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Abstract:

Current paper has focused on the capital structure management theories. The theoretical part of the study firstly highlights the differences between trade-off theories and pecking order theories. In the empirical part there are then proved some significant relationships between financial indicators (debt/equity ratio and return on equity) of homogenous data sample from the Czech branch of building area. The aim of the study is to prove the differences between the capital structure development that are based on the type of the Czech companies' ownership in the selected NACE industrial branch and to point out some other particularities. The contribution of the paper is a comparison of the theory as well as practice of this issue in the Czech Republic. For pooled sample there are used selected financial indicators of 57 building companies, all with turnover of more than CZK 1.5 billion. The choice of this criterion was a result of a change in efficiency in Czech economy observed in the selected period. We can assume that this factor will have low influence on the selection of financial resources of large corporations. We may even say that for large companies the availability of financial resources remain unchanged. We have obtained annual data from 2004 to 2011. Due to such short estimation period, but the width of pooled sample on the other hand, it is used generalized method of moments (GMM) panel regression. There are also arguments of motivation to analyse business branch of building specifically. Moreover, an analysis is split according to ownership of companies into two categories, for the Czech and foreign owners. Based on the recent literature there has been made and tested three hypotheses. Results of the article have clearly proved the separation of managers from owner's positions. On the top of that, domestic companies are not pushed to distribute the realized profit so much as foreign owners that prefer the return of their means invested into business. There is also a suggestion of future interests in research focused on other Czech business branches, too.

Keywords: capital structure, return on equity, debt/equity ratio, domestic and foreign owners, GMM panel regression

JEL Classification: G32, C58

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1. Introduction

There are many theories addressing capital structure management. They may be divided into two groups: static theories and dynamic theories. The theories are characterised by putting emphasis on different factors. For this paper there will be used classification according to Myers – the trade-off theory and pecking order theory. Myers claims that these are two basic frames in which the capital structure should be managed. The trade-off theory emphasizes taxes and their effect on the capital structure, the pecking order theory puts emphasis on availability of information and thus the information asymmetry. According to Myers (1984), there are at least two key consequences of the theories. The key consequence of the trade-off theory is gradual modification of the capital structure leading up to meeting the goal of the company. The pecking order theory uses a strict structure of financing. Myers claims that these are the two frames within which the capital structure should be managed. From the view of the issue researched, the text will focus on the dynamic theory of capital structure – the pecking order theory. The reason for using this theory is the fact that measurability of tax benefits of debt in context with financial distress costs, which is the nature of static trade-off theories, is problematic in conditions of the Czech Republic. Many theories for measuring the potential of financial distress focus on using overall indexes of evaluation. Here there is the biggest problem, as most of the overall indexes of evaluation come from the United States of America and their ability to testify is limited in our conditions mainly because of gaining financial means. All overall indexes emphasize profitability (measured by the importance of the index of total profitability) and very low importance is assigned to indexes of liquidity, although these play a very important role from the view of gaining debt sources of financing from the bank sector.

In according to these theoretical concepts, the aim of the study is to prove differences between the capital structure development that are based on the type of the Czech companies' ownership in the selected NACE industrial branch and to point out some other particularities. The contribution of the paper is a comparison of the theory and practice, and mainly the usability of results of the empirical part of the study for a sample of companies from the selected business branch created on the basis of common input properties. The attention was drawn to the area of building as this area is often said to be the indicator of the economic cycle development. While up to 2007 we could see growth, later on we could clearly see a falling tendency of building construction and it was followed by decrease of structural engineering (still in 2009 structural engineering managed to balance the fall of building construction). The weak condition of the branch was caused by delayed impacts of the global economic crisis, mainly by the continuing weak demand of households and companies. The unfavourable results were also caused by economical measures of the government that significantly restricted the infrastructural constructions. On the other hand, there was still positive impact of massive investments into solar power plants for some time (Ministry of Industry and Trade, 2010). To a certain level, the whole economy of the Czech Republic depends on the development of the surrounding economies. The most significant is the effect of development of the German economy which is traditionally a strong trade partner. Thus it will be interesting to watch up to which level just this dissimilar development will show in management of finance sources as well as in profitability of not only this particular branch.

