ACTA UNIVERSITATIS AGRICULTURAE ET SILVICULTURAE MENDELIANAE BRUNENSIS

Volume LXI 282 Number 7, 2013
http://dx.doi.org/10.11118/actaun201361072533

THE DETERMINANTS OF CAPITAL STRUCTURE: THE EVIDENCE FROM THE EUROPEAN UNION

Natalia Mokhova, Marek Zinecker

Received: April 11, 2013

Abstract

MOKHOVA NATALIA, ZINECKER MAREK: *The determinants of capital structure: the evidence from the European Union.* Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 2013, LXI, No. 7, pp. 2533–2546

The aim of this study is to indicate the influence of several internal determinants on capital structure in different European countries and retrace its tendency taking into consideration the membership of the European Union. Nowadays there are a lot of debates according the future of the European Union. The recent global financial crisis and the following European debt crisis show the significance of the country financial stability and its impact on the private sector. The paper investigates 32 countries of European Union dividing them into three groups as (1) old EU members (15 countries), (2) new EU members (12 countries) and (3) EU candidates (4 candidate countries and 1 acceding country).

The managers make their financial decisions according to the source of financing and capital structure based on the macroeconomic conditions and country specifics and obviously on company's advantages and disadvantages, i.e. its internal characteristics. Based on the analysis of previous studies we have chosen several significant internal determinants of capital structure as profitability, tangibility, growth opportunities, non-debt tax shields and firm's size.

The findings show that the country's specifics, EU membership and corporate debt structure influence the relation between capital structure and its internal characteristics. The capital structure in all countries has tendency to increase, furthermore the old members rely more on debt then candidates or new members.

There is no doubt that the majority of countries support Pecking Order Theory then Trade off Theory regarding investigated relations. In most countries the profitability and size have negative and significant influence on corporate capital structure. At the same time tangibility, growth opportunities and non-debt tax shields split up: selected countries experience positive impact, another part negative, supporting different theories.

capital structure, financial performance, European Union, determinants

There are a lot of discussions nowadays concerning the future of European Union (EU): should it stand against the following economic shocks and be treated from financial contagion on macro level or separately? However, some countries are still willing to be part of EU. First of all, the main reason is expected economic growth due to the increased foreign investments from EU members. Another reason concerns the financial aids for economic development in the case of crisis. The migration issue has been taken into consideration as well, as it will influence the employment rate and standards of living. Nevertheless, in order to be a true member of EU, the members and candidates have to meet so called convergence criteria (Maastricht criteria), which regulate the financial stability of a country. The countries are controlled on macro level, but situation in private sector has not been taken into consideration to the full extent.

This paper investigates the capital structure and its internal determinants across the old EU members (15 countries), new EU members (12 countries) and EU candidates (4 candidate countries and 1 acceding country). The comparison analysis can contribute to the knowledge enlargement about the influence of EU membership on the financial performances of companies.

The paper is organized as follows. Firstly, the theoretical background deals with internal determinates of capital structure. Next, the third part describes the research design as methodology and variable selection. The fourth part represents the empirical results including correlation analysis between variables. Finally, the last section summarizes and provides concluding remarks.

THEORETICAL BACKGROUND

Modigliani and Miller (1958) gave a background for developing of the capital structure theories by their publication on the theme „…irrelevance theory of capital structure". They assumed that a company has a particular set of expected cash flows and its leverage has no effect on the market value of the firm. There are two different types of capital irrelevance propositions: (a) the classical arbitrage-based irrelevance propositions (arbitrage by investors keeps the value of the company independent of its leverage) and (b) a firm's investment policy, the dividend payout following it will affect neither the current price of its shares nor the total return to its shareholders (Miller and Modigliani, 1961).

Modigliani and Miller (1963) note that despite the existence of some tax advantages for debt financing, firms tend not "to use the maximum possible amount of debt in their capital structure" due to limitations by lenders leading to "the need for preserving flexibility." This theorem has a lot of criticism. It does not provide a realistic description of financing process, it highlights the reasons of financing importance, and it gives a theoretical background for further development of capital structure models.

The tradeoff theory grew out of the debate of the Modigliani –Miller theorem. The corporate income tax was added to the original irrelevance that in turn created a benefit for debt. The trade-off theory assumes that a firm trades off benefits and costs of debt and equity financing and finds an optimal capital structure taking into consideration taxes' advantages, bankruptcy costs and agency costs.

There are two variations of trade off theory: static and dynamic. The first one assumes that "firms have optimal capital structures, which they determine by trading off the costs against the benefits of the use of debt and equity" (Luigi and Sorin, 2009). An advantage to use debt is a debt tax shield and as a disadvantage, the cost of financial distressed can be mentioned. Thus, a firm trades off between tax benefits and the risk of financial distress. The second one (dynamic) assumes that "the correct financing decision typically depends on the financing margin that firm anticipates in the next period" (Luigi and Sorin, 2009).

There is no doubt that Myers and Majluf (1984) are considered to be the founders of the *pecking order theory*. The theory is based on the information asymmetry between firm's investors and its managers. Firms prefer internal financing to external financing, but in the case of necessity of external financing the debt is preferable. This theory does not take optimal capital structure as a target, but use the firm's preferences for using internal instead of external sources as a starting point.

The pecking order theory regards to market-to-book ratio as a measure of investment opportunities. The periods of high investment opportunities will tend to push leverage higher debt capacity.

In the modified version of the pecking order theory (Myers, 1984), firms have two main reasons to restrain themselves from issuing debt: (a) to avoid the costs of financial distress and (b) to maintain financial slack. Adverse selection costs of external equity are much greater than those of debt. Issuance costs are also much greater for equity than for debt. Facing such high and transaction costs, small companies avoid issuing equity.

There is no doubt that there are many internal and external factors influencing capital structure and consequently financial decision process concerning the choice of financing sources. The researchers try to identify those factors and find the most significant determinants of capital structure. The literature research of previous studies points out several companies characteristics that have impact on capital structure.

Profitability (Prof) is one of the most significant factors according to many authors. Myers (1984) suggests that companies in their decisions according the source of financing firstly prefer retained earnings as internal source, then debt, and at least new equity issues. Thus, profitable companies have opportunity to use their profits and consequently have lower leverage among industry they operate.

