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Abstract

This study analyses the factors that may influence the capital structure decisions of Romanian traded firms. The sample includes 776 firms, all listed firms on Bucharest stock exchange in the period from 2003-2012. All debt ratios, short-term, long-term and total debt, were included in this analysis in order to understand better capital structure decisions. The factors with possible impact in capital structure included in this study are the most common in the capital structure literature, namely asset tangibility, size, profitability, liquidity, interest rate, industry and taxes. The empirical results for the whole sample show that the most important factors which influence the capital structure of Romanian traded firms are tangibility, profitability, liquidity and size. The impact of these factors for all debt ratios is negative, except for the influence of tangibility in long-term debt which is positive. The impact of interest rate and tax is not statistically significant for all debt ratios. Industry type is statistically significant for long-term debt ratio with a negative influence. The second regression analysis including large firms indicates that industry type, interest rate, tangibility, profitability and liquidity have a negative influence on debt ratios while size and tax impact positively on the leverage.

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List of abbreviations

SIC- standard industrial classification

IR- interest rate

TANG- asset tangibility

PROF- profitability

LIQ- liquidity

TAX- taxes

SIZE- firm size

SHORTD- short-term debt ratio

LONGD-long-term debt ratio

TOTALD- total debt ratio

SME- small and medium size enterprises

1. Introduction

To find an optimal capital structure is one of the most important problems for the organisations because it implies at least two major consequences, namely the cost of capital and the firm value. The organisation will try to optimize the capital structure in such a way which allows the reduction in the cost of capital at the minimum possible level but at the same time to increase the value of the firm at a maximum level. The theory of capital structure starts with the irrelevance theory of capital structure, a theory developed by Modigliani and Miller (1958). They argued that the firm value is independent of the capital structure in a perfect capital market. The perfect capital market assumptions are: no taxes, no financial distress costs, no information asymmetry and individual investor borrows at the same interest rate as the firm does. As we know, in the real world these imperfections exist and influence the capital structure financing decision. The later studies focus on investigation of these market imperfections, developing new theories regarding capital structure and the factors that have influence on capital structure financing decisions. The introduction of taxes and financial distress cost (two market imperfections) in capital structure analyses leads to the development of the trade-off theory, one of the most famous theories of capital structure. It was developed by Kraus and Litzenberger (1973) and it assumes that capital structure is a trade-off between these two factors. The investigation of information asymmetry and its influence on capital structure financing decision leads to development of the Signalling Theory (Stephen A. Ross 1977), Pecking-order theory (Myers and Majluf 1984) and Market timing theory (Baker and Wurgler 2002). All of these theories try to find an explanation of capital structure decisions and the implication of market imperfections on these decisions. Besides these studies, which try to find and explain market imperfection, there are many studies that analyse numerous factors that may impact capital structure decision. For example, Frank and Goyal (2003) analysed 36 factors with possible influences on leverage fluctuation. The results lead to the conclusion that size, profitability, asset tangibility, inflation, market to book-value; dividend payment and industry are the most important factors that have a significant impact in the capital structure decision.

In this study I try to analyse the capital structure of Romanian traded firms and the factors that may have an influence on capital structure decisions. This analysis includes a large sample, 776 firms listed on the Bucharest stock exchange for the period between 2003-2012. The factors with possible impact on the capital structure of Romanian listed firms analysed in this study are the most common factors mentioned in the capital structure literature: asset tangibility, size, profitability, liquidity, industry, interest rate and taxes. It will be interesting to observe how the results for Romanian traded firms look in comparison to the other results and to the assumptions made by the most important theories of capital structure mentioned above since Romania is a developing country with a relatively young market where quite a few changes have been made in the last two decades. The Bucharest stock exchange has a long and tumultuous history. It was opened officially in 1882, but for five decades during communism was closed (1941-1995). The stock market was reopened in 1995 when the first firms owned by the government were privatised. After ten years, in 2005, Bucharest stock exchange and electronic stock market RASDAQUE merged, increasing the number of the traded companies by 700. The Bucharest stock exchange market is not developed at its real potential, being one of the weakest markets in the EU markets with a market capitalisation of 25 billion €. The larger firms owned by the government are not traded. Some of them were listed in 2013 and 2014, increasing the capitalization at 28 billion.

2. Literature Review and Theoretical Framework

In this chapter I present the basic theories of capital structure starting with the famous irrelevance theory developed by Modigliani and Miller (1958). It continues with the later developed theory regarding the capital structure decision and its determinants. These theories are trade-off, pecking-order, agency cost, signalling and market timing.

2.1. Modigliani and Miller Theory

Franco Modigliani and Merton Miller developed in 1958 two theorems that have become the most famous and practically the basis for the modern theory regarding capital structure and return on common stock. According to Proposition 1, the structure of capital does not influence the market value of the firm. The value of the firms is the result of the capitalised returns generated by the real assets owned by the firm and no combination in the capital structure (Debt/Equity) can increase or decrease the value of the firm. Proposition 1 can be extended to all aspects regarding firm's financial policy, e.g. investments, dividend policy, buyback policy, short versus long debt financing. Proposition 2 is derived from Proposition 1 and states that future return on stock are not influenced by the structure of capital. The return on stock for a leveraged firm is equal to the return on the stock of an unleveraged firm, plus an additional premium for financial risk. The share market price being given by its capitalised future returns and is not influenced by the way a firm finances its operation. The weighted average cost of capital (WACC) developed by Modigliani and Miller states that the expected returns increase with the debt-equity ratio, but is offset by the increase in financial risk premium.

The propositions developed by Modigliani & Miller assume that financial markets are perfect. A perfect market means that there are no taxes, no financial distress costs, no information asymmetry and individual investor borrows are at the same interest rate as the firm. This means that the propositions they formulated cannot be applied in the real world because in the real world there are the organisation faces transaction costs, bankruptcy costs, taxes and information asymmetry. The MM's propositions tell us when the capital structure may count, especially in the presence of the market imperfections (bankruptcy costs, taxes, information asymmetry).

2.2 Trade-off Theory

The classical MM's theory of capital structure irrelevance supposes a perfect financial market without transaction costs, bankruptcy costs, information asymmetry and agency cost, but in the real world the market is imperfect and firms try to find an optimal capital structure that maximise firm value. The Trade-off Theory was developed by Kraus and Litzenberger (1973) when they introduced the taxations on corporate profits and bankruptcy costs on a valuation model. They stated that capital structure of the firm is a trade-off between tax advantages of debt and cost of financial distress. Using debts instead of equity financing has its advantages because of debt's tax advantages but if the cost of bankruptcy exceeds the tax benefits of debt then the firm should use equity. The literature regarding this theory is vast and the results are sometimes different or even contradictory. Miller (1977) argues that the optimal capital structure depends on the investor type since the tax rate is different among investors. A firm who has more institutional investor (e.g. pension funds) with low or free tax rate may use equity instead of debt because the tax advantages of debt are reduced. Using equity the firm will have a low debt ratio and a lower financial distress risk. DeAngelo and Masulis (1980) found that leverage ratio varied across firms and industries and that the leverage increases, with an increase in corporate tax rates and decrease in corporate bankruptcy costs. Titman and Wessels (1988), Rajan and Zingales (1995) findings show that firms with high profitability and those with high cash flow should use more debt because the tax advantage of debt is higher (profitable firm can borrow at a lower interest rate) and the cost of bankruptcy is lower. The Trade-off theory assumes that the corporation has a target leverage ratio. The survey made by Graham and Harvey (2001) brings evidence that firms take into account a target ratio when the financing decisions are discussed. To always be at the target firms must adjust the ratio issuing/buying back equity and debts. This is not always possible since it implies transaction cost. The firm will adjust the leverage ratio when the transaction costs are low and will let the ratio float when transaction costs are high.

2.3. Pecking Order Theory

The Pecking Order Theory of capital structure describes a hierarchical preference of financing sources when the firm takes financing decisions. The financing sources

preference was analysed by Myers and Majluf (1984) under the assumption that managers of the firms have more information than investors. Thus, information asymmetry and transaction costs are the factors which influence the financing decision. According to this theory, internal fund is preferred over external funds, making cheaper and avoiding transaction costs. Another assumption of Pecking Order is that the firm does not have a target leverage ratio assumed in the trade-off model. If the management decides to go into a new investment, it should use first retained earnings in order to avoid dividend payment that can reduce the internal available financial resources. If the firm decides to use external financial resources, it should first use safety debt, then risky debt and the last option is issuing equity. Issuing equity is perceived by the market as a negative signal, considering that the stock market price is over appreciated and will be followed by a price fall. Fama and French (2002) stated that if the firm follows the Pecking Order model, the variation on leverage will not be influenced by the cost and benefits of debt as it is in a trade-off model, but by the firm net cash flow. According to Sunder and Myers (1999), the Pecking Order model explains much more the changes in leverage ratio over time than a trade-off model with its assumption of a target leverage ratio. Moreover they found that the Trade-off model can be applied when the firm follows the Pecking Order model in financing decisions and not the other way around.