The paper structure, which is divided into four sections, is as follows. The introduction is followed by literature review from which it has been created three main hypotheses as it is usual. While the third section, based on secondary research, describes whole motivation of the selection only just the industrial branch of building in the Czech economy, the fourth section is based only on primary research through an analysis of functional relation within the industrial branch. Finally, the fifth section concludes the study.

2. Creating the Hypotheses on the Basis of the Contemporary State of Knowledge

The paper which tests traditional capital structure models against the alternative of a pecking order model of corporate financing among US firms is elaborated by Shyam-Sunder and Myers (1999). They proved that their tests have the power to reject the pecking order against alternative trade-off hypotheses. They found that a simple pecking order model explains much more of the time-series variance in actual debt ratios than a target adjustment model based on the static trade-off theory. Moreover, they argue that the pecking order hypothesis can be rejected if actual financing follows the target-adjustment specification. On the other hand, this specification of the static trade-off hypothesis will appear to work when financing follows the pecking order in according to their opinion. They argue, modern theories state that financing choices are driven by earnings, growth opportunities, requirements for external financing and the types and values of assets as well. We start with these inputs for actual firms and simulate their financing histories under two or more hypotheses due to them. Then it is possible to test whether each hypothesis could be rejected if financing were generated by an alternative.

Jong *et al.* (2011) tested the static trade-off theory against the pecking order theory. They focused on that important difference in prediction: the static trade-off theory argues that a firm increases leverage until it reaches its target debt ratio, while the pecking order yields debt issuance until the debt capacity is reached. They extended their analysis by specifically taking into account that even investment grade firms are sometimes restricted by their debt capacity, in case of sufficiently large financing deficits. They constructed a model explaining a firm's credit rating and used this to derive an estimate of the marginal debt ratio that would make a firm lose its investment grade rating. They proved that for their sample of US firms the pecking order theory is a better descriptor of firms' issue decisions than the static trade-off theory. In contrast, when they focused on repurchase decisions they proved that the static trade-off theory is a stronger predictor of firms' capital structure decisions.

If we focus on the trade-off theory, then its core factor is seen in using tax shields. From the view of an interest tax shield it is true that every koruna of interest payments may be used as a tax shield, however, as for example DeAngelo and Masulis (1980) point out, there are many companies to which the benefit of tax deduction does not apply because they report clear operating loss. Thus it may be assumed that companies reporting a lower level of taxable incomes will also report a lower level of debt financing. Previous studies have already brought surprising evidence of a very weak effect of the aspect on the decision-making about using the debt financing. The tax benefit of the debt is seen as unconvincing in these studies. For example Bradley *et al.* (1984) brought evidence that companies with sufficient non-debt shields have better D/E ratios than those

that have lower non-debt tax shields. This study is also confirmed by Titman and Wessel (1988) who proved that substantial non-debt shields in the form of clear operation loss or with high volume of investment do not have to have sufficient taxable incomes in order to fully use the benefits of the tax shield. Mackie-Mason (1990) remarks that most companies rather prefer to use non-debt shields in the form of increased capital expenses. Mostly it comes out from the experience of companies, and if the companies have already experienced loss, then in the time of creating operating profit they prefer to realize investments as loss may be realized in the oncoming years again.

Sabiwalsky (2010) tested on North American non-financial firms the hypothesis that firms adjust leverage towards a time-varying target, and that this target is determined by solving an optimization problem: optimal leverage is achieved when the difference between the expected net present value of the tax shield and the expected net present value of the costs of insolvency is maximized. His results indicate that firm size is an important determinant of the validity of this simple trade-off model. Results suggest that leverage converges to a target, and that the choice of this target is dominated by the trade-off theory for medium-sized firms, but only partially influenced by the trade-off theory for very small and very large firms.

La Bruslerie and Latrous (2012) exclude the largest French groups belonging to the top CAC 40 Index and used just firms that belong to the SBF 250 index. They found that financial distress will prompt controlling shareholders to reduce the firm's leverage ratio. Empirically, it is shown that the inflection point where the sign of the relationship between ownership and debt changes is around 40%. Debts may help in curbing private appropriation and appear also as a governance variable. They suggest that controlling shareholders holding a small fraction of a firm's equity will use more debt to inflate their power and protect themselves.