The companies with high profitability generate more retained earnings that can be utilized as an internal source of financing. Consequently, companies have opportunity to reduce the amount of debt and in turn decrease the financial leverage. Thus, according pecking order theory the relation between profitability and capital structure should be negative (Barton and Gordon, 1988; Jordan *et al*., 1998; Michaelas *et al*., 1999; Ozkan, 2001; Bauer, 2004; Daskalakis and Psillaki, 2008; Bastos *et al*., 2009; Bokpin, 2009; Dincergok and Yalciner, 2011; Nguyen and Wu, 2011; Keshtkar *et al*., 2012).

However, trade off theory considers that profitable companies benefit from leverage effect, face lower bankruptcy costs and find interest tax shield more valuable, consequently companies use more debt. Kouki and Said (2012) argue that there is difference between influence of profitability on market and book leverage. There is a negative effect of profitability on market leverage and positive on book leverage. Otherwise, Hall *et al*. (2000), Lim (20120 find that profitability is negative related only to short-term debt, and there is no influence on the long-term debt, and the contrary is proved by Bokpin (2009).

Following authors as Ozkan, 2001; Bauer, 2004; Daskalakis and Psillaki, 2008; Bastos *et al*., 2009; Hanousek and Shamshur, 2011; Nguyen and Wu, 2011; Kouki and Said, 2012; Lim, 2012 etc. we use EBIT to Total Assets as a proxy for company's profitability. We expect that relation between profitability and capital structure will be negative for selected companies.

Growth opportunities (GO) is another determinant of capital structure proposed by previous studies. Myers (1977) suggests that amount of company's debt is inversely related to the growth opportunities. Later Titman and Wessels (1988) argue that companies in growing industries face higher agency costs as they are more flexible in taking furfures investments. Growth increases bankruptcy costs, reduces free cash flow problems and agency problems. Thus, according trade off theory growth reduces leverage. Some studies supported proposition that there is a negative and significant relation between growth opportunities and capital structure (Ozkan, 2001; Bauer, 2004; Daskalakis and Psillaki, 2008).

On other hand fast growing companies are likely to issue more debt. The positive relation of growth variable with short-term and long-term debt is considered with pecking order theory. The periods of high investment opportunities will tend to push leverage higher debt capacity. The companies with high growth in assets need more external funds to finance their investment projects. And here are some evidence of a positive relation between growth opportunities and company's leverage (Michaelas *et al*., 1999; Daskalakis and Psillaki, 2008; Kouki and Said, 2012). However, some studies find that the effect of profitability depends on debt structure and whether it is market or book leverage. Hall *et al*., 2000 argue that there is no relation between growth and long-term debt. Frank and Goyal (2009) find negative relation with market leverage, but no relation with book leverage.

In our study we use the ratio Intangible assets to Total assets as a proxy for growth opportunities (Michaelas *et al*., 1999). The relation between growth opportunities and capital structure is expected to be negative.

Many studies suppose that also *Tangibility (Tang)* influence capital structure. Companies with greater tangible assets have relatively lower bankruptcy costs, and consequently higher debt capacity. As this kind of assets is less sensitive to asymmetric information and financial distress problems, they can be use as collateral and thus decrease bankruptcy risk and give companies opportunity to borrow more. Lower expected bankruptcy costs and lower agency problems predict a positive relation between tangibility and capital structure. The positive relation between tangibility and capital structure was found by Korajczyk and Levy (2003); Frank and Goyal (2009); Hanousek and Shamshur (2011); Nguyen and Wu (2011). However, Kouki and Said (2012) argue that there is a positive relation between tangibility only to market leverage and negative to book leverage. Also Bastos *et al*. (2009) and Dincergok and Yalciner (2011) find the positive only for long-term debt.

According to the pecking order theory low information asymmetry associated with tangible assets makes external equity less costly; thus, the companies with higher tangibility should have lower leverage. Negative relation is found by Booth *et al*. (2004) and Bauer (2004).

The most used measure for tangibility is the ratio Fixed assets to Total assets (Bastos *et al*., 2009; Dincergok and Yalciner, 2011; Nguyen and Wu, 2011; Kouki and Said, 2012; Lim, 2012). We use the same proxy for our research and expect positive influence on the capital structure.

As well, *Size (Size)* is indicated as a significant determinant of capital structure. Many authors have suggested the positive relation between company's size and capital structure. The larger companies have less constrains to the capital markets, have more favorable interest rates, lower agency costs related to the asset substitutions, lower loan security, and are less likely to become financial distressed. This proposition agrees with trade off theory. The positive relation between company's size and capital structure has been supported by the evidence of SMEs (Michaelas *et al*., 1999; Bhiard mac an and Lucey, 2010) and large companies (Ozkan, 2001) and in general (Korajczyk and Levy, 2003; Bauer, 2004; Hanousek and Shamshur, 2011; Nguyen and Wu, 2011; Lim, 2012). However, larger companies have more opportunities to achieve greater sales and consequently retain earnings. Kouki and Said (2012) find significant negative relation between size and company's book leverage. Hall *et al.* (2000) find that size is positive related to short – term debt and negatively to long-term debt. Another evidence show the influence of size on the market leverage, but no effect on the book leverage (Frank and Goyal, 2009). Most studies base their measures on the total assets. In our research we base on the natural logarithm of total assets (Frank and Goyal, 2009; Lim, 2012) and suppose that there will be negative influence on the capital structure.

Non-debt tax shields have significant effect on the capital structure. Some company's investments generate non-debt tax benefits, which are not associated with source of financing of these investments (Ozkan, 2001). There are different assumptions according their relation to capital structure. The non-debt tax can be associated as substitutes for interest tax shields and thus stimulating companies to use less debt. The negative relation between non-debt tax shields and capital structure was found by Korajczyk and Levy (2003); Bauer (2004); Lim (2012). However, Ozkan (2001) and Kouki and Said (2012) find that non-debt tax shields positive influence the capital structure. As a rule the proxy for non-debt tax shields is the ratio of depreciation expenses to total assets (Bauer, 2004; Dincergok and Yalciner, 2011; Camara, 2012; Kouki

and Said, 2012; Lim, 2012). We expect positive relation between NDTS and capital structure.