2.4 Agency Costs Theory

The Agency Cost Theory was developed by Jensen and Meckling (1976) in an attempt to identify the effects that arise from the ownership and control separation and their influence on the capital structure fluctuation. Separation of ownership and management control usually suppose a contractual agreement between the Principal, represented by the shareholders, and the Agent, represented by Managers. The major problem in the relationship between the Agent and the Principal is represented by the interest of both parties. The Agent tries to maximise its interest represented by growth opportunities investing in new risky projects and will act against the interest of the Principal represented by pay-out cash. The Agent does not always act in the interest of the Principal. If the Principal wants to limit the Agent's actions (something that can dissipate its interest), then he must commit some expenses which are defined as Agency Costs. According to Jensen and Mackling (1976) the Agency

Costs are represented by costs of monitoring, bonding costs and residual loss. In an attempt to reduce the conflict between owner and manager, the Principal can impose to the Agent objectives and behavioural limits and by monitoring his action with involved costs, he can limit the mismanagement. Bonding costs are represented by the payments as compensation made to the Agent in exchange of guarantees that he will not go into projects that can affect the Principal's interests. Residual Loss represents losses supported by the Principal which are generated by the divergence between Agent and Principal.

Jensen's (1986) findings show that free cash-flow and growth opportunities are two factors that influence the level of Agency costs. The Principal will prefer that the excess cash is paid out in the form of dividends or at least invested in positive net present value investments. If the cash is used to pay dividends to shareholders it will reduce the amount of money that is at the manager's disposal, which can be invested in risky or negative net present value projects. The Agent will prefer to invest the surplus of cash in new investments even if these are negative present value projects. The Agent takes such risks because he wants to accomplish his own interest, the growth of his wealth. Another method to reduce the manager aversion of investing in risky projects recognised by Jensen (1986) is the use of debt. In this case the excess cash will be used to pay back debts and afferent interests. The use of debt nevertheless can lead to other costs that can affect the financial stability of the firm. A high debt level can generate financial distress costs. Even if the debts are preferred to reduce the management investments intentions, the firms should be careful and keep an optimal level of the capital structure.

2.5 Signalling Theory

The Signalling Theory starts with the assumption that the firm's manager owns superior information than outside investors. According to this theory, managers will use financial policy instruments to convey information to the market about the actual financial situation or future earnings in order to reduce the information asymmetry between management and investors. The Signalling Theory begins with the study made by Stephen A. Ross (1977) in which he analyses the use of debt as a signalling instrument to show if the firm is a bad or good. The results of the study state, firstly,

that managers of a good firm will choose to use a minimum possible debt ratio to convey information to the market that their firm is a good one. Secondly, the managers will want to increase debt level in order to convince the investors about the future cash-flow and profitability, confirming that the future expected earnings will be able to cover the actual increase in debt level. Bhattacharya (1979) using an asymmetric information model stated that firms use dividends as a signal for the present and future expected earnings. According to Bhattacharya (1979) outside investors do not have information about the performance of the productive assets owned by the firms. Firms will use a costly dividend to transfer the information about the firm's performance to the investors. In the survey made by Graham, Harvey, Michaely and Brav (2005) they find that managers avoid to cut the dividend level. Investors perceived the reduction in dividend payments as a negative signal about the future performance of the firm. The findings sustain that managers try to keep a constant dividend and that any dividend increase transmit information about the expected future financial performance of the firm. An interesting result of the study is the use of the repurchase program that became more popular in the last decades. Both dividends and share repurchase are perceived as positive signals by the investors generating an increase in stock market price. But according to the manager's answer, they prefer repurchase programs over dividends because it is more flexible. Once the firm starts to pay dividends it should keep at least a constant dividend otherwise the market will perceive it as a negative signal regarding the firm's future performance which results in a decrease in stock market price. While the dividends must be at least constant, repurchase program reduction are not perceived that bad by the market. Dividends and share repurchase may convey different information to the market, for example dividend payments are made from a permanent increase in cash-flow, future performance while share repurchase can be done from temporary excess cash. Firms nevertheless should use one of these payout instruments in order to keep the confidence of investors high.

2.6 Market Timing Theory

The Market Timing theory is one of the recent theories regarding capital structure and it presupposes that a firm will issue equity when it is over appreciated and repurchase when the equity is under evaluated, Baker and Wurgler (2002). There are

two main explanations behind the timing between stock market prices and equity issue, the first one is argued by information asymmetry (Korajczyk, Lucas and McDonald, 1990) and the other one is sustained by the cost of equity (Baker and Wurgler, 2002). Information asymmetry argued by Korajczyk, Lucas and McDonald (1990) refers to superior information owned by managers and explains the equity issue as a transfer of valuable information to the investors. Managers of the firm know the real value of the shares, namely the book value, and when the market price exceeds this value they use equity issuance to reveal the real value of the shares to the market. Baker and Wurgler (2002) argued that the cost of equity is one of the reasons behind equity issuance stating that the firm will issue equity when it faces a low cost level and repurchase when the costs are high, exploiting the advantages given by the equity cost fluctuations. Graham and Harvey (2001) find in their survey that a high majority of managers consider the over evaluated or under evaluated stock price as a very important factor when they decide to issue equity or repurchase, recognising the market timing.

3. Determinants of capital structure

Capital structure and financing mode choice are essential factors for the firm because it can influence the firm value, increasing the market value, or in a negative perspective, it can lead the firm into bankruptcy. In the capital structure literature there are many empirical studies that analyse factors that can influence the leverage but in many cases the results contradict each other. Harris and Raviv (1991) analysed the available literature concerning the capital structure and in regards to the factors that influence the leverage they found that in general, the literature agrees about the positive relation between leverage and asset tangibility, growth opportunity, firm size, and non-debt tax shield. These results contradict Titman and Wessels (1988) who found a negative correlation between leverage and size, non-debt tax shield, and growth opportunities. Frank and Goyal (2003) made an analysis in which they took in 36 factors with possible influences on leverage fluctuation. The results show that seven factors have an important impact on leverage variations over time. These factors are the most common leverage factors met in the literature namely size, profitability, asset tangibility, inflation, market to book value, dividend payment, and industry. Most of the studies focus on developed countries and even in this case the results are quite different. It will be interesting to find how the results founded in developed countries will match to a market, namely Romania. In this study I will analyse the influence of size, asset tangibility, liquidity, profitability, interest rate, industry type and taxes on the leverage fluctuation of the Romanian traded firms.

3.1 Size

The size of the firm is an important factor when the firm decides to use debt in order to finance a new investment. It will be much easier for a large firm to access funds from a financial institution and under better conditions compared to a small firm (Rajan and Zingales 1995). Marsh (1982) found that the larger firms prefer long-term debt while the smaller firms prefer short-term debt, argued by the information asymmetry which is more present in the case of smaller firms, raising the problem on accessing long-term debt. According to Titman and Wessels (1988), a large firm has a low probability to go into bankruptcy than a smaller firm because it is more diversified. This leads to a higher credit rating for the larger firms, evidently

implying a lower interest rate for the funds they raise. Fama and French (2002) state that between size and leverage there is a positive relation. This means that the leverage increases with the size of the firm. They argued that a larger firm has a stable and predictable net cash flow and earnings volatility, giving it some advantages when the firm needs to borrow money. Not all agree however with the positive relation between size and leverage. Kester (1986), Khaplinsky and Niehaus (1990) found a negative relationship between size and leverage. Titman and Wessels (1988) state that between firm size and short-term debt is a negative relationship.

3.2 Asset Tangibility

The structure of the firm's asset is a determinant factor for the firm for at least two main reasons. First of all, according to the capital structure irrelevance theory stated by Modigliani and Miller (1958), the productive assets and the cash-flow they generate give the real value of the firm and not the structure or the way the firm finances its activity. Second of all the structures of assets, especially the fixed assets, have a real impact on capital structure. If the firm owns a high proportion of tangible assets, this can increase the level of leverage because it can use these assets as guarantees to borrow from financial institutions. It is known that financial institutions accept in a high proportion only tangible asset as guarantees. The reason for this is that creditors want a low risk for the amount of money they borrow and tangible assets are the best way to get back the money in case the firm goes into bankruptcy. If the value of the asset used as warrant equals the value of the money borrowed the creditors will recover their investment because the market price of the fixed assets remains unaffected by the financial situation of the firm. In conclusion, it can be stated that asset tangibility and the leverage of the firm should be positively correlated. The empirical evidence brought support for this statement. Titman and Wessels (1988), Marsh (1982), Long and Malitz (1985) and Rajan and Zingales (1995) find a positive relationship between asset tangibility and leverage. Booth et al. (2001) also find an interesting relationship between tangible assets and leverage. The findings show a positive correlation between asset tangibility and long-term debt, but a negative relation between leverage and short-term debt. An increase in the asset tangibility of the firm will lead to an increase in long-term debt ratio but to a

decrease in short-term and total debt ratio. The reason this happens is because the short-term debt is replaced by long-term debt with the increase in asset tangibility.

3.3 Liquidity

Liquidity refers to all amounts of money owned by the firm and to the assets that can be easily converted into cash in a short period of time. If the firm owns a high level of liquidity than the probability to access external funds in order to finance its investments will be very low. When we analyse financing order preference described by Myers and Majluf (1984), it can be concluded that the firm will use first internal funds to finance new investments or other projects before it accesses external financing resources. According to this theory, the relationship between liquidity and leverage should be negative. Chaplinsky and Niehaus (1990), Deesomsak, Paudyal and Pescetto, (2004) found that the leverage decreases with the increase in internal funds, the firms following pecking order of financing decision preference, the liquidity owned by the firm being preferred before the external financing. The reason one would use internal resources is justifiable; the firm will face no transaction costs and having a low debt ratio level it will be kept out of future distress costs and their impact on firm value. The owners (shareholders) of the firm may disagree to raise debt since they are the last ones who are paid if the firm goes into bankruptcy. Another reason to first use internal resources to access external financing can be argued by information asymmetry which states that managers prefer to keep the information inside the organisation. Once the external funds are accessed, they must transfer information to the financial institution.