The pecking order theory comes out of the fact that due to the existence of unfavourable selection the company primarily uses these choices for its financing: retained profit, debt financing and only then it comes to obtaining other own finance sources. The pecking order theory explains the relation to the capital structure on the basis of information asymmetry between managers and other people (Kislingerová, 2004). It causes various evaluations of issued securities by given target groups. Therefore, companies prefer to issue securities that are the least sensitive to the information available. If they need available finance, they first use own sources, then debt and the last choice is to issue new equity capital. It follows the view of company managers and not interests of company owners. This theory comes out of the assumption that companies and their management prefer to use own sources to the debt ones. Thus it comes to creating a hierarchy of using the investment finance sources from those most preferred to those used the least; the most often used being the own finance sources, followed by classic debt finance sources and, issue of securities is only as the last instance for gaining finance sources.

Frank and Goyal (2003) tested the pecking order theory of corporate leverage on a broad cross-section of publicly traded US firms. Contrary to the pecking order theory, net equity issues track the financing deficit more closely than do net debt issues. While large firms exhibit some aspects of pecking order behaviour, the evidence is not robust to the inclusion of conventional leverage factors. Financing deficit is less important in explaining net debt issues over time for firms of all sizes. Their analysis has three elements. First, they provided evidence about the broad patterns of financing activity. This provides

the empirical context for the more formal regression tests. It also serves as a check on the significance of external finance and equity issues. Second, they examined a number of implications of the pecking order in the context of Shyam-Sunder and Myers' (1999) regression tests. Finally, they checked to see whether the pecking order theory receives greater support among firms that face particularly severe adverse selection problems.

Chen *et al.* (2013) exploited panel data of publicly traded firms in Taiwan to test the pecking order theory the market timing theory over 1990–2005. Their results indicate no support for pecking order behaviour (consistent with Frank and Goyal, 2003), as net equity issues track the financing deficit much more closely than net debt issues do. The adverse selection also demonstrates that the pecking order theory is not supported by their empirical results. In other words, Taiwanese firms prefer issuing more debt rather than equity under low market performance.

Another level which may be observed in the context is a probable difference in pursuing the goal at which the company is directed. Based on the difference, there may be a conflict of interest that may be observed on two basic levels. The core of the managerial conflict from the view of capital structure is in the fact that under certain circumstances a high level of credit financing may lead to growth of profitability of shareholders on the one hand (from the position of ROE), however, on the other hand, it may lead to liquidation of the company as a result of disproportionate expense burden of external capital acquisition. Pioneers in the area of research of the managerial conflict are Jensen and Meckling (1976) who followed Fama and Miller's study from 1972. However, the conflict of interest does not happen only on the level manager vs. shareholder, but also on the level creditor vs. shareholder. From this point of view there are many studies dealing with conflicts on both levels. Jensen and Meckling Model (1976) identify two basic types of conflicts. The first conflict is a classical type in corporations – it is a conflict of shareholders' interest in relation to owners' interest. Costs of the conflict may be in various forms, two basic ones are costs of monitoring of managers, thus implementing control mechanisms in order to check managers' behaviour. Though, the authors of the paper can see several problems, such as the existence of stowaways who are the shareholders minority in their view. They let the bigger shareholders monitor the management without participating in the activity, and the share of the result – correct managerial behaviour – is later allotted to them. Another group of costs is costs of incentive system for managers (it is usually requested by the managers). Under certain circumstances we may state that the incentive system may be seen as rather beneficial to a large extent, as when it is properly set then the representative costs may be just a fragment of possible revenues. However, one should realize that it does have some limits and a critical point when the revenues are not generated in sufficient extent. In order to delay this critical point and to secure more efficient work, the system most often used is to engage the manager in owning the company (manager' share of ownership).

