact of indebtness on the company value is being sustained also by Modigliani and Miller (1963), Jensen and Meckling (1976), Myers (2001).

Hypothesis 1 : Indebtness has a positive influence on the value of companies

State involvement in financing the companies in accordance with Nigel's arguments (2009) adversely affect their value. This impact is due to the fact that these companies with joint control (by the state and private) do not receive effective control, since neither the owners nor the state have enough property to fully exercise their performance. At the same time these companies are experiencing ambiguity and conflicts between the company's objectives of maximizing the profit and the welfare objectives of the state.

Hypothesis 2: The financing by the state of companies negatively influence their value.

The research hypotheses above are carried out in accordance with the studies in which they have been tested previously, namely: Firer et al. (2004) , Majumdar and Chhibber (1999), Mrad and Hallara (2012) , Vithessonthi and Tongurai (2015) , Antwi , Mills and Zhao (2012).

The empirical study was conducted through quantitative analysis of the financial information, using appropriate statistical techniques. The technique used to determine the relationship between the value of the companies and the capital structure is the analysis of multiple linear regression by the method of least squares. Because the database has been

[17] Firer, C. , Ross, S.A., Westerfield, R.W. and Jordan, B.D. (2004) *Fundamentals of Corporate Finance* , 3rd edition, Berhshire: McGraw Hill.

complex, containing 10 companies, I have used for testing tools of the type "pool" and "panel" .

The regression function used for testing the connection between variables was the following : $Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \ldots + \beta_{it} Q_{it} + \varepsilon_{it}$

Where:

$Y_{it}$ - the dependent variable; value of the company indicator "i", in the course of the year "t";

$X_{it}$ , $Z_{it}$... $Q_{it}$ - independent variables ; value of the company indicator "i", in the course of the year "t".

## 5. Interpretation of the results obtained

In the table below are shown the descriptive statistics for the data analyzed over the period of 10 years, both for the companies operating on the Romanian market, as well as for the companies operating on the markets in Bulgaria, Hungary, Poland, Slovakia, Slovenia and Ukraine.

Table 1. Descriptive statistics

| | Mean | Median | Maximum | Minimum | Std.Dev. |
|---|---|---|---|---|---|
| CRES_CB | 0.4452 / 0.5450 | 0.08315 | 8.68080 | -0.9226 | 1.4446 |
| PER | 15.6158 / 15.2722 | 10.81 | 44.06 | 0.18 | 11.285 |
| ROE | 0.0936 / 0.1626 | 0.05975 | 6.432 | -1.2434 | 0.6930 |
| ROA | 0.0406 / 0.0425 | 0.04525 | 0.3543 | -0.2359 | 0.0868 |
| Q | 2.0708 / 1.2841 | 1.5345 | 9.978 | 0.206 | 1.6963 |
| MB | 1.9301 / 1.0824 | 1.563 | 9.973 | 0.116 | 1.7586 |
| LEV_FIN | 0.188043 / 0.7452 | 0.08 | 8.81 | -35.5 | 3.8770 |
| DTL_A | 0.061771 / 0.1993 | 0.0087 | 0.6152 | 0 | 0.1025 |
| GR_INDAT | 0.406405 / 0.4963 | 0.363950 | 1.225300 | 0.0668 | 0.2778 |
| CRES_VZ | 0.1098 / 0.0797 | 0.0759 | 1.6164 | -0.7901 | 0.3734 |
| M_COMP | 5.0786 / 6.1356 | 4.802171 | 6.953479 | 3.29048 | 0.8881 |
| VARSTA | 1.7935 / 1.3178 | 1.861317 | 2.1152288 | 0.698970 | 0.3345 |
| LIQ | 2.4902 / 1.6542 | 1.575 | 13.37 | 0.19 | 2.3657 |
| STAT | 0.5 / 0.5 | 0.5 | 1 | 0 | 0.5025 |