3.4 Profitability

Profitability of the firm brings into conflict the most important two theories of capital structure, trade-off and pecking order theories. According to Myers (1984) when the firm follows a trade-off model, adjusting its leverage to a target level, the risky firms should use a low leverage ratio. The debt capacity of the firm increases with its profitability suggesting a positive relation between profitability and leverage. A higher profitability leads to a low risk on the debt holder side, lower cost and easier

access to financial markets for the debt issuers. Following this rationality means that the firm with higher profitability should use more debts to finance new investments. The Pecking order theory sustains that the firm follows an order preference when it goes into new investments: retaining earnings are used first and just as a second option safety debt is used, followed by risky debts and finally new equity issuance (Myers and Majluf 1984). The most important reason behind this order preference is that using internal funds to finance its investments the firm avoids any costs induced by accessing debt and eliminates eventual bankruptcy cost. This theory leads to the conclusion that the more profitable is a firm, the lower level of leverage should be used, suggesting a negative relationship between profitability and leverage of the firm. The evidence brought by the empirical studies show more support for the pecking order theory. The results of Titman and Wessels (1988), Kim and Sorensen (1986), Kester (1986) and Booth et al. (2001) confirm a negative relationship between firm profitability and leverage. Long and Malitz (1985) find that profitability is significantly positively correlated with the leverage of the firm sustaining the firms used a trade-off model.

3.5 Interest rate

The interest rate is the major factor that establishes the total costs of the debt raised by the firm. It is a deductible expense for the firm. In this case it is expected that the firm will raise debt in order to finance its projects especially when the internal financing is not possible. This being said, it cannot use debt without limit because it will increase the financial distress cost. Being the most important component in the cost of borrowed capital, a high interest rate level can increase the cost of capital for the firm affecting its market value. Interest rate level is influenced by more factors. The size of the company can influence the rate at which it borrows. Rajan and Zingales (1995) state that for the larger firms it is easier to access financial markets and in advantageous condition (lower interest rate) than for a smaller firm. Titman and Wessels (1988) bring show that there is a lower financial distress risk for the large firms because they are more diversified, leading to a high credit rating for the debt issues which is associated with lower interest rate in comparison to smaller firms. Asset tangibility is another factor that can influence the interest rate at which

the firm can borrow. Tangible assets owned by the organisation can be used as collateral. If the firm owns a high proportion of tangible assets it can negotiate an improved interest rate because the risk assumed by the creditor is reduced. Assuming that a high interest rate increases the cost of borrowed capital, it should be expected that interest rate will have a negative impact on leverage. A high interest rate will force the firm to borrow less money and that will be made for a short period of time while a low interest rate will have a positive influence on the amount of debt raised by the firm, encouraging the long-term debt contracts.

3.6 Industry type

Industry can be one of the factors that influence the capital structure of the firm. It was mentioned above that some factors as asset tangibility, profitability, liquidity and size (risk dilution caused by activity diversification), have an impact on a firm's leverage. All these factors can be analysed from the organisation and the creditors' perspective. From the organisation side, it is very important in which industry the firm activates. Asset tangibility, liquidity and profitability differ across the industries. Revenues of the firm who activate in Agriculture are characterised by seasonality and are exposed to higher natural risks, services firms are characterised by low asset level, oil & gas and technological industries have a high profitability, construction and engineering have a high return on asset compare to other industries, pharmaceutical and retail industries have a high liquidity. All these industry characteristics have an impact on the leverage ratio which is very different across the industries. Industries with high profitability and liquidity like oil and gas, technological industry, mining industry and pharmaceutical have a low leverage ratio, while utilities, transportation and manufacturing industries have a high debt ratio. In the case of public utilities firms the reason behind the high leverage can be the guarantee that is assumed by the government. Bradley et al. (1984), found a high leverage for utilities and transport firms; Kester (1986) and Long and Malitz (1985), found a low leverage ratio for the pharmaceutical and technological firms; Bradley et al. (1984) found a low leverage for the firms who activate in pharmaceutical, mining, technology and food industries. From the creditors' side, according to Moodys, the credit rating they give for the firms is influenced by the industry and its characteristics (asset tangibility, liquidity, profitability) where the firm activates.

Pharmaceutical, technology and oil industry firms have a high credit rating. A high credit rating assumes an easier access to financial markets and a lower interest rate for the firm. The interest rate represents the cost of capital raised by the firm in order to finance its project in the absence of internal financing and influence the value of the firm and the structure of the capital. The creditors avoid financing the firms' with a low credit rating or who activate in industries with high potential risks. In the analysed country, Romania, it is very difficult for a firm that activates in agriculture to raise debt while for a firm that activates in the oil industry, like Petrom, it is not difficult to raise a 500€ million from 9 financial institutions. Two important reasons can be observed in regards to the influence which industry can have on capital structure. Firstly, credit ratings have a direct impact on the cost of capital and a firm's value differs across the industries being influenced by the industry characteristics in which the firm activates. Secondly, the leverage ratios fluctuate across the industries, argued by the differences that exist between the industries regarding asset size, profitability, liquidity and business risks. Concluding, industry type can be a determinant factor for the organisation on accessing external financial resources with a direct impact on capital structure. The firms with a facile access to external financial resources will tend to have a high leverage ratio while the firm with difficulties in accessing external resources will have a low leverage ratio. This situation can be observed in the case of Romanian traded firms, especially for the firms who activate in agriculture who face a serious problem in raising external financing. The group of the firms which activate in agriculture are around 130 and represent 15% of the sample. Industry structure for the Romanian traded firms can be observed in Figure 1. A very large proportion in the sample is represented by manufacturing firms (49%) followed by agricultural industry (15%). Taking into consideration their proportion of the analysed sample and the difficulty in accessing external financing for the agricultural firms, it is expected that this industry sector may have a significant impact on the regression analysis, having a negative influence on leverage. These assumptions suppose a negative correlation between industry type and leverage for the Romanian traded firms.

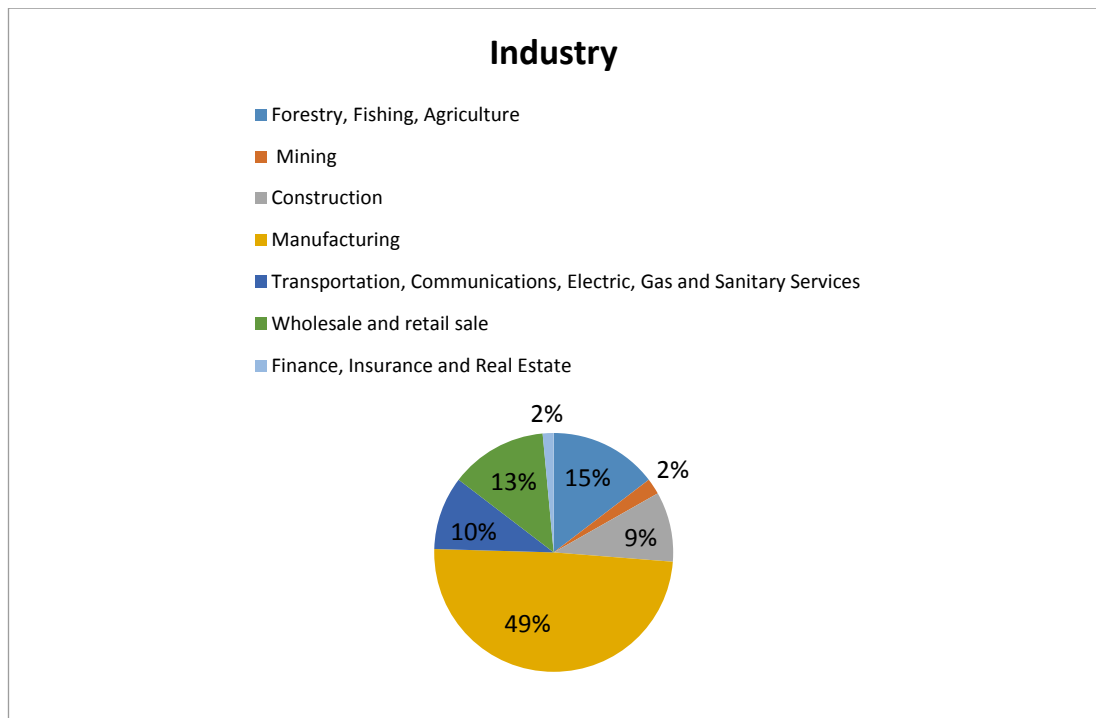


Fig.1 Romanian traded firms by industry structure (source: own preparation)

3.7 Taxes

There are a lot of discussions about the tax advantages of debt since Modigliani and Miller reconsider their capital structure irrelevance theory, stated in 1958 and analysed the impact of taxes on capital structure. The firms are tax payers and since the interest rate is deductible, the use of debt will create a tax advantage for the firms. It is expected that a firm will increase the leverage when the corporate taxation is high in order to extract all benefits given by the use of debt. The real advantage of debt was showed by Modigliani and Miller (1958) but they argue that the cost of financial distress induced by the use of debt increases with the leverage. Kraus and Litzenberger (1973) stated that the capital structure of the firm is a trade-off between tax advantages of debt and costs of financial distress. Profitability is one way to increase the value of the firm and organisations should use more debt in order to increase the profit with the value of deductible interest rate, thus suggesting a positive relationship between taxes and leverage ratio. In real life this argument may be not such realistic. If the firm is unprofitable, then the interest rate will just increase the pre tax loss and all advantage given by debt use is annulled. Another

issue is that a profitable firm, according to the pecking order theory, tends to use more internal financing instead of external funds, meaning that between taxes and leverage ratio there could be a negative relationship. The empirical results regarding the relation between tax and leverage are different. Some empirical studies like Bradley et al. (1984) and Chaplinsky and Niehaus (1990) found a positive correlation between tax and leverage. Kim and Sorensen (1986) found that leverage and tax are negative correlated.