There is another equally important determinant of capital structure as *age*. The younger companies have higher average leverage then older companies, which are able to finance its activity using accumulated internal sources from obtained profits. Thus, there is a negative relation between age of a company and capital structure (Michaelas *et al*., 1999; Hall *et al*., 2000). There are some other not frequently used determinants of capital structure. For example, *liquidity* may have different effect on the capital structure. Firstly, companies with higher liquidity ratios have higher debt ratio due to the ability to meet short-term debts. However, companies with greater liquid assets may use them as internal source of financing. The pervious studies support proposition that there is a strong negative relation between liquidity and capital structure (Ozkan, 2001; Bastos *et al*., 2009). Korajczyk and Levy (2003) find negative influence relation between *unique assets* and leverage due to the higher bankruptcy costs. If a company has unique specialized assets, it is more difficult and costly to liquidate them in the case of bankruptcy. Beside operating risk (Barton and Gordon, 1988; Jordan *et al*., 1998; Michaelas *et al*., 1999), R&D ((Bhiard mac an and Lucey, 2010; Nguyen and Wu, 2011), ownership (Bhiard mac an and Lucey, 2010; Lim, 2012), strategy (Jordan *et al*., 1998), industry effects (Michaelas *et al*., 1999; Hanousek and Shamshur, 2011), dividend yield (Nguyen and Wu, 2011) and others are mentioned as determinants of capital structure in previous studies.

Theories of corporate capital structure explain the relation between financial leverage and its various determinants. Tab. I shows how internal factors influence the capital structure according two different theories.

Summing up, there are a lot of investigated determinants of capital structure. Their influence on the financing choice depends on the structure of debt and whether it is market or book estimation of leverage; and in addition the external environment effects the relation between variables, i.e. country specifics.

MATERIALS AND METHODS

The paper is based on the evidence from 32 countries divided into three groups according to the European Commission: old members of EU (founders of EU and countries accepted till 2004), new members (countries accepted from 2004 till 2013) and candidates (countries officially applied for EU membership and an acceding country). We constructed the sample containing manufacturing companies for the period 2006–2011 from the international database Amadeus. The main selection requirements were region (if it is incorporated in an investigated country), industrial sector (if manufacture is the main specialization) and availability of appropriate information (if a company has all required data for the period 2006–2011).

The analysis of previous literature according capital structure and its determinants gives theoretical background for our research. We indicated several internal determinants influencing the capital structure. Following Hall *et al*. (2000), Bauer (2004), Bastos *et al*. (2009), Frank and Goyal (2009), Dincergok and Yalciner (2011), Hanousek and Shamshur (2011), Nguyen and Wu (2011), Duan *et al*. (2012), Kouki and Said (2012) and Lim (2012) we selected profitability (Prof), tangibility (Tang), growth opportunities (GO), size (Size) and non-debt tax shield (NDTS). The proxies for determinants were defined also on the basis of previous research on this issue. Therefore the ratio EBIT to Total assets is a proxy for company's profitability, the ratio Intangible assets to Total assets is a proxy for growth opportunities, the ratio Fixed assets to Total assets is a proxy for tangibility, the natural logarithm of Total assets is a proxy for companies' size and Depreciation to Total Assets as proxy for NDTS.

The capital structure can be measured in different ways. There are many debates according whether book – or market – valued leverage should be used in capital structure studies. Some authors prefer book value of capital, because external factors that company cannot adjust do not influence the book values. Other authors argue that market leverage better reflects the agency problems. However, there are studies that use both types of leverage (Korajczyk and Levy, 2003; Frank and Goyal, 2009; Cook and Tang, 2010; Campello and Giambona, 2010; Dincergok and Yalciner, 2011). Another

I: *Capital structure theories and relation between leverage and internal determinants*

Determinants	Theories	
	Pecking Order Theory	Trade off theory
Profitability	negative	positive
Growth opportunities	positive	negative
Tangibility	negative	positive
Size	negative	positive
Non-debt tax shields	positive	negative

Source: authors' composition based on literature review

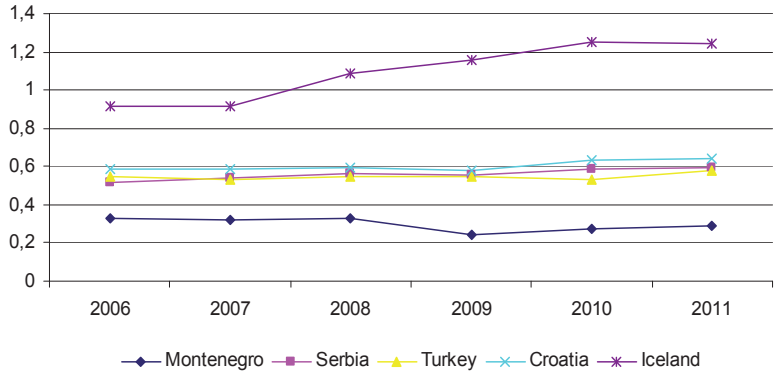
fundamental classification in capital structure proxies is debt structure. Many studies are based not only on the total liabilities, but divide them into short- and long-term liabilities (Michaelas *et al.*, 1999; Hall *et al.*, 2000; Bhiard and Lucey, 2010; Hanousek and Shamshur, 2011; Keshtkar, 2012).

For our research we have chosen three capital structure measures: total leverage represented by total debt to total assets (TL), long-term debt ratio represented by long-term liabilities to total assets (LTD) and short-term debt ratio represented by short-term liabilities to total assets (STD), in order to take into consideration structure of debt. In our research we provide Pearson correlation analysis and regression analysis as Ordinary Listed Squares (OLS), in order to find relations between capital structure and firm's characteristics across the European Union.

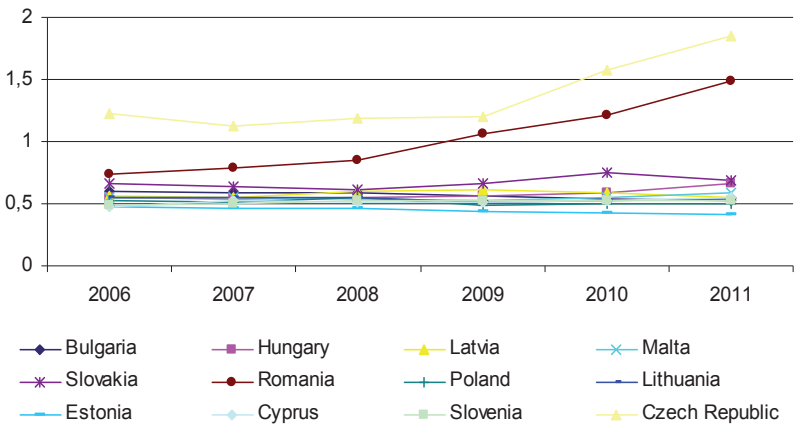
EMPIRICAL EVIDENCE AND DISCUSSION

The corporate capital structure in European Union has a tendency to increase slightly during the investigated period (Fig. 1, 2 and 2). However, all measures of capital structure are volatile with perceptible rise after 2009. The debt structure across examined countries is relatively at the same level. The short-term debt takes the greater part in the corporate capital structure then long-term debt (around 60–80%). One of the Global Financial Crisis causes was the tendency to finance company's long-term assets with short-term debt that in turn led to lack of liquidity and as a result financial instability and even bankruptcy. However, the debt structure has not changed since the crisis.