Another view is the fact that managers do not control the decision-making process about using profit absolutely; they are limited in their decision-making by shareholders' interests. It is mainly the fact that it does not stay fully in the company to be reinvested but it quite naturally covers shareholders' claims. However, from the managers' view, strengthening of the retained profit makes better conditions from the view of acquisition costs of capital. The retained profit makes effect of participating in the investment and it relatively decreases risk of creditors who provide investment

finance sources. Yet shareholders are naturally worried about inefficient use of untrusted financial means, about support of personal managers' interests – transformation of profit into "personal benefits". Majority owners fight this effect by involving the managers into ownership of the company and thus, in possible positive results of efficient management of the untrusted means.

It is just this involvement that reduces the managerial conflict to a certain extent. There may arise probably a problem with liquidity and there is a conflict, too. While with the investor' control, the decision about liquidity is made with sufficient expenses to gain relevant information for an optimum decision and mistakes happen from insufficiency of the information, then with the manager' control, from the view of an optimum liquid position mistakes are made because of relevant manager's own mistakes'. Thus the decision-making process is affected not only by the managerial conflict but also by a problem with asymmetry of information.

In corporations there is also another type of conflict than the owner vs. manager, which is also called representative, and that is for instance a conflict between shareholders and providers of long-term finance sources – creditors. While the classic representative conflict is rather typical of the Anglo American model, the conflict with creditors is rather predominant in the continental European model. The conflict of the owner vs. creditor is again given by existence of various goals, this time caused by various types of investment into the company. A shareholder puts his means into the registered (or equity) capital of the company, while a creditor is a provider of liabilities of the company. Then the different basis of investments causes a difference in the character of revenues. While the owner may collect dividends or capital profit (or its combination) that unfolds from characteristics and prospects of projects into which the company invested, the creditor collects "only" the interest payments from the provided sources and then he demands them to be returned. Strictly speaking, he is not interested in increasing the market value of the company but in its stability. He is not interested in growth of the company but in gaining the requested interests and collecting the invested means in terms when they are due. A more important factor from this point of view is liquidity of the company (Roubíčková, Růčková, 2012).

From the theoretical aspects mentioned above, in order to meet the goals more easily, we may deduce the following hypotheses that will be verified by the following methods of statistical analysis to that used indicators of debt/equity ratio and return on equity, from the view of methodology:

- The possibility of an interest tax shield is not sufficiently motivating to use debt finance sources.
- Foreign owners with emphasis on recoverability of the invested means will be more willing to use debt finance sources.
- Managers will incline to a greater use of own finance sources, from the view of risk.

3. Specifics of the Industrial Branch of Building in the Czech Economy

For better explanation of the motivation of the selection only just the industrial branch of building, this section is divided into two parts. While the first part focused on the structure of finance sources in the selected branches within the Czech economy, the second

part focused on the development of the both, the structure of used capital as well as ROE in building companies.

3.1 Structure of finance sources in the selected business branches

From the view of the pecking order theory it should be true that when using finance sources, companies will prefer to use own finance sources than to use other sources. From this view then it should be true that in their structures, companies should prefer to use own finance sources than to use debt sources. Regarding the frequency of primary issues of shares in conditions of the Czech Republic we might exclude the potential of using the third level of finance sources in the above stated hierarchy. According to Meluzín (2009), a typical Czech joint stock company in the sense of ownership structure IPO has not been executed in the Czech capital market so far. Thus, distribution between the used equity capital and debt capital remains, regardless whether these are sources from the bank sector or whether it was an issue of obligations (although this type of gaining finance sources is not an essential finance source in the Czech Republic). Not only inconsistency of the mentioned theoretical views of the issue of management has motivated us to write the paper. The attention will be drawn to research of the issue of capital structure from the view of two basic aspects of the Czech business. The main aspect comes from the dissimilarity of ownership. When classifying as domestic and foreign owners, we may find that the foreign owners prefer debt finance sources more significantly than the domestic owners, as there is a greater emphasis on recoverability of the investment, or vice versa. The other aspect is that individual business branches report a different way of using finance sources, too.