4. Methodology, data and variables definition

In this section of the thesis I describe the methodology used, the sources of data, the sample, the period analysed and I define the variables chosen for this study. The methodology and the variables chosen are the most common mentioned and used in literature regarding the capital structure determination.

4.1 Methodology

Most of the firms are leveraged during the business life at some degree because of various reasons. Some firms are using debt in order to finance its current operation, other use debt in order to benefit from the debt tax advantages over the internal financing. One thing is clear; the leverage fluctuates over time being influenced by various factors. In this study I looked at the most common factors used in the literature, namely leverage as dependent variable and size, tangibility, profitability, liquidity, industry type, interest rate and taxes as independent variables. This means that the variation of dependent variable leverage is a result of the influence caused by the independent variables mentioned above. The independent variables influence the capital structure of the firm, leading to a situation where the firm must decide some degree of leverage, considered as optimal and a result of the mix between the independent variable it gives the lowest cost for the firm and maximises the firm's value. It will be interesting to find which of the independent factors mentioned above fit the Romanian traded firms, taking into consideration that Romania is a developing country with a relatively young open economy and trading market. The technique for which I use in order to find the correlation between dependent and independent variables is linear regression, a widely used technique regarding the estimation of capital structure. The linear regression was used with the help of Data analyses and Statistical Software provided by StataCorp LP.

The equation regression used in order to find the relationship between dependent and independent variables is:

$$\text{Debt Ratio}_{it} = \alpha_i + \beta_1 \text{Industry} + \beta_2 \text{Interest rate} + \beta_3 \text{Tangibility} + \beta_4 \text{Profitability} + \beta_5 \text{Liquidity} + \beta_6 \text{Tax} + \beta_7 \text{Size} + \varepsilon_{it}$$

Where Debt Ratio represents the leverage ratio for the firm “i”, ($i=1-776$) and period “t”, ($t=2003-2012$). β_x represent the coefficients for each independent variable. α_i and ε_{it} represent the unknown intercept, that is the error term. The regression equation will be calculated separate for each dependent variable, namely total debt ratio, short-term debt ratio and long-term debt ratio.

4.2 Data

For this study I chose to focus on the selection of the firms on Romanian listed firms because there is a lack of studies regarding the capital structure choices and the factors which may have an influence on firm's financing decisions. There are only a few studies which enhance a small number of firms from a single industry. The sample includes all Romanians firms listed on the Bucharest Stock Exchange. I analysed in the study the financial data for 776 firms, the financial firms being excluded because of their different capital structure and financing behaviours. The financial information includes the main financial indicators reported yearly and was provided by ORBIS and BVB. The period which made the object of the study refers to the time period between 2003 and 2012.

4.3 Variables definition

The purpose of the study is to find which factors have an impact on capital structure and financing decision of Romanian firms. In order to receive an adequate answer to this question, the most mentioned factors in financial literature and presented in Chapter 3 were included in the analyse. The leverage ratio of the firm was taken as dependent variable, while size, asset tangibility, liquidity, profitability, interest rate, industry type and taxes as independent variables.

4.3.1 Dependent variables

The dependent variable which made the object of this study is Leverage ratio calculated separated for all debt ratios and presented in the form of the following three variables: total debt ratio, long-term debt ratio and short-term debt ratio. The

reason to analyse all debt ratio is argued by the impact of the independent variables on each debt ratio, which can be different for total debt, long-term debt and short-term debt ratio, as was found in many studies. For example Booth et al. (2001) found a different influence of asset tangibility on short-term debt ratio and long-term debt ratio, being positively correlated with long-term ratio and negatively correlated with short-term debt ratio.

The leverage ratios (total debt ratio, long-term debt ratio and short-term debt ratio) are calculated as ratios of total liabilities, long-term liabilities and short-term liabilities to total assets. The dependent variables and the mode of calculation are presented in Table1.

Dependent Variable	Mode of calculation
Total debt ratio	total liabilities/ total asset
Short-term debt ratio	short-term liabilities/total asset
Long-term debt ratio	long-term liabilities/total asset

Table1. Dependent variable mode of calculation

4.3.2 Independent variables

In order to run the regression analyses and to establish the relationship between the dependent and independent variables, first we must obtain the values for the independent variables which make the object of the study. The independent variable: size, asset tangibility, liquidity, profitability and tax were calculated with the help of the financial indicators obtained from the yearly balance sheet, financial information provided by Orbis and BVB.ro (Bucharest Stock Exchange). The variable interest rate was taken at the average monthly rate and it was provided by Romanian National Bank (BNR). Variable SIC represent the Standard Industrial Classification code and it was provided by BVB.ro. The independent variables and the mode of calculation are represented in the Table2.

Independent variable	Mode of calculation
Size	Log of annual turnover
Asset tangibility	Fixed asset/total asset
Liquidity	Current asset/short-term liabilities
Profitability	EBIT/total asset
Interest rate	Average monthly rate
Industry type	SIC
Tax	Taxable income/EBIT

Table2. Independent variable mode of calculation

In the following table we have the signs of the expected relationship between dependent and independent variables according to the main two capital structure theories, trade-off theory and pecking order theory.

Variable	Trade-off theory	Pecking-order Theory
Size	+	+
Asset tangibility	+	-
Profitability	+	-
Liquidity	+	-
Interest rate	+	-
Industry type		
Tax	+	+

Table3. Expected signs of relationship between variables according to trade-off and pecking-order theories

5. Empirical findings

In this chapter I present and analyse the meaning of the results obtained from descriptive statistics, correlation analyses and panel data regression for both, dependent variable (leverage) and independent variables (tangibility, size, profitability, liquidity, industry type, interest rate and tax) for Romanian traded firms. In the first section the results of descriptive statistics are presented and analysed. Descriptive statistics will be analysed, including the whole sample, and will continue with the debt ratios analysis of the firms divided by size in four classes (large, medium-size, small and micro firms). The analysis continues with the correlation results and finally there is a presentation in regards to the results of panel data regression which was separated for all debt ratios and the expected relationship between variables according to the Trade-off and the Pecking-order theories compared with the regression results.

5.1 Descriptive statistics

The results of descriptive statistics for the overall sample are presented in Table4.

	Mean	Maximum	Minimum	Standard Deviation
Total debt ratio	0,4664	23,3136	0,0000	0,6610
Short debt ratio	0,3585	23,3136	0,0000	0,6212
Long term ratio	0,1078	5,3087	0,0000	0,2279
Tangibility	0,5299	0,9999	0,0000	0,2760
Size	5,5332	8,5390	0,9979	1,9103
Profitability	0,0107	3,5953	-5,8888	0,2296
Liquidity	2,8936	245,6798	0,0000	8,1301
Tax ratio	0,7323	131,6810	-96,2391	4,1175
Interest rate	9,9600	18,8300	5,3300	4,5986

Table4. Descriptive statistics for the whole sample (source: own preparation)

From the information presented in Table 4 it can be observed an average ratio of total debt of 0, 4664. The average of the total debt ratio for Romanian traded firms for the period between 2003 and 2012 is under 0.5. This has at least two major

consequences and implications. First, Romanian traded firms have an average debt ratio which is situated under maximum recommended limit of 0.6-0.7 for the total debt ratio mentioned in the financial literature. This means that overall, Romanian traded firms keep a relative low degree of leverage in order to avoid financial distress risk and the implied costs. Another consequence of the total debt level being under 0.5 is that most Romanian traded firm's assets are financed through equity.

The long-term debt shows a 0.10 level while the short-term debt ratio is 0.358, meaning that Romanian traded firms prefer to use short-term debt over the long-term debt in order to finance their assets and current activity. The reasons for the short-term debt preference may be a high level interest rate, long-term commitment avoidance and/or country culture.

The interest rate at which level the firm can raise debt is one important factor when the firm decides to access external financing because it will affect the cost of capital and the long-run performance. It will be interesting to analyse the evolution of interest rate and debt ratios for the analysed time interval. In figure 2 we see the evolution of debt ratios and interest rate for the period between 2003 and 2012.