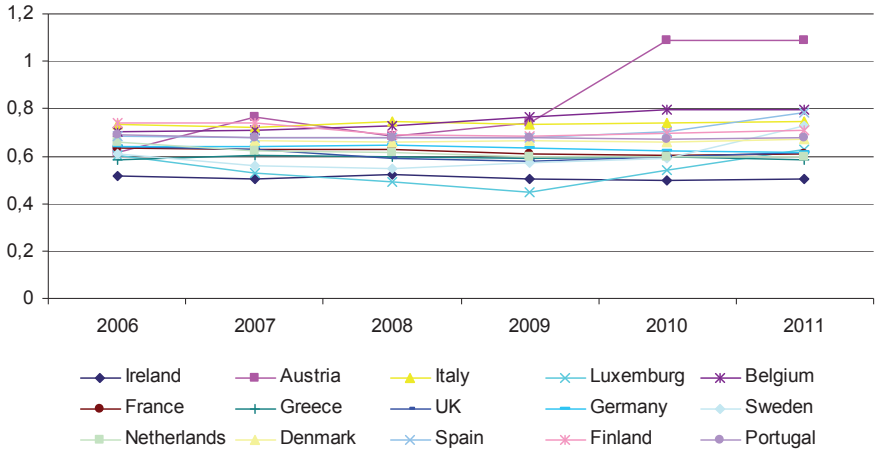
The total financial leverage among candidates' countries keeps at the level 50–60% (Fig. 1). Montenegro has the lowest financial leverage; moreover, after the crisis it has a tendency to decline slightly. This can be caused by higher financial constrains and weaker banking system. Though Iceland has significant higher value with rapid raise after the crisis in 2007, an eventually it is found at the level more then 100%. Interestingly, there are overleveraged countries among new and old members (Fig. 2 and 3). Czech Republic and Romania have rapid increase after 2009 keeping tendency to rise. Among old members Austria also experiences leverage more then 100% after



1: *Capital structure (total leverage) for the period 2006–2007: evidence from the candidates to EU*
Source: authors' composition



2: *Capital structure (total leverage) for the period 2006–2007: evidence from the new members of EU*
Source: authors' composition



3: *Capital structure (total leverage) for the period 2006–2007: evidence from the new members of EU*
Source: authors' composition

2009. A company can face this situation because of different reasons, and that does not mean that it is a bankrupt, however, this is the red signal for the investors. This tendency has risen after the Global Financial Crisis, and one of the possible reasons is accumulating the losses of the previous periods.

The average total leverage for new EU members varies between 40% and 60%. The debt structure is almost similar to old members, where short-term liabilities have more then two-thirds of total debt and 30–40% in average of total assets. However the average capital structure among old members of EU is higher (60–80%), which can be explained by less financial constrains, consequently higher credit availability, less agency and bankruptcy risks.

The membership of EU has modest effect on capital structure and its tendency. The criteria, which members have to maintain, encourage the financial stability of a country, consequentially reduce risks and give financial flexibility to companies.

The empirical results show that debt structure influences the relation between all internal determinants as profitability, tangibility, growth opportunities, size, non-debt tax shields and capital structure. Moreover, the relations between measures of corporate capital structure and determinants depend on country's specifics. The analysis shows that the correlation coefficients across countries are not very high, but still significant in most cases (Appendix A). The regression analysis also supports the hypothesis that there are associations between capital structure and determinants as profitability, tangibility, growth opportunities, size and non-debt tax-shields. The relations are stronger for old members of EU, thus EU membership influence interdependence between financing choice and internal factors.

Among candidates the Montenegro has stronger relations between capital structure and Tang, GO, and Size. The strongest influence of profitability on capital structure is in Serbia. And the impact of NDTS is stronger in Iceland comparing to another candidates. The profitability and tangibility negatively influence capital structure in all candidate countries except Iceland. The same situation with growth opportunities, which are negative related only in Iceland. At the same time, Serbia distinguishes from other countries in regard to size, where it has positive impact and non-debt tax shields with negative.

The profitability for new members of EU has strong influence on the capital structure, and moreover with all its measure relations are negative and significant (except Slovenia that has positive relation between Prof and total leverage and short-term debt ratio). The rest of variables differ according debt structure. The strongest influence on capital structure has Romania and Lithuania, then Hungary and Slovakia. And the weakest effect profitability has in Czech Republic. However Czech companies have the strongest relation between Tang and capital structure. But other countries show sufficient low values. Moreover, the half of new countries has negative influence of Tang and another positive. Growth opportunities have weak impact on capital structure among new members. And the most countries (8) have positive relations. In most new countries the size of a company has negative impact on the financing choice; however, there are two exceptions namely Poland and Estonia with positive influence on TL and LTD. The NDTS has weak impact on measures of capitals structure; moreover, its direction varies across countries. Though in Czech companies there is strong positive relation between NDTS and TL and STD.

In the case of old members of EU the profitability has negative significant impact on capital structure (where Spain has the strongest relation). Towards tangibility seven countries experience negative significant relation and eight have opposite positive association between variables. There are positive significant influence of GO on capital structure in ten countries of third group (with the strongest value in Austria). And the rest 5 have

negative weak significant relations between GO and capital structure proxies. The size negatively influences the capital structure in 13 old EU members except Greece and Denmark. The impact of NDTS varies across countries; most of them have its strong positive effect on capital structure. However Germany, Greece, Spain and Netherlands experience weak negative influence.