What can we can conclude according to the statistics is the fact that foreign companies have focused more on external financing, measured through the financial leverage and the share of long-term debts in total assets, than Romanian companies. In accordance with the current liquidity, the Romanian companies analyzed are stronger financially in the short term. But unlike the Romanian companies which have registered an average of 0.0936 of the ROE indicator, the shareholders of foreign companies have had an average profit of 16 cents for every euro invested. The absolute increase in turnover (CRES_VZ) had a positive

average trend (0.0797 ) , but less than the Romanian companies which have had an increase of 10.98% in the sale of the goods and products, execution of works and supply of services in the period analyzed. In accordance with the average size expressed through total assets and age, the foreign companies are larger and younger than the Romanian companies.

Using the OLS estimation technique, I have tested the influence of indebtness and that of the state on the value of the companies in the countries similar to Romania from an economic perspective. In the table below, have been compiled the results obtained .

Table 2. Results of the multiple linear regressions

| Var.Dep./ Var.Indep | CRES_CB | ROE | ROA | PER | Tobin's Q | MB |
|---|---|---|---|---|---|---|
| lev_fin | 1.7265**<br>-0.0335* | -0.1655**<br>-0.0341 | -0.1981**<br>0.0517* | -0.091132<br>-0.0883 | 0.013648<br>0.1371** | 0.014896<br>0.115** |
| m_comp | 0.2689**<br>-1.3477** | 0.021725<br>-0.0617* | 0.0227<br>0.0088 | -5.1224*<br>0.2359 | 0.019401<br>-0.5166** | 0.2691*<br>-0.5166** |
| varsta | -0.883*<br>-1.8006* | -0.1318<br>0.1388 | -0.0353<br>-0.0254 | 8.1200*<br>2.9696 | -0.219915<br>0.0898 | -0.0399<br>0.0898 |
| liq | -0.1146**/<br>-0.4793 | 0.1126**<br>0.0004 | 0.0093<br>0.0194** | -0.8443<br>-1.9633* | 0.24422**<br>-0.1746 | 0.2798**<br>-0.1746* |
| cres_vz | 0.207*<br>0.4255 | 0.13148*<br>0.3091 | 0.0208<br>0.0446* | -2.260008<br>-1.2591 | -0.09039<br>-0.0755 | -0.0984<br>-0.0755 |
| stat | -0.7107**<br>-0.2581 | -0.09947*<br>0.2577 | -0.0769**/<br>-0.0238* | 6.99707*<br>-2.4050 | 0.85079<br>1.072** | 1.01115*<br>1.072** |

Table 3. Results of the simple linear regressions

| Var.Dep./ Var.Indep | CRES_CB | ROE | ROA | PER | Tobin's Q | MB |
|---|---|---|---|---|---|---|
| gr_indat | -0.731421<br>-1.489** | 0.524279<br>0.793* | -0.1855**<br>-0.1437** | 5.33338<br>4.3602 | -2.66825**<br>2.991** | -2.66825**<br>2.5854** |
| dtl_a | 0.1356**<br>-1.195* | -0.473953<br>0.7953* | -0.128229<br>-0.073** | 7.361858<br>5.667 | -4.32326*<br>2.9978** | -4.32326**<br>2.3591** |

As can be seen in the table above, the financial leverage, the company size and age influence negatively the market capitalization growth. In the case of Romanian companies the relationship between the financial leverage, size of the company and market capitalization growth is positive. Therefore, young Romanian companies, which increase their total assets and financial liabilities will be able to increase their market capitalization value also, and foreign companies which grow older, increase their foreign financing and total assets will register a decrease in the market capitalization.