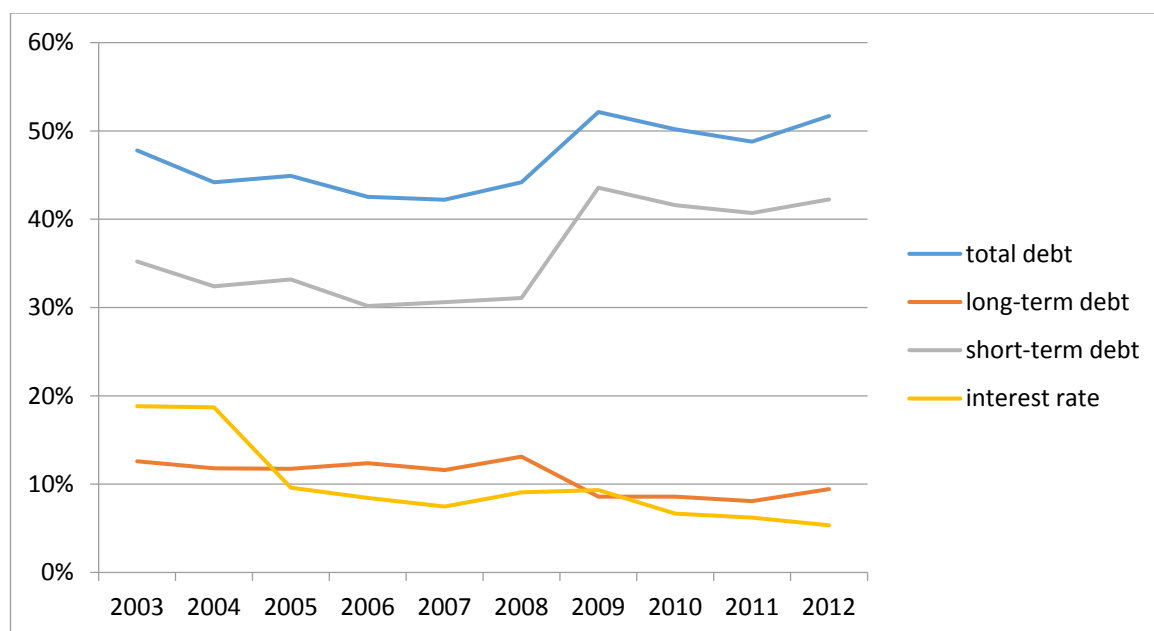


Figure2. Debt ratios and interest rate evolution 2003-2012 (source: own preparation)

In this graphic we can observe that short-term debt and total debt follow the same shape. It is not surprising considering that short-term debt represents 76% of the total

amount of debt raised by the firm for the analysed interval. Secondly, the graphic shows a positive correlation between short-term debt and interest rate and a negative correlation between long-term debt and interest rate. At the end of 2003 when the interest rate started to go down, we see an increase in long-term debt and a decrease in short-term debt. This repeats in 2008 when the interest rate increases by 2%, leading to an increase in short-term debt level and to decrease in long-term debt. We would not err if we conclude that in the case of Romanian traded firms, any change in the interest rate level leads to a change in total-debt ratio. Moreover, a change in the interest rate level produces a change in debt structure. When interest rate level increases, Romanian firms tend to use more short-term debts, meanwhile when the interest rate decreases the firms tend to increase the long-term debt level. This can be argued by the implication which a high interest rate has on cost of capital, increasing the cost of capital and leading in many cases a firm into bankruptcy. Romanian traded firms seem to wait for the period when the interest rate is lower in order to establish a long-run commitment. An interesting aspect is the trend followed by debt ratios in the analysed time period. All debt ratios fluctuate over time, short-term and total debt in the same direction with interest rate and the long-term ratio contrary to the interest rate. No debt ratios have a constant increasing or decreasing trend.

In the next part of the descriptive analysis the firms are divided by variable size in order to understand better the differences in financing behaviour and capital structure between large and small enterprises. The classification was made, conform to the regulations of the European commission, dividing the firms in four categories, large (turnover > 50 million), medium-size (turnover < 50 million), small (turnover <10 million), and micro enterprises (turnover < million). The structure of Romanian trade firms divided by variable size is presented in the Figure 3.

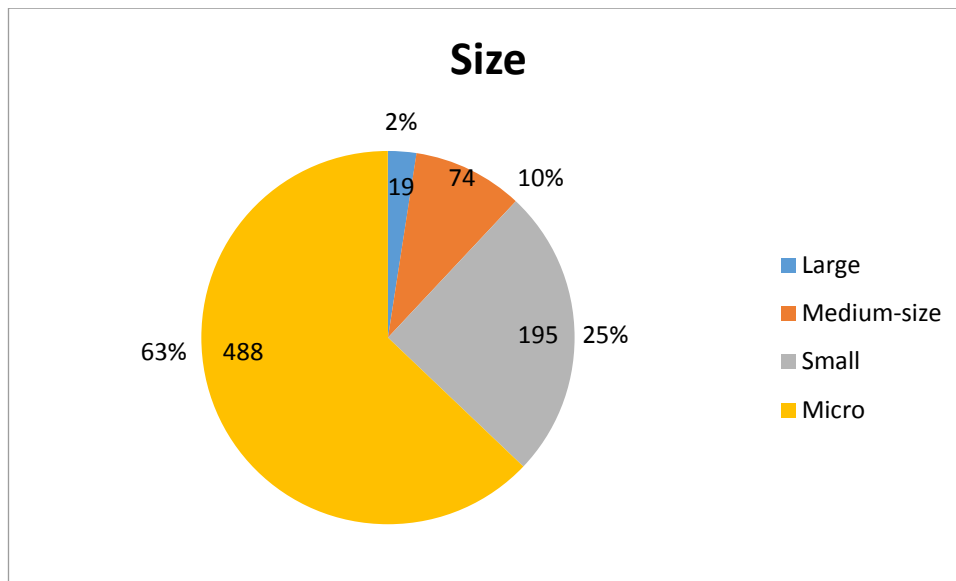


Figure3. Firm size

Micro and small enterprises represent a high proportion of the traded firms with almost 90% while the large firms represent only 2%. In their study, Rajan and Zingales (1995) sustain that for larger firms it is much easier to access external financing than for smaller firms. This can be translated into an undeniable fact that larger firms should have a higher leverage ratio. In the Table 5 we can see the debt ratios for the traded firms divided by variable size.

Size \ Debt ratios	Large	Medium-size	Small	Micro
Total debt	0,62	0,48	0,42	0,47
Long-term debt	0,2	0,11	0,1	0,1
Short-term debt	0.42	0,37	0,32	0,37

Table5. Debt ratios by firm size

As it can be seen, the total debt ratios, excepting micro enterprises, decrease with the firm size. These findings are consisting with the results of Fama and French (2002), which sustain that the leverage increases with firm size. The higher leverage for the micro enterprises can be explained through the support offered by the Romanian government which offers many facilities and builds a fund that is used as collateral by micro enterprises when it needs to access external financing. As it was mentioned in the study of Rajan and Zingales (1995), smaller firms face difficulties in accessing debt leading to a lower leverage for these firms. This program introduced by the

government came to sustain the micro enterprises and the development of these types of enterprises. This can be easily observed by the high proportion (63%) of micro enterprises in the traded firms sample and by total debt ratio (47%) which is much higher in comparing to small enterprises (42%). A second observation that stands out from the data presented in Table 5 is the level of long-term debt ratio. While the micro, small and medium-size enterprises have almost the same debt ratio (10-11%), larger firms have long-term debt ratio that is two times higher (20%). These results are consistent with the Marsh (1982) findings, which sustain that larger firms prefer long-term debt while smaller firms prefer short-term debt.

5.2 Correlations

Correlation analyses are one important part of this analysis because it gives us an overview about the relationship between the variables, showing if there exists some correlation and if these are positively or negatively related to each other. The correlation between the dependent variables and independent variables for the whole sample is presented in the Table 6.

	SIC	IR	TANG	PROF	LIQ	TAX	SIZE	SHORTD	LONGD	TOTD
SIC	1									
IR	-0,0008	1								
TANG	0,1756	-0,1044	1							
PROF	0,0114	0,0557	-0,1164	1						
LIQ	0,1007	-0,0709	-0,0624	0,0119	1					
TAX	0,0192	-0,0119	0,0022	-0,0113	0,0517	1				
SIZE	-0,0872	0,0473	-0,0988	0,2045	-0,0929	-0,0132	1			
SHORTD	-0,0667	0,0576	-0,1077	-0,304	-0,1437	-0,0086	-0,1263	1		
LONGD	-0,0458	-0,0439	0,0993	-0,0676	-0,0482	-0,0048	-0,0206	-0,0238	1	
TOTD	-0,0943	0,041	-0,0889	-0,3203	-0,1548	-0,0109	-0,1287	0,8934	0,3294	1

Table6. Correlation between dependent and independent variables for the whole sample (Source: own preparation)

The information presented in Table 6 brings in evidence once again in regards to the positive relationship between interest rate and short-term total debt while the relationship with long-term debt is negative. The explanation is sustained by the

interest rate level which is relatively high a reality that consequently forces firms to use debt for a short period of time in order to avoid long term commitment at a high cost of capital which can affect the long-run performance of the organisation. The positive relationship between interest rate and total debt can be explained by the proportion of 76% represented by short-term debt in total debt.

Asset tangibility shows a negative relationship with short-term and total debt but a positive impact on long-term debt. A similar relationship between asset tangibility and debt ratios was found by Booth et al. (2001). The explanation is that long-term debt increases with the asset tangibility of the firm, replacing short-term debt. This means that once the firm owns more valuable assets it can go into long-run commitment and it can replace short-term debt using these assets as collateral. Profitability and liquidity show an indirect correlation to all debt ratios contradicting the assumptions of Trade-off theory which sustain that the firms with high profitability and liquid assets should use more debt.

Taxes are negatively correlated to all debt ratios being in contradiction with the Trade-off theory. According to the Trade-off theory, the firm should increase the debt ratio when taxes rise in order to benefit from the debt tax advantages. This does not seem to be the case for Romanian trade firms. The argument for the negative correlation between tax and debt ratios can be the tax level. The most important tax for the firms is corporate tax which faces a relative low level in Romania being around 16%, one of the lowest in the EU. Combining this argument with the interest rate level on average for the all time interval of 10%, which is the subject of deduction, it may result that taxes are not a determinant factor for the Romanian firms to raise debt in order to benefit from their tax advantages.

Firm size seems to be negative correlated to all debt ratios which is a conclusion consistent with the findings of Kester (1986) and Khaplinsky and Niehaus (1990).

In the second part of the correlation analysis I divided the firms into two categories, large enterprises and SME, using classification according to European Commission regulation. Large firms are considered those enterprises that realise over 50 million annual turnover while SME are those who realise an annual turnover less than 50

million. I decided to analyse the correlation between variables for two distinct firm category (large and SME) in an attempt to find if large firms and SME establish a different relationship between variables according to their financing behaviour as it was mentioned in the literature by Fama and French (2002) and Rajan and Zingales (1995).