For better understanding the nature of investigated associations we consider them in the context of two main capital structure theories as Pecking Order Theory (POT) and Trade off Theory (TT) (Appendix B). The relations between corporate capital structure and internal determinants in most of countries within all three groups are supported by Pecking Order Theory. Thus the companies rely on internal source of finance, then debt and at least external equity. In particular, the relation between capital structure and profitability in most cases support POT; only in Iceland and Slovenia more profitable companies prefer debt financing. Candidates to EU for all variables sustain POT with exception of Iceland (for Prof, Tang and GO) and Serbia (for Size and NDTS). In most new and old countries (aside from Poland, Estonia and Greece, Denmark) the bigger company use less debt as it is able to be finance by internal sources as retained earnings. All countries support different theories according to definitive internal factor. However in Hungary and Malta POT is preferable in all investigated cases.

The relations between profitability, tangibility, growth opportunities, size and non-debt tax shield and capital structure measures very across countries. Therefore, the country specifics and debt structure influence the significance and strength of analyzed effects.

The understanding of the relation between capital structure and internal determinants, its significance and strength, help the managers and investors make more efficient financial decisions, adopt to fast changing macroeconomic conditions, be more flexible and promote further stable development and growth.

CONCLUSION

The recent global financial crisis and following European debt crisis show the significance of the country financial stability and its influence on the private sector. The managers make their financial decisions according the source if financing based on the macro economical conditions its countries' specifics. In this paper we investigate the relation between capital structure and internal determinants concerning the influence of European Union membership.

The findings show that the EU membership influences the corporate capital structure and the influence of the internal determinants in some degree. The old members of EU have stronger financial stability, less financial constrains and lower risks; thus the average financial leverage per group is higher than in others two. As well the candidates do not have such great credit availability as EU members. The capital structure regarding groups before global financial crisis till 2008 was around 60% with 7 points spread, where the candidates have the lowest value and old members have the highest in average. During 2008–2009 all countries were found almost at the same level of 63%. And after 2009 the situation has changed: the tendency for all countries has increased; moreover, the new members start to borrow more then old ones.

There is no doubt that not only country specifics and EU membership influence the relation between capital structure and its determinants, but also the debt structure as short-term debt and long-term debt.

The profitability has negative significant influence on capital structure in most countries except Iceland and Slovenia. The size also negatively related to capita; structure apart from Serbia, Poland, Estonia, Greece and Denmark. The influence of tangibility, growth opportunities and non debt tax shields were negative or positive based on a country's specifics and debt structure in a greater degree.

Summing up, the country's specifics, EU membership and obviously corporate debt structure influence the relation between capital structure and its internal characteristics. And moreover, the strength and significance of internal and external determinants of capital structure depend on the country and maturity of debt.

This paper provides the substantial evidence concerning the influence of internal determinants on capital structure in terms of European Union membership. However there were some research limitations, which can be negotiated in the following research. First of all, the sample can be dividend into two groups as large companies and small and medium business, because they have different opportunities and risks; that in turn will increase the significance of research. Secondly, the international evidence will give more comprehensive picture of the relation between capital structure and its determinants.

Appendix: A Correlation between corporate capital structure and its internal determinants

Capital structure		Determinants				
		Profitability	Tangibility	Growth Opportunities	Size	Non-debt tax shields
Candidates						
Croatia	TL	–0.228** 0.000	–0,142* 0.000	0.036 0.165	–0.277* 0.000	0.153** 0.000
	STD	–0.157** 0.00	–0.304** 0.000	–0.004 0.863	–0.353** 0.000	0.009 0.715
	LTD	–0.137** 0.00	0.246** 0.00	0.069** 0.008	0.093** 0.000	0,247** 0.000
Iceland	TL	0.153* 0.000	0.157** 0.000	–0.002 0.953	–0.251** 0.000	0.264** 0.000
	STD	0.097** 0.000	0.023 0.383	–0.077** 0.003	–0.248** 0.000	0.248** 0.000
	LTD	0.170* 0.000	0.330** 0.000	0.149** 0.008	–0.105** 0.000	0.134** 0.000
Montenegro	TL	–0.216** 0.018	–0.459** 0.000	0.405** 0.000	–0.342** 0.000	0.110 0.230
	STD	–0.076 0.407	–0.620** 0.000	0.045 0.622	–0.576** 0.000	–0.017 0.855
	LTD	–0.293** 0.001	0.096 0.298	0.706** 0.000	0.250** 0.006	0.239** 0.009
Turkey	TL	–0.058 0.106	–0.016 0.657	0.218** 0.000	–0.083** 0.020	…
	STD	–0.042 0.237	–0.213** 0.000	0.141** 0.000	–0.173** 0.000	…
	LTD	–0.034 0.337	0.348** 0.000	0.162** 0.000	0.151** 0.000	…
Serbia	TL	–0.336** 0.000	–0.213** 0.000	0.001 0.956	0.055* 0.034	–0.078** 0.002
	STS	–0.323** 0.000	–0.198** 0.000	–0.064* 0.013	0.037 0.152	–0.051* 0.048
	LTD	–0.088* 0.001	–0.064* 0.013	0.092** 0.000	0.036 0.161	–0.055* 0.034
New members						
Bulgaria	TL	–0.278** 0.000	–0.022 0.411	0.032 0.230	–0.117** 0.000	–0.011 0.671
	STD	–0.2** 0.000	–0.135** 0.000	–0.008 0.772	–0.136** 0.000	0.003 0.901
	LTD	–0.166** 0.000	0.209** 0.00	0.076** 0.004	0.026 0.331	–0.028 0.294
Hungary	TL	–0.418** 0.000	–0.001 0.979	0.111 0.676	–0.081** 0.002	0.216** 0.000
	STD	–0.695** 0.000	–0.110** 0.000	–0.016 0.546	–0.099** 0.000	0.099* 0.000
	LTD	–0.104** 0.000	0.079** 0.002	0.027 0.293	–0.046 0.076	0.244** 0.000
Latvia	TL	–0.256** 0.007	0.429** 0.000	–0.105 0.279	–0.001 0.989	–0.063 0.514
	STD	–0.124 0.202	–0.064 0.512	–0.1 0.305	–0.1 0.305	–0.295** 0.002
	LTD	–0.188 –.052	0.529** 0.000	–0.038 0.695	–.0233* 0.015	–0.70 0.472
Malta	TL	–0.159** 0.000	–0.095* 0.019	0.023 0.572	–0.277** 0.000	…
	STD	–0.064 0.117	–0.191** 0.000	–0.006 0.885	–0.190** 0.000	…
	LTD	–0.230** 0.000	0.170** 000	0.063 0.119	–0.242** 0.000	…