ROE is negatively influenced by the financial leverage (variables of Romanian companies) and positively by the share of long-term debts in total assets and the degree of indebtness (variables of foreign companies). According to the results, the return on equity capital is positively influenced by the current liquidity and the increase in turnover, and negatively by the State variable. The relationship between the current liquidity, increase in turnover and ROA is positive. Return on assets may be increased if companies are stronger in the short term and increase their sales. Companies' indebtness influences both positively (financial leverage), and negatively (degree of indebtness and share of the long-term debt in total assets) the return on assets rate value. In the case of Romanian companies, financial leverage had statistically influenced negatively and significantly ROA. Between the dependent variable, PER and the independent variables was obtained a statistically significant and negative relationship with the current liquidity ratio. As a result, as the company has a smaller capacity to pay its current debts, needing in the end to resort to long-term resources or to new loans, the PER indicator value will be greater. Romanian companies have obtained the same result of this relationship, but for a threshold significantly greater than 0.05 (0.0777 ). Tobin's Q ratio is influenced positively by the indebtness indicators and by the State involvement in the financing of companies. According to these results, the foreign companies can increase their value by increasing the long-term external financing, and also the State involvement. If the company increases its total assets, the result would be a decrease in the Tobin's Q ratio, because of the negative relationship between them. MBV registers the same effects of indebtness, involvement of the State (positive relationship) and size of the company (negative relationship) as Tobin's Q ratio. But this relationship is different in the case of companies active on the Romanian market, as the relationship between the long-term debts, the degree of indebtness and MB is negative, and the impact of company size on the MB is positive.

## 6. Conclusions

The information contained in the above table shows that of the six variables which determine the value, only five were correlated both positively and negatively with the companies indebntness. PER variable, has not obtained a statistically significant correlation with the variables of indebtness. Therefore, I have obtained results compatible with the significant research theories of Modigliani and Miller (1958), according to which the company's value should be increased by increasing the company's debt. The results obtained in this paper contradict the conclusions of the researchers: Antwi, Mills and Zhao (2012),

Dess and Robertson (2003), Holz (2000), according to which there is a direct relationship between indebtness and the company's value. The empirical studies carried out by Salim and Yadav (2012) , Majumdar and Chhibber (1999), De Jong (2002), Chaganti and Damanpour (1991), Chen and Zhao (2006) had similar results with those of this paper, the relationship between the value and indebtness of the company being negative. A possible explanation of the results obtained is given by Modigliani and Miller (1963) who claimed that the increase of the equity capital cost will generate an increase in the company's debt. A further explanation for the negative impact of capital structure on the value, may be that the companies from the sample analyzed have pursued the reduction of taxes through their debts, in accordance with the theory of compromise (trade-off) where Myers(2001) argues that the debts are tax shields[18]. The same Myers (1984) comes to the conclusion that successful companies do not need to depend heavily on external financing, because they can rely on internal reserves, explaining thus the negative relationship between debts and value. [19]

Hypothesis 2, according to which State involvement in financing companies will adversely affect the value, has been accepted by the ROA dependent variable and market capitalization growth, instead PER and MBV were influenced positively by the STATE variable. Mrad and Hallara (2012) have obtained in the study conducted, a negative relationship between the STATE independent variable and the value measurement indicators (ROA, ROE and Tobin's Q) for the sample of companies analyzed.

[18] Myers, S.C. (2001). *Capital Structure* . Journal of Economic Perspectives, 15(2), pp. 81-102.
[19] Myers, S.C. (1984. *The Capital Structure Puzzle.* The Journal of Finance, 39(3) 575-592.

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## Appendix A – Ranking companies by size (total assets)