Table 1 | Structure of Finance Sources via Debt/Equity Ratio in the Selected Branches from 2004 to 2011

	2004	2005	2006	2007	2008	2009	2010	2011
Mining	0.40	0.54	0.81	0.70	0.64	0.58	0.61	0.66
Processing Industry	1.01	1.04	1.01	0.90	0.91	0.88	0.94	0.99
Power engineering	0.56	0.53	0.53	0.76	1.03	0.95	1.15	1.18
Building	1.79	1.77	1.91	2.26	1.81	1.69	1.55	1.70
Services	1.73	1.72	1.61	0.96	0.84	0.92	0.895	0.977

Source: own calculations and processing based on branch analyses of the Ministry of Industry and Trade

If we focus on the selected business branches as wholes, then Table 1 makes it obvious that in most of the business branches and for most of the monitored years the use of own finance sources really predominates over the debt finance sources. The weakest willingness to use debt finance sources is reported in mining, where we have seen values with a higher rate of use of debt capital in no single observation. In all monitored years the use of own finance sources prevailed. On the other hand, in building it may be stated that the use of debt finance sources prevails in a very distinct way and that no single monitored period reported prevalence of own finance sources. The other business branches

prefer to use own finance sources in most periods – no matter whether the economy was in the phase of growth or decrease. If larger use of debt finance sources is reported, then only slightly above the value of 1. The exception is services at the beginning of observations; they have balanced their financial structure with other business branches since 2007.

Table 2 | Structure of Finance Sources in Companies with Domestic Owners via Debt/Equity Ratio in Selected Areas from 2004 to 2011

	2004	2005	2006	2007	2008	2009	2010	2011
Mining	0.40	0.61	1.01	0.93	0.94	0.59	0.80	0.79
Processing industry	1.00	0.99	1.05	0.97	0.95	0.91	0.93	0.92
Power engineering	0.64	0.41	0.45	0.42	0.51	0.58	0.60	0.57
Building	1.87	1.80	1.92	2.10	1.83	1.63	1.35	1.41
Services	1.46	1.54	1.48	0.79	0.72	0.66	0.82	0.83

Source: own calculations and processing based on branch analyses of the Ministry of Industry and Trade

If we pay our attention to classification of companies from the view of ownership (Table 2), then we may state that the situation corresponds to the values that were reached in branches as whole units. However, from the view of frequency of prevailing use of equity capital there is even greater prevalence, as while the prevalence of use of equity capital was seen in the processing industry and power engineering as wholes for five years out of eight, then in case of the domestic owners it reaches up to seven years out of eight. Thus it may be stated that if the majority owner is a domestic investor, then there is a greater probability that the portfolio of the used finance sources will show predominating own sources of financing. The exception being building again, even though the values are slightly lower than the branch as a whole, too. The last monitored group was the business branches with companies where the majority owner is a foreign investor, which is reported in Table 3.

Table 3 | Structure of Finance Sources of Companies with Foreign Owners via Debt/Equity Ratio in Selected Branches from 2004 to 2011

	2004	2005	2006	2007	2008	2009	2010	2011
Mining	0.70	0.41	0.33	0.72	0.62	0.59	0.47	0.68
Processing industry	1.14	1.11	1.03	0.92	0.93	0.92	0.98	1.05
Power engineering	0.91	0.81	0.72	0.65	0.81	0.78	0.89	0.86
Building	2.00	1.96	2.29	2.57	1.93	1.89	1.95	1.81
Services	1.9	1.83	1.87	1.21	1.11	1.06	1.14	1.30

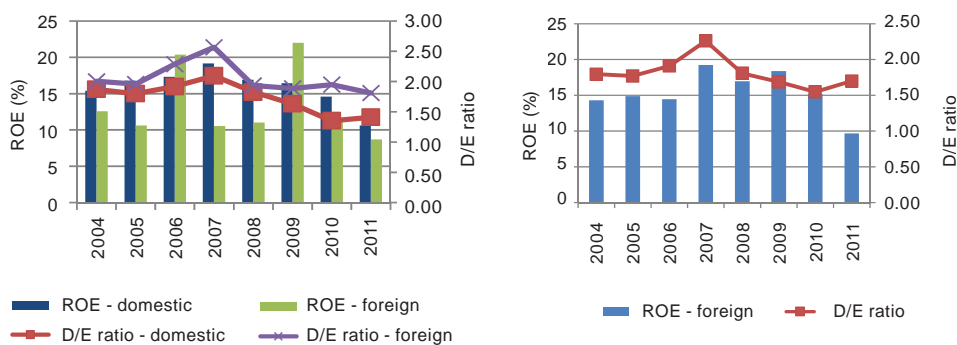
Source: own calculations and processing based on branch analyses of the Ministry of Industry and Trade