Capital structure		Determinants				
		Profitability	**Tangibility**	**Growth Opportunities**	**Size**	**Non-debt tax shields**
Slovakia	TL	–0.416** 0.000	0.136** 0.000	–0.003 0.916	–0.175** 0.000	0.190** 0.000
	STD	–0.292** 0.000	0.187** 0.000	0.14 0.597	–0.246** 0.000	0.231** 0.000
	LTD	–0.319** 0.000	0.043 0.106	–0.013 0.625	–0.051 0.054	0.080** 0.002
Romania	TL	–0.670** 0.000	–0.037 0.245	–0.024 0.456	–0.270** 0.000	0.413** 0.000
	STD	–0.133** 0.000	–0.005 0.881	–0.042 0.184	–0.181** 0.000	0.142** 0.000
	LTD	–0.369** 0.000	–0.105** 0.001	0.004 0.900	–0.110** 0.001	0.157** 0.000
Poland	TL	–0.371** 0.000	–0.021 0.450	0.015 0.593	0.15 0.599	–0.013 0.651
	STD	–0.290** 0.000	–0.175** 0.000	–0.032 0.263	–0.027 0.345	–0.026 0.351
	LTD	–0.190** 0.000	0.203** 0.000	0.067* 0.019	0.060* 0.036	0.016 0.582
Lithuania	TL	–0.571** 0.000	0.047 0.102	0.012 0.686	–0.170** 0.000	…
	STD	–0.231** 0.000	–.201** 0.000	0.000 0.996	–0.192** 0.000	…
	LTD	–0.508** 0.000	0.267** 0.000	0.011 0.696	–0.028 0.319	…
Estonia	TL	–0.240** 0.000	0.118** 0.000	0.096** 0.000	0.020 0.435	0.071** 0.006
	STD	–0.233** 0.00	–0.084** 0.001	0.112** 0.000	–0.039 0.123	0.063* 0.014
	LTD	–0.079** 0.002	0.274** 0.000	0.010 0.710	0.076** 0.003	0.031 0.231
Cyprus	TL	–0.015 0.897	0.079 0.490	–0.20 0.865	–0.460** 0.000	…
	STD	–0.008 0.944	–0.118 0.304	–0.007 0953	–0.383** 0.001	…
	LTD	–0.016 0.892	0.307** 0.006	–0.026 0.821	–0.304** 0.007	…
Slovenia	TL	0.080* 0.016	–0.131** 0.000	0.038 0.251	–0.086** 0.10	0.041 0.223
	STD	0.107** 0.001	–0.420** 0.000	0.058 0.084	–0.185** 0.000	–0.056 0.096
	LTD	–0.010 0.770	0.308** 0.000	–0.013 0.709	0.094** 0.005	0.125** 0.000
Czech Republic	TL	–0.026 0.403	0.740** 0.000	0.076* 0.013	–0.240** 0.000	0.985** 0.000
	STD	–0.022 0.467	0.740** 0.000	0.077* 0.013	–0.243** 0.000	0.985** 0.000
	LTD	–0.169** 0.000	–0.015 0.623	–0.022 0.473	0.170** 0.000	–0.038 0.213

Capital structure		Determinants				
		Profitability	Tangibility	Growth Opportunities	Size	Non-debt tax shields
Old members						
Ireland	TL	–0.264** 0.000	0.056* 0.032	0.030 0.245	–0.104** 0.000	0.307** 0.000
	STD	–0.198* 0.00	–0.139** 0.000	–0.027 0.302	–0.113** 0.000	0.209** 0.000
	LTD	–0.163** 0.000	0.299** 0.000	0.091** 0.000	–0.012 0.639	0.221** 0.000
Austria	TL	–0.032 0.600	0.417** 0.000	0.966** 0.00	–0.302** 0.000	0.947* 0.000
	STD	–0.046 0.451	0.339** 0.000	0.943** 0.000	–.285** 0.000	0.929** 0.000
	LTD	–0.006 0.915	0.528** 0.000	0.956** 0.000	–0.313 0.000	0.927** 0.000
Italy	TL	–0.475** 0.000	–0.136** 0.000	–0.047 0.070	–0.152** 0.000	0.460*** 0.000
	STD	–0.050 0.052	–0.388** 0.000	–0.178** 0.000	–0.122** 0.000	–0.040 0.120
	LTD	–0.472** 0.000	–0.019 0.456	0.007 0.783	–0.118** 0.000	0.485** 0.000
Luxemburg	TL	–0.450** 0.000	0.102 0.125	0.166* 0.012	–0.162* 0.014	0.243** 0.000
	STD	–0.348** 0.000	–0.023 0.725	0.251** 0.000	–0.236** 0.00	0.191** 0.004
	LTD	–0.357** 0.00	0.188** 0.004	0.003 0.964	–0.014 0.837	0.191** 0.004
Sweden	TL	–0.221** 0.000	0.041 0.168	0.015 0.624	–0.195** 0.00	0.284** 0.000
	STD	–0.558** 0.000	–0.030 0.312	–0.029 0.335	–0.176** 0.000	0.157** 0.000
	LTD	0.032 0.287	0.063* 0.033	0.032 0.285	–0.136** 0.000	0.249** 0.000
Germany	TL	–0.012 0.818	–0.003 0.958	–0.004 0.938	–0.022 0.675	–0.009 0.865
	STD	–0.004 0.946	–0.065 0.220	–0.094 0.076	–0.064 0.229	–0.027 0.615
	LTD	–0.027 0.609	–0.047 0.374	0.041 0.437	0.216** 0.000	0.053 0.321
UK	TL	–0.285** 0.000	–0.034 0.337	–0.080* 0.026	–0.109** 0.002	0.014 0.690
	STD	–0.235** 0.000	–0.219** 0.000	–0.185** 0.000	–0.152** 0.000	0.002 0.957
	LTD	–0.119** 0.001	0.230** 0.000	0.119** 0.001	0.034 0.337	0.019 0.604
Belgium	TL	–0.472** 0.00	0.110** 0.000	0.115** 0.00	–0.233** 0.00	0.498** 0.000
	STD	–0.286** 0.000	0.002 0.936	0.022 0.454	–0.182** 0.000	0.314** 0.000
	LTD	–0.379** 0.000	0.153** 0.000	0.141** 0.00	–0.147** 0.000	0.388** 0.000
Greece	TL	–0.134** 0.000	–0.158** 0.000	0.055* 0.031	0.113** 0.00	–0.148** 0.000
	STD	–0.040 0.123	–0.337** 0.000	–0.045 0.083	–0.057* 0.026	–0.154** 0.000
	LTD	–0.188** 0.00	0.285** 0.000	0.184** 0.000	0.317** 0.000	–0.015 0.573