| Nr. Crt. | Company Name | Country | Total Assets (thousand of EUR) |
|---|---|---|---|
| 1. | Polskie Biuro | Polonia | 36 660 041 |
| 2. | Ukrnafta | Ucraina | 17 863 198 |
| 3. | Grupa Lotos | Polonia | 13 434 018 |
| 4. | OMV | Romania | 6 808 270 |
| 5. | Mol Plc | Ungaria | 3 729 558 |
| 6. | Slovnaft | Slovacia | 2 220 888 |
| 7. | DTEK | Ucraina | 1 969 663 |
| 8. | Rompetrol | Romania | 1 275 580 |
| 9. | Transgaz | Romania | 846 625 |
| 10. | Petrol AD | Bulgaria | 263 714 |
| 11. | Petrol DD | Slovenia | 263 713 |
| 12. | Conpet | Romania | 145 048 |
| 13. | Toplivo AD | Bulgaria | 87 658 |
| 14. | Dafora | Romania | 80 577 |
| 15. | Oil Terminal | Romania | 61 884 |
| 16. | Oil and Gas Exploration | Bulgaria | 47 740 |
| 17. | Upet Group | Romania | 28 950 |
| 18. | Rompetrol Well Services | Romania | 26 580 |
| 19. | Armax Gaz | Romania | 17 837 |
| 20. | Petrolexportimport | Romania | 17 391 |

## Appendix B - The correlation matrix

In order to avoid the multicollinearity problem, I have developed the correlation matrix shown in the table above. The results obtained confirm that most correlations between the independent variables are smaller. A strong and positive correlation (0.763 ) was obtained between the State and M_Comp variables (company size). When two independent variables are strongly correlated this can mean there is multicollinearity between them. In this situation, we can test if the independent variables have a strong relationship between them

using the VIF test (variance inflation factor). In practice, a VIF value greater than 10 or less than 0.05 indicates problems with the multicollinearity. After estimating the regression equation, VIF value of the State and M_Comp variables was of 2.77 and 2.4.

| | CREST_CB | CREST_VZ | DTL_A | GR_INDAT | LEV_FIN | LIQ | M_COMP | MBV | PER | Q | ROA | ROE | STAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CREST_CB | 1 | | | | | | | | | | | | |
| CREST_VZ | 0,155* | 1 | | | | | | | | | | | |
| DTL_A | 0,009* | 0,145 | 1 | | | | | | | | | | |
| GR_INDAT | 0,021 | 0,074 | 0.520** | 1 | | | | | | | | | |
| LEV_FIN | 0,085** | -0,024 | 0.288* | -0,025 | 1 | | | | | | | | |
| LIQ | -0,061** | -0,005 | -0.226* | -0.494** | 0.0176 | 1 | | | | | | | |
| M_COMP | -0.199* | -0.031 | 0.032 | 0,054 | -0.121 | -0.299** | 1 | | | | | | |
| MBV | 0.125 | -0.040 | -0.252* | -0.421** | 0.002 | 0.283** | 0.118* | 1 | | | | | |
| PER | 0.203* | -0.077 | 0.066 | -0.024 | -0.011 | -0.121 | -0.228* | 0.078 | 1 | | | | |
| Q | 0.117 | -0.038 | -0.195* | -0.340** | 0.002 | 0.254* | 0.119 | 0.993** | 0.092 | 1 | | | |
| ROA | 0.323** | 0.058 | -0.151 | -0.485** | 0.111** | 0.369** | -0.071 | 0.443** | -0.160 | 0.411** | 1 | | |
| ROE | 0.035 | 0.096* | -0.070 | 0.082 | -0.924** | 0.020** | 0.118 | 0.026 | 0.072 | 0.044 | 0.027 | 1 | |
| STAT | -0.149* | -0.059 | -0.072 | -0.195** | -0.126 | -0.310** | 0.763** | 0.179* | 0.027* | 0.168 | -0.100** | 0.089 | 1 |
| VARSTA | -0.073* | 0.006 | 0.026 | 0.044 | 0.045 | 0.13 | -0.507** | -0.098 | 0.298** | -0.101 | -0.109 | -0.092 | -0.392* |

As regards the company's indebtness there are significant and positive correlations between the financial leverage, the share of long-term debt in total assets and the market capitalization growth, and between ROA and the financial leverage. But there are also significant and negative correlations between : MBV- the degree of indebtness and the share of long-term debts in total assets; Tobin's Q ratio - the degree of indebtness and the share of long-term debts in total assets; ROE - financial leverage.