It is obvious from Table 3 that what was stated above is also true for foreign investors. In almost all the business branches we may see similar frequency of use of own finance sources, though we may find slight differences here, too. The least willingness to use debt finance sources is reported in mining, while power engineering and processing industry report relatively balanced finance structure. The main difference is obvious in the area of services. While in the parts before, use of own finance sources prevailed in services, then with foreign owners we may see the tendency to debt finance sources even with a growing tendency since 2009. Similarly as in previous finance source structures, building reports the greatest tendency to use debt finance sources here, too. A different capital structure of business branch of building is the main motivation for an analysis of this branch specifically.

3.2 Development of the structure of used capital and ROE in building companies

Only within the development in building we can register an increased share of debt financing regardless of the type of owner, and the general theories inspire to research the issue from the view of efficient use of finance sources, as they say that use of debt finance sources should contribute to the increasing ROE. All the stated facts lead to an assumption that if there is a relation between the size of indebtedness and ROE, then it should be primarily analysed in this business branch. A generally accepted theoretical precondition is the fact that greater use of debt finance sources leads to growth of ROE regardless the fact whether the owner is domestic or foreign.

Figure 1 | Development of Relation of ROE and D/E Ratio in Building as a Whole and in Companies with Dominant Domestic and Foreign Investors

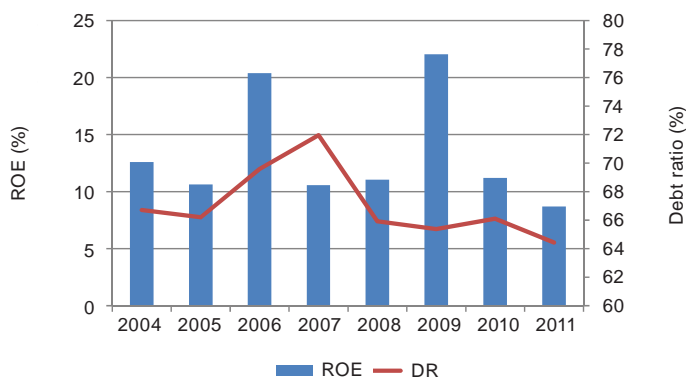


Source: own calculations and processing based on branch analyses of the Ministry of Industry and Trade

In Figure 1 we can see a very strong tendency to debt finance sources in all the three processed variants, the weakest willingness to use debt finance sources being visible with domestic owners. With this type of owners there is an obvious tendency to a rather balanced model of debt and own finance sources. If we draw our attention to the relation of ROE and D/E ratio, then it is apparent that in the case of domestic owners there is a significantly correlated relation, namely on the level of 0.81, which is the highest

rate of correlation that we reported in the sample monitored. The variant of correlation ratio in the business branch as a whole reported a lower level of correlation on the level of 0.46 and, in the case of foreign owners we may find a contrary development tendency, which means that when there was an inflow of debt capital the ROE decreased in time and the correlation ratio reported the value of -0.62. Which – due to the fact that the foreign owners preferred debt finance sources in the financial structure – is not an ideal situation. Though we may also argue that we may observe significantly higher values of ROE in companies with foreign owners for the whole monitored period, which set them significantly apart from companies owned by domestic owners. If we focus on the relation of debt capital and ROE, that means we will not proceed through D/E ratio, then all the three monitored groups in the period from 2004 to 2011 report a positive correlation, however, it is still true that with foreign owners the relation is the least distinct on the level of correlation ratio of 0.1. It is also shown in the figure below where the relation of ROE is expressed with the level of debt financing. Figure 2 also makes it clear that since 2007 the contrary development tendency was present and since 2009 the negative impact of economic slump has been registered in a very significant way, though the use of debt finance sources has also decreased together with the slump. If we express it by a correlation coefficient, just due to the slump in the recent years the relation reached values when the relation may be called as almost uncorrelated because its value is on the level of 0.1.