The relationship between independent variables and dependent variables for the large enterprises is presented in Table 7.

large firm	SIC	IR	TANG	PROF	LIQ	TAX	SIZE	SHORTD	LONGD	TOTALD
SIC	1,0000									
IR	0,0053	1,0000								
TANG	-0,0569	0,0337	1,0000							
PROF	0,2260	-0,0539	-0,0969	1,0000						
LIQ	0,5143	-0,0518	-0,1201	0,4260	1,0000					
TAX	0,0599	-0,0961	-0,0390	-0,0864	0,0113	1,0000				
SIZE	0,1606	-0,0511	0,0257	0,0378	-0,0037	0,0684	1,0000			
SHORTD	-0,4029	0,0226	-0,2407	-0,4413	-0,6539	0,0318	0,0439	1,0000		
LONGD	-0,2571	-0,0657	-0,1132	-0,1809	-0,3330	0,1967	0,1529	0,4352	1,0000	
TOTALD	-0,3936	-0,0229	-0,2125	-0,3746	-0,5915	0,1301	0,1129	0,8630	0,8304	1,0000

Table7. Correlation between variable for the large enterprises (source: own preparation)

The results for the large enterprises appear to be different from those obtained for the whole sample. Interest rate seems to be negatively correlated to total debt comparing to previous results where it was positively correlated, while the relationship between interest rate and short-term debt remain unchanged. The reason for this difference is argued by the proportion of 98% SME in the whole sample which influences the results and by higher long-term debt ratio (20%) in case of large firms which is negative correlated and two times higher than for SME.

Taxes and size are directly related to all debt ratios for the large enterprises. It means that for the large firm category the leverage increases with the increase in size and

taxes. The large firms increases the leverage in order to finance their assets when the taxes rise motivated by debt tax advantages. Size appears to be an important factor for the large firms regarding capital structure, influencing positive the leverage. These results are consistent with the findings written in Fama and French (2002), which argue for a positive relationship between size and leverage.

SME represent 98% of Romanian traded firms, a proportion similar to those recorded in the European Union. Because SME sector can be considered the economic engine, it becomes very important how the development of these enterprises is stimulated. As it was mentioned above, micro enterprises are strongly supported by the government funds and small enterprises have some financial stimulation at disposal. It will be interesting to observe how the dependent and independent variable are related to each other in this case for SME. The correlation between variables can be observed in the Table 8.

SME	SIC	IR	TANG	PROF	LIQ	TAX	SIZE	SHORTD	LONGD	TOTALD
SIC	1									
IR	-0,0009	1,0000								
TANG	0,1796	-0,1048	1,0000							
PROF	0,0095	0,0569	-0,1165	1,0000						
LIQ	0,1000	-0,0717	-0,0629	0,0115	1,0000					
TAX	0,0197	-0,0117	0,0033	-0,0110	0,0521	1,0000				
SIZE	-0,0876	0,0498	-0,0983	0,2077	-0,0902	-0,0147	1,0000			
SHORTD	-0,0643	0,0578	-0,1069	-0,3033	-0,1431	-0,0093	-0,1317	1,0000		
LONGD	-0,0402	-0,0430	0,1044	-0,0670	-0,0457	-0,0086	-0,0397	-0,0310	1,0000	
TOTALD	-0,0901	0,0421	-0,0876	-0,3204	-0,1537	-0,0129	-0,1413	0,8950	0,3173	1,0000

Table8. Correlation between variable for SME (source: own preparation)

The results presented in the Table 8 are similar to those obtained for the whole sample with a single difference, namely, asset tangibility is positively correlated to long-term debt. It means that Romanian SME use the assets as collateral when they

enter into a long-run commitment. This relationship is similar to that obtained by Booth et al. (2001) who found a positive relationship between asset tangibility and long-term debt but a negative one between tangibility and short-term debt.

5.3 Regression analyses

In this part of the chapter the results of the standard regression analyses with short-term debt, long-term debt and total debt as dependent variables will be presented and discussed. The regression is included in the first part of the analysis in regard to debt ratios for the whole sample. It continues with the regression analyses where the sample is divided in two parts, large firms and SME. The argument behind the second analysis is to observe if large firms and SME behave differently when they establish their capital structure under the influence of the observed factors. Towards the end of the analysis the expected results will be presented (according with Trade-off and Pecking-order theories), comparing them to the results obtained in this study.

The results of standard regression which include the whole sample and all debt ratios as dependent variables can be observed in Table 9.

Variable	SHORTD	LONGD	TOTALD
SIC	-.0000104	-7.15	-.000021
IR	.0077337	-.0017044	.0057
TANG	-.4232013	.096616	-.3071
PROF	-.8439639	-.0514887	-.8902
LIQ	-.0120252	-.0010875	-.0127
TAX	-.0006237	-.0001696	-.0008
SIZE	-.0591111	-.0016301	-.0601
Constant	1.000401	.1177	1.14
R ²	0.1476	0.19	0.15
Observation	7155	7155	7155

Table 9. Regression results for whole sample (source: own preparation)

The dependent variable short-term debt seems to be negatively influenced by the independent variables: industry, tangibility, profitability, liquidity, tax and size but positively influenced by the interest rate. The level of variables industry, tax and interest rate is situated under 1%, meaning that their impact on short-term debt is not significant. Profitability by -0.84 shows a negative significant impact on the short-term debt ratio. This result is consistent with the pecking-order theory which sustains that the firms have a financing order preference and the firms will first use internal resources over external financing. In the case of Romanian traded firms this means that the higher the profitability the lower will be the short-term debt ratio. Tangibility has a negative impact on the short-term debt ratio. The explanation is that for short-term debt the organisation needs easier convertible asset as collateral, fixed asset is usually being used for long-term engagements. The size (-0.05) has a negative impact on the short-term debt ratio. A reason may be the size of Romanian traded firms, 98% being represented by SME, influencing this result in a negative way.

Long-term debts are negative impacted by industry, interest rate, profitability, liquidity, size and taxes while tangibility shows a positive influence. Interest rate, liquidity, tax and size have less than 1% level meaning that the influence of these variables is not significant. Profitability has a significant level (-0.05), influencing negative the long-term debt ratio. A high profitability level leads to a low long-term debt level meaning that the Romanian traded firms follow in this case the pecking-order theory and use the retained earnings to finance the assets instead of external financing. Tangibility (0.09) has a significant positive influence in long-term debt leading to the conclusion that Romanian firms use fixed assets as collateral to raise long-term debts. Industry type has a strong negative impact in long-term debt ratio. The leverage ratio varied across the industries influenced by industry characteristics. It seems that industry characteristics have a strong negative impact in long-term debt ratio for Romanian firms.

The total debt variable is negatively influenced by industry, tangibility, profitability, liquidity tax and size, meanwhile interest rate has a positive influence. The results are influenced by the proportion of the short-term debt (76%) in total debt, being almost

similar to the results for short-term debt. The following factors have an insignificant level: industry, interest rate and tax. Profitability has a negative significant influence on total debt variation, a signal that the Romanian firms use retained earnings before to raise debts. Size and tangibility are negatively related to total debt ratio variation, which can be explained by the high proportion of SME in the whole sample. These results contradict the Fama and French (2002) and Rajan and Zingales (1995) findings that brought a strong support for a positive relationship between size and leverage, tangibility and leverage in particular.

Because the SME represent a very high proportion (98%) in the analysed sample and seem to have a strong influence on the final results, I divided the sample in two parts, in an attempt to find if the large firms have similar financing behaviour and if the relationship between dependent and independent variables remain unchanged. The results of standard regression analyses for large firms and SME is presented in the Table.10

Firm Size	Large Enterprises			SME		
Variable	SHORTD	LONGD	TOTALD	SHORTD	LONGD	TOTALD
SIC	-2,07	-2,9	-5,04	-9,8469	-6,72	-2,0004
IR	0,0001	-0,0031	-0,0030	0,0070	-0,0015	0,006
TANG	-0,6572	-0,2788	-0,9541	-0,4227	0,0986	-0,3679
PROF	-0,5791	-0,1057	-0,6848	-0,8394	-0,0458	-0,08799
LIQ	-0,1784	-0,0747	-0,2532	-0,0119	-0,0013	-0,0126
TAX	0,0012	0,0283	0,0296	-0,0007	-0,0003	-0,0011
SIZE	0,0322	0,0658	0,0981	-0,0625	-0,0057	-0,0677
Constant	0,92	0,15	1,08	1,0145	0,134	1,17
R ²	0,58	0,21	0,49	0,14	0,02	0,15
Observation	143	143	143	7024	7024	7024

Table10. Regression results for SME and large enterprises (source: own preparation)

While the results of standard regression for the SME looks similar to those obtained for the whole sample, the situation appears to be changed for the large enterprises. A

short-term debt ratio is positively influenced by interest rate, tax and size and negative by industry, tangibility, profitability and liquidity. Variable tax (0.001) and interest rate (0.0001) have an insignificant impact in short-term debt ratio variation. Profitability and liquidity have a negative relationship with short-term debt ratio, meaning that the large firms use retained earnings and current assets to finance their business instead of external financing. Size (0.03) is positively related to short-term debt ratio in case of large firms. It is known that larger firms are business diversified leading to a low business and bankruptcy risk. A lower risk seems to be a factor that impact positively in short-run the leverage.