Capital structure		Determinants				
		Profitability	Tangibility	Growth Opportunities	Size	Non-debt tax shields
France	TL	–0.340** 0.00	0.016 0.581	0.028 0.333	–0.169** 0.00	0.198** 0.000
	STD	–0.274** 0.000	–0.195** 0.000	–0.074** 0.10	–0.185** 0.000	0.101** 0.000
	LTD	0.092** 0.001	0.373** 0.000	0.185** 0.000	0.023 0.420	0.181** 0.000
Spain	TL	–0.823** 0.000	–0.066** 0.007	–0.029 0.234	–0.188** 0.000	–0.056* 0.024
	STD	–0.807** 0.000	–0.135** 0.000	–0.028 0.250	–0.137** 0.00	–0.071** 0.004
	LTD	–0.069** 0.005	0.325** 0.000	–0.004 0.859	–0.236** 0.000	0.074** 0.003
Denmark	TL	–0.330** 0.000	0.141** 0.000	0.031 0.335	0.044 0.173	0.267** 0.000
	STD	–0.231** 0.000	–0.064* 0.045	0.047 0.140	–0.084** 0.009	0.129** 0.000
	LTD	–0.210** 0.000	0.287** 0.000	–0.011 0.724	0.166** 0.00	0.241** 0.000
Finland	TL	–0.370** 0.000	0.022 0.380	0.146** 0.00	–0.220** 0.000	0.058* 0.021
	STD	–0.130** 0.000	–0.198** 0.000	0.011 0.646	–0.028 0.254	–0.021 0.399
	LTD	–0.344** 0.000	0.109** 0.000	0.152** 0.000	–0.226** 0.000	0.072** 0.004
Netherlands	TL	–0.233** 0.000	–0.077** 0.009	0.034 0.249	–0.081** 0.006	–0.045 0.134
	STD	–0.125** 0.000	–0.390** 0.000	–0.036 0.228	–0.242** 0.000	–0.171** 0.000
	LTD	–0.162** 0.000	0.419** 0.000	0.097** 0.001	0.213** 0.000	0.169** 0.000
Portugal	TL	–0.384** 0.000	–0.087** 0.009	–0.020 0.543	–0.237** 0.000	0.0003 0.924
	STD	–0.114** 0.001	–0.276** 0.000	–0.073* 0.028	–0.115** 0.000	0.061 0.066
	LTD	–0.326** 0.0000	0.158** 0.000	0.045 0.177	–0.160** 0.000	–0.053 0.110

Appendix B: Capital structure and its determinants in terms of Pecking Order Theory (POT) and Trade off Theory (TT)

Country	Prof	Tang	GO	Size	NDTS
Candidates					
Croatia	POT	POT	POT	POT	POT
Iceland	TT	TT	TT	POT	POT
Montenegro	POT	POT	POT	POT	POT
Turkey	POT	POT	POT	POT	…
Serbia	POT	POT	POT	TT	TT
New members					
Bulgaria	POT	POT	POT	POT	TT
Hungary	POT	POT	POT	POT	POT
Latvia	POT	TT	TT	POT	TT
Malta	POT	POT	POT	POT	…
Slovakia	POT	TT	TT	POT	POT
Romania	POT	POT	TT	POT	POT
Poland	POT	POT	POT	TT	TT
Lithuania	POT	TT	POT	POT	…
Estonia	POT	TT	POT	TT	POT

Country	Prof	Tang	GO	Size	NDTS
Cyprus	POT	TT	TT	POT	…
Slovenia	TT	POT	POT	POT	POT
Czech Republic	POT	TT	POT	POT	POT
			Old members		
Ireland	POT	TT	POT	POT	POT
Austria	POT	TT	POT	POT	POT
Italy	POT	POT	TT	POT	POT
Luxemburg	POT	TT	POT	POT	POT
Sweden	POT	TT	POT	POT	POT
Germany	POT	POT	TT	POT	TT
UK	POT	POT	TT	POT	POT
Belgium	POT	TT	POT	POT	POT
Greece	POT	POT	POT	TT	TT
France	POT	TT	POT	POT	POT
Spain	POT	POT	TT	POT	TT
Denmark	POT	TT	POT	TT	POT
Finland	POT	TT	POT	POT	POT
Netherlands	POT	POT	POT	POT	TT
Portugal	POT	POT	TT	POT	POT

SUMMARY

This paper investigates the influence of internal determinants on corporate capital structure. There are a lot of discussions nowadays concerning the future of European Union (EU): should it stand against the following economic shocks and be treated from financial contagion on macro level or separately? We analyze the relation between capital structure and its internal factors in the context of European Union membership. The sample was divided into three groups namely EU candidates, new EU members and old EU members. The financial decisions regarding the choice of financing depend on several internal and external factors. In this paper we examine the internal determinants of capital structure represented by profitability, tangibility, growth opportunities, size and non debt tax shields. These internal determinants were chosen based on the literature review of previous studies.

The finding show that the relation between capital structure and its determinants depends on country's specifics, EU membership and corporate debt structure, thus the direction of the effect vary across countries and capital structure measures.

For better understanding the nature of investigated associations we consider them in the context of two main capital structure theories as Pecking Order Theory (POT) and Trade off Theory (TT) (Appendix B). The relations between corporate capital structure and internal determinants in most of countries within all three groups are supported by Pecking Order Theory.

The clarification of the relation between capital structure and its internal determinants, its significance and strength, help the managers and investors make more efficient financial decisions, adopt to fast changing macroeconomic conditions, be more flexible and promote further stable development and growth.

Acknowledgement

This paper is supported by the Czech Science Foundation. Name of the Project: IPO Strategy – Specific Approaches in the CEE Region. Registration No. 13-38047S.

REFERENCES

BASTOS, D. D., NAKAMURA, W. T. and BASSO, L. F. C., 2009: Determinants of capital structure of publicly-traded companies in Latin America: the role of institutional and macroeconomic factors. *Journal of international finance and economics*, 9, 3: 24–39. ISSN 1555-6336.

BAUER, P., 2004a: Determinants of capital structure: Empirical evidence from Czech Republic. *Czech Journal of economics and finance*, 54, 1–2: 2–21. ISSN 0015-1920.