The influence of Size (0.065) and Tax (0.028) is much stronger in the long-run debt ratio than in short-debt. The size, by low business risk, appears to be one of the most important factors that influence positive the long-term debt ratio. According to these results the long-term leverage ratio increases with the firm size, results which conclude with the findings of Fama and French (2002). Tax is positively related to long-term debt ratio for the large firms comparing to SME. It means that larger firms are raising debts in order to benefit from their tax advantages. A surprising result is the negative impact that tangibility has in long-term debt ratio (-0.27), but much lower than in case of short-run debt (-0.65) leading to conclusion that fixed asset are used a lot more in the long-run.

The results for total debt are similar. Once again, the leverage is positively influenced by tax and size, while industry, profitability, liquidity, tangibility are negatively related. The interest rate has an insignificant impact on total debt ratio.

The negative relation between tangibility and leverage, contradict the findings of Titman and Wessels (1988), Marsh (1982), Long and Malitz (1985) and Rajan and Zingales (1995) which show a positive relationship. In the case of Romanian larger firms, the size of the firm characterised by lower business risk and bankruptcy risk appears to be more important than the fixed assets owned by the firm. One explanation may be the specificity of the assets owned by the larger firms, a factor that raises difficulties by conversion in liquidities and leading to a non-acceptance as collateral by creditors.

In the following table we can observe the expected signs according to trade-off and pecking-order theories in comparison to the signs of independent variables obtained in the study.

Variable	Trade-off theory	Pecking-order theory	Whole sample	Large firms	SME
SIC			-	-	-
IR	+	-	+	-	+
TANG	+	-	-	-	-
PROF	+	-	-	-	-
LIQ	+	-	-	-	-
TAX	+	+	-	+	-
SIZE	+	+	-	+	-

Table 11. The expected signs (total leverage) for the variables according to trade-off and pecking-order theory and the results obtained in the analysis

According to these findings it can be stated that large Romanian firms follow closely the pecking-order financing decision while the results of small and medium-sized Romanian firms show a financing order that is closer to pecking-order than trade-off financing order.

6. Conclusions

This study tries to find the most influent factors on the capital structure decision of Romanian traded firms. In this regard, short debt ratio, long debt ratio and total debt as dependent variable has been investigated. In order to identify the influent factors that may impact the capital structure decision of Romanian traded firms, the most common used factors in the capital structure literature were analysed as independent variable. These variables are: asset tangibility, firm size, profitability, liquidity, interest rate, industry type and taxes. This study contains in the first part the analysis of the whole sample for the period from 2003-2012. In the second part, the sample was divided in two parts, large firms and SME, in order to understand if larger firms behave differently as it was mentioned in the capital structure literature.

In order to better understand the capital structure and its fluctuation, all debt ratios were analysed. The results show that Romanian firms have an average overall period of 0, 46 total debt ratios which is under the maximum recommended level (0.6-0.7). Romanian firms appear to have a preference for short-term debt, a proportion of 76% of all debt being for short time. The reason for this is the lack of tangible assets which could allow the enterprises to enter into long-term commitments. The findings bring in evidence of an interesting relationship between debt ratios and interest rate, the short debt follows the same trend with the interest rate while long debt on the contrary. Any increase in interest rate leads to an increase in short debt and to a decrease in long debt. The firms avoid raising long debt when interest rate is higher because this increases their cost of capital and the risks.

The empirical results for the whole sample indicate that most important capital structure factors for Romanian firms are tangibility, profitability, liquidity and size. Excepting the asset tangibility which has a strong positive impact in long-term debt, these factors have a strong negative impact on the capital structure decision. The results were statistically insignificant for interest rate, industry type and tax.

The second regression analyses indicate that, comparing to the whole sample, size and tax have a strong positive influence in the capital structure decision. The size, by risk dilution, seems to lead larger firms to have an easier access to external financing.

Romanian large enterprises appear to use debt in order to benefit from debt tax advantages influencing positively the leverage.

Overall, Romanian traded firms follow a Pecking-order financing decision, using internal funds to finance their assets before to raise debt.

The results of this study are relevant because they include a large sample (776 firms) for a ten year period (2003-2012). It shows that the capital structure changes over the time and which are the most determinant factors of total, long and short debt for the whole sample on the one hand, and for the large firm and SME on the other. For the future research, analyses should be done separately for each industry type because in this study the differences across the industries may have had a negative influence for the results. Moreover, it should use more analytical methods in order to find which model fits for Romanian firms and in order to identify better the determinants of capital structure decisions.

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Appendix

Table1. Dependent variable mode of calculation

Dependent Variable	Mode of calculation
Total debt ratio	total liabilities/ total asset
Short-term debt ratio	short-term liabilities/total asset
Long-term debt ratio	long-term liabilities/total asset

Table2. Independent variable mode of calculation

Independent variable	Mode of calculation
Size	Log of annual turnover
Asset tangibility	Fixed asset/total asset
Liquidity	Current asset/short-term liabilities
Profitability	EBIT/total asset
Interest rate	Monthly rate average
Industry type	SIC
Tax	Taxable income/EBIT

Table 2. Independent variable mode of calculation

Table3. Expected signs of relationship between variables according to trade-off and pecking-order theories

Variable	Trade-off theory	Pecking-order Theory
Size	+	-
Asset tangibility	+	-
Profitability	+	-
Liquidity	+	-
Interest rate	+	-
Industry type		
Tax	+	+

Table4. Descriptive statistic for the whole sample (source: own preparation)

	Mean	Maxim	Minim	Standard Deviation
Total debt ratio	0,4664	23,3136	0,0000	0,6610
Short debt ratio	0,3585	23,3136	0,0000	0,6212
Long term ratio	0,1078	5,3087	0,0000	0,2279
Tangibility	0,5299	0,9999	0,0000	0,2760
Size	5,5332	8,5390	0,9979	1,9103
Profitability	0,0107	3,5953	-5,8888	0,2296
Liquidity	2,8936	245,6798	0,0000	8,1301
Tax ratio	0,7323	131,6810	-96,2391	4,1175
Interest rate	9,9600	18,8300	5,3300	4,5986

Table5. Debt ratios by firm size

Debt ratios \ Size	Large	Medium-size	Small	Micro
Total debt	0,62	0,48	0,42	0,47
Long-term debt	0,2	0,11	0,1	0,1
Short-term debt	0.42	0,37	0,32	0,37

Table6. Correlation between dependent and independent variables
(Source: own preparation)

	SIC	IR	TANG	PROF	LIQ	TAX	SIZE	SHORTD	LONGD	TOTD
SIC	1									
IR	-0,0008	1								
TANG	0,1756	-0,1044	1							
PROF	0,0114	0,0557	-0,1164	1						
LIQ	0,1007	-0,0709	-0,0624	0,0119	1					
TAX	0,0192	-0,0119	0,0022	-0,0113	0,0517	1				
SIZE	-0,0872	0,0473	-0,0988	0,2045	-0,0929	-0,0132	1			
SHORTD	-0,0667	0,0576	-0,1077	-0,304	-0,1437	-0,0086	-0,1263	1		
LONGD	-0,0458	-0,0439	0,0993	-0,0676	-0,0482	-0,0048	-0,0206	-0,0238	1	
TOTD	-0,0943	0,041	-0,0889	-0,3203	-0,1548	-0,0109	-0,1287	0,8934	0,3294	1

Table6. Correlation between dependent and independent variables (Source: own preparation)

Table7. Correlation between variable for the large enterprises
(Source: own preparation)

large firm	SIC	IR	TANG	PROF	LIQ	TAX	SIZE	SHORTD	LONGD	TOTALD
SIC	1,0000									
IR	0,0053	1,0000								
TANG	-0,0569	0,0337	1,0000							
PROF	0,2260	-0,0539	-0,0969	1,0000						
LIQ	0,5143	-0,0518	-0,1201	0,4260	1,0000					
TAX	0,0599	-0,0961	-0,0390	-0,0864	0,0113	1,0000				
SIZE	0,1606	-0,0511	0,0257	0,0378	-0,0037	0,0684	1,0000			
SHORTD	-0,4029	0,0226	-0,2407	-0,4413	-0,6539	0,0318	0,0439	1,0000		
LONGD	-0,2571	-0,0657	-0,1132	-0,1809	-0,3330	0,1967	0,1529	0,4352	1,0000	
TOTALD	-0,3936	-0,0229	-0,2125	-0,3746	-0,5915	0,1301	0,1129	0,8630	0,8304	1,0000

Table8. Correlation between variable for SME
(Source: own preparation)

SME	SIC	IR	TANG	PROF	LIQ	TAX	SIZE	SHORTD	LONGD	TOTALD
SIC	1									
IR	-0,0009	1,0000								
TANG	0,1796	-0,1048	1,0000							
PROF	0,0095	0,0569	-0,1165	1,0000						
LIQ	0,1000	-0,0717	-0,0629	0,0115	1,0000					
TAX	0,0197	-0,0117	0,0033	-0,0110	0,0521	1,0000				
SIZE	-0,0876	0,0498	-0,0983	0,2077	-0,0902	-0,0147	1,0000			
SHORTD	-0,0643	0,0578	-0,1069	-0,3033	-0,1431	-0,0093	-0,1317	1,0000		
LONGD	-0,0402	-0,0430	0,1044	-0,0670	-0,0457	-0,0086	-0,0397	-0,0310	1,0000	
TOTALD	-0,0901	0,0421	-0,0876	-0,3204	-0,1537	-0,0129	-0,1413	0,8950	0,3173	1,0000

Table9. Regression results for whole sample
(Source: own preparation)

Variable	SHORTD	LONGD	TOTALD
SIC	-.0000104	-7.15	-.000021
IR	.0077337	-.0017044	+.0057
TANG	-.4232013	.096616	-.3071
PROF	-.8439639	-.0514887	-.8902
LIQ	-.0120252	-.0010875	-.0127
TAX	-.0006237	-.0001696	-.0008
SIZE	-.0591111	-.0016301	-.0601
Constant	1.000401	.1177	1.14
R ²	0.1476	0.19	0.15
Observation	7155	7155	7155

Table10. Regression results for SME and large enterprises
(Source: own preparation)

Firm Size	Large Enterprises			SME		
Variable	SHORTD	LONGD	TOTALD	SHORTD	LONGD	TOTALD
SIC	-2,07	-2,9	-5,04	-9,8469	-6,72	-2,0004
IR	0,0001	-0,0031	-0,0030	0,0070	-0,0015	0,006
TANG	-0,6572	-0,2788	-0,9541	-0,4227	-0,0986	-0,3679
PROF	-0,5791	-0,1057	-0,6848	-08394	-0,0458	-0,08799
LIQ	-0,1784	-0,0747	-0,2532	-0,0119	-0,0013	-0,0126
TAX	0,0012	0,0283	0,0296	-0,0007	-0,0003	-0,0011
SIZE	0,0322	0,0658	0,0981	-0,0625	-0,0057	-0,0677
Constant	0,92	0,15	1,08	1,0145	0,134	1,17
R ²	0,58	0,21	0,49	0,14	0,02	0,15

Table11. The expected signs (total leverage) for the variables according to trade-off and pecking-order theory and the results obtained in the analyse

Variable	Trade-off theory	Pecking-order theory	Whole sample	Large firms	SME
SIC			-	-	-
IR	+	-	+	-	+
TANG	+	-	-	-	-
PROF	+	-	-	-	-
LIQ	+	-	-	-	-
TAX	+	+	-	+	-
SIZE	+	-	-	+	-

Fig.1 Romanian traded firms by industry structure

(Source: own preparation)

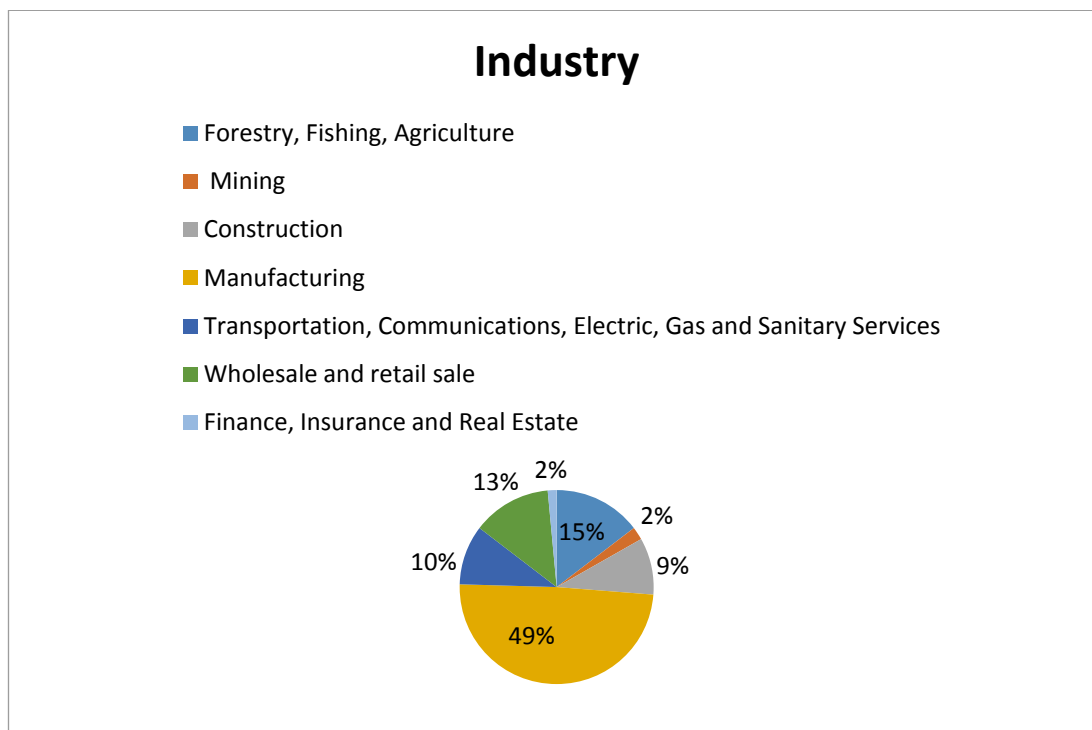


Figure2. Debt ratios and interest rate evolution 2003-2012

(Source: own preparation)

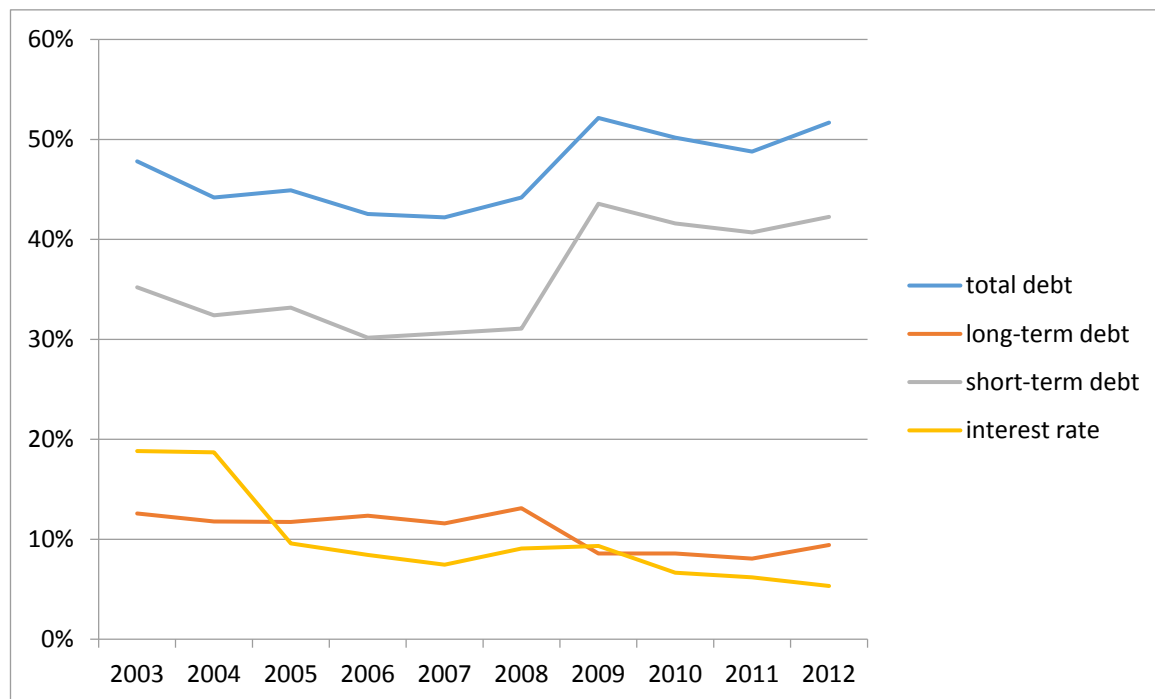
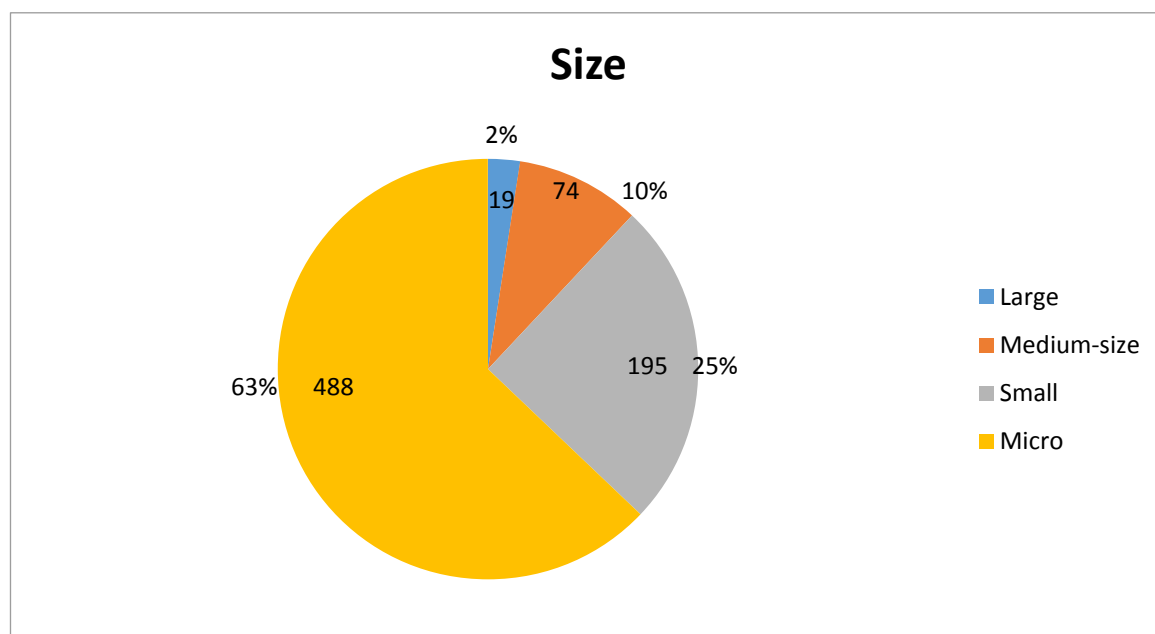


Figure3. Firm size (source: Own preparation)



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