BAUER, P., 2004b: Capital structure of listed companies in Visegrad countries, *Prague economic papers*, 2004, 2: 159–175. ISSN 1210-0455.

BARTON, S. L. and GORDON, P. J., 1988: Corporate strategy and capital structure. *Strategic management journal*, 9, 6: 623–632. ISSN 1097-0266.

BHAIRD mac an,, C. and LUCEY, B., 2010: Determinants of capital structure in Irish SMEs. *Small Business economics*, 35, 3: 357–375. ISSN 1573-0913

BOKPIN, G. A., 2009: Macroeconomic development and capital structure decisions of firms: evidence from emerging market economies. *Studies in economics and finance,* 26, 2: 129–142. ISSN 1086-7376

BOOTH, L., V. AIVAZIAN, A. DEMIRGUC-KUNT, and MAKSIMOVIC, V., 2001: Capital structure in developing countries, *Journal of finance*, 56, 1: 87–130. ISSN 1540-6261.

CAMARA, O., 2012: Capital structure adjustment speed and macroeconomic conditions: U.S. MNCs and DCs. *International Research journal of finance and economics*, 84, February, 2012: 106–120. ISSN 1450-2887.

CAMPELLO, M. and GIAMBONA, E., 2010: Asset tangibility and capital structure, February 28: 1–26. Available at: http://www.ebs.edu/fileadmin/redakteur/funkt.dept.economics/Colloquium/100323_Giambona.pdf.

COOK, D. O. and TANG, T., 2010: Macroeconomic conditions and capital structure adjustment speed. *Journal of corporate finance*, 16, 1: 73–87. ISSN 0929-1199.

DASKALAKIS, N. and PSILLAKI, M., 2008: Do country or firm factors explain capital structure?Evidence from SMEs in France and Greece. *Applied financial economics*, 18, 1: 87–97. ISSN 0960-3107

DINCERGOK, B. and YALCINER, K., 2011: Capital structure decisions of manufacturing firms' in developing countries. *Middle Eastern finance and economics*, 12, April, 2011: 86–100. ISSN 1450-2889.

DUAN, H., CHIK bin, A. R. and LIU, C, 2012: Institutional environment and capital structure: evidence from private listed enterprises in China. *International journal of financial research*, 3, 1: 15–21. ISSN 1923-4031.

FRANK, M. Z. and GOYAL, V. K., 2009: Capital structure decisions: which factors are reliably important? *Financial management*, 38, 1: 1–37. ISSN 1755-053X.

HALL, G., HUTCHINSON, P. and MICHAELAS, N., 2000: Industry effects on the determinants of unquoted SMEs' capital structure. *International journal of the economics of business*, 7, 3: 297–312. ISSN 1466-1829.

HANOUSEK, J. and SHAMSHUR, A., 2011: A stubborn persistence: Is the stability of leverage ratios determined by the stability of the economy? *Journal of corporate finance*, 17, 5: 1360–1376. ISSN 0929-1199.

JENSEN, M. C., 1986: Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review,* 76, 2: 323–329. Available at SSRN: http://ssrn.com/abstract=99580 or http://dx.doi.org/10.2139/ssrn.99580.

JORDAN, J., LOWE, J. and TAYLOR, P., 1998: Strategy and financial policy in UK small firms. *Journal of business finance and accounting*, 25, 1–2: 1–27. ISSN 1468-5957.

KESHTKAR, R., VALIPOUR, H. and JAVANMARD, A., 2012: Determinants of corporate capital structure under different debt maturities: empirical evidence from Iran. *International research journal of finance and economics*, 90, May, 2012: 46–53. ISSN 1450-2887.

KORAJCZYK, R. A. and LEVY, A., 2003: Capital structure choice: macroeconomic conditions and financial constrains. *Journal of financial economics*, 68, 1: 75–109. ISSN 0304-405X.

KOUKI, M. and SAID, H. B., 2012: Capital structure determinants: new evidence from French panel data. *International journal of business and management,* 7, 1: 214–229. ISSN 1833-8119.

LIM, T. C., 2012: Determinants of capital structure: Empirical evidence from financial services listed firms in China. *International journal of economics and finance*, 4, 3: 191–203. ISSN 1916-971X.

LUIGI, P. and SORIN, V., 2009: A review of the capital structure theories. *Annals of the University of Oradea, Economic Science Series,* 3, 1: 315–320. ISSN 1582-5450.

MICHAELAS, N, CHITTENDEN, F and POUTZIORIS, P., 1999: Financial Policy And Capital Structure Choice In U.K. SMEs: Empirical Evidence From Company Panel Data, *Small Business Economics*, 12, 2: 113–130, ISSN 1573-0913.

MILLER, M. H. and MODIGLIANI, F., 1961: Dividend policy, growth and the valuation of shares, *The Journal of Business*, 34, 4: 411–433. DOI:10.1086/294442.

MODIGLIANI, F. and MILLER, M. H., 1958: The cost of capital, corporation finance and the theory of investment. *American Economic Review*, 48, 3: 261–297.

MODIGLIANI, F. and MILLER, M. H., 1963: Corporate income taxes and the cost of capital. *American Economic Review*, 53, 3: 433–443.

MYERS, S. C., 1977: Determinants of corporate borrowing. *Journal of financial economics*, 5, 2: 147–175. ISSN 0304-405x.

MYERS, S. C. 1984: The capital structure puzzle. *Journal of Finance,* 39, 3: 575–592. doi: 10.2307/2327916. ISSN 0022-1082.

MYERS, S. and MAJLUF, N., 1984: Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics,* 13, 2: 187–221. ISSN 0304-405x.

NGUYEN, T. and WU, J., 2011: Capital structure determinants and convergence. *Bankers, Markets and Investors*, 111, March-April, 2011: 43–53. ISBN 2000000008233.

OZKAN, A., 2001: Determinants of capital structure and adjustment to long run target: evidence from UK company panel data. *Journal of business finance and accounting*, 28, 1–2: 175–198. ISSN 1468-5957.

TITMAN, S. and WESSELS, R., 1988: The determinants of capital structure choice. *Journal of finance*, 43, 1: 1–19. ISSN 1540-6261.

Address

Ing. Natalia Mokhova, Department of Finance, doc. Ing. Marek Zinecker, Ph.D., Department of Economics, Brno University of Technology, Faculty of Business and management, 612 00 Brno, Czech Republic, zinecker@fbm.vutbr.cz, mokhova@fbm.vutbr.cz