Figure 2 | Development of Relation of ROE and Debt Ratio in Building in Companies with Dominant Foreign Investors



Due to the fact that it is a research of average values of the business branch and thus, it is not possible to unambiguously trace reasons for such various behaviour, the further testing will be based on panel regression in order to estimate the functional relationship in the sample researched. The text will focus on the data sample of companies from the building industry and development of the selected indicators of financial analysis in the period from 2004 to 2011 (thus in the same monitored period).

4. Analysis of Functional Relation within the Industrial Branch of Building

Basic sample of primary research includes only the largest companies of the industrial branch of building with turnover over CZK 1.5 billion. It is efficient to use the largest sample as it is possible. However, smaller companies of the branch have not complete time series or it is not long enough in order to carry out the total analysis on a congruent basis. Due to that serious fact the estimated basic sample includes only 57 companies, the largest sample possible to estimate. Even, in the Czech Republic the total number of companies in this category is 64 but seven of them did not have the time series long enough. Choice of this criterion was a result of change in efficiency of Czech economy in observed period. We can assume that this factor will have low influence on selection of financial resources of large corporations. We may even say that for large companies the availability of financial resources remain unchanged.

When creating a panel data regression model, we will follow methodologically the study of Haas and Lelyveld (2010). A sufficiently broad data base in cross-section through panels of individual companies enables us to estimate results by using a generalized method of moments (GMM), even in spite of the short monitored period. The following Equation 1 represents a mathematical record of the relation examined:

$$\Delta ROE_{it} = \alpha_1 + \gamma_1 * \Delta ROE_{it-1} + \beta_{own} * \Delta DRA_{it} + \varepsilon_{it}, \quad (1)$$

where the endogenous dependent variable ΔROE_{it} represents development of ROE of i companies in time t , the exogenous independent variables being the lag values of development of ROE from the previous year ΔROE_{it-1} and development of debt ratio ΔDRA_{it} , exemplifying the use of financing by debt sources. Symbols α_1 and ε_{it} are then the constants of the model and residual constituents of the GMM model. The situation is modelled for the whole sample as well as it is based on classification of companies with foreign or domestic owners.

Then, the Equation 2 shows us a version of the modified functional relation:

$$\Delta HDP_{it} = \alpha_1 + \gamma_1 * \Delta HDP_{it-1} + \lambda_{own} * \Delta ROE_{it} + \vartheta_{own} * \Delta ERA_{it} + \delta_{own} * \Delta L_{it} + \varepsilon_{it}, \quad (2)$$

where explained endogenous variable ΔHDP_{it} is the development of gross domestic product for the branch of building for i companies in time t , explaining regressors are the development of GDP for the previous period ΔHDP_{it-1} , development of ROE of building companies ΔROE_{it} , development of equity ratio ΔERA_{it} and development of liquidity of the first or second level ΔL_{it} .

4.1 Discussion of empirical results

Table 4 | ROE as Dependent Variable

	All	Foreign owner	Domestic owner
γ_1	-0.1102 ^a	-0.3965 ^a	0.0442 ^a
β_{own}	0.2444 ^a	0.3999 ^a	-0.0843 ^a
S.E. of regression	0.5053	0.6469	0.3196

Note: Symbol a means statistical significant coefficient at 1% level.

Table 4 shows a positive functional effect of debt sources on the ROE indicator of the selected sample comprising 57 companies from the industrial branch of building. Moreover, when we classify them according to the type of ownership, we can see that the fact is caused by a significant positive effect of financing by debt sources only in companies owned by foreigners (27) with turnover over CZK 1.5 billion. In companies with domestic owners (30) there is a completely contrary effect – that means a negative effect of financing by debt sources on the value of the ROE indicator. A greater use of debt finance sources in companies with foreign owners may be understood as the fact that in these companies there is usually the manager separated from the owner. Besides, in Hernardi and Ormose’ study (2012), there is also a difference, whether they only consider the debt sources or whether they actually use them. The study showed that 73 per cent of the companies do not set the target ratio of own and debt finance sources, while the greatest setting the target is apparent in Poland and the weakest willingness is in the Czech Republic. In the Czech Republic (72 companies were represented), managers reported in the study that they prefer internally created own finance sources for financing the assets. Moreover, the information was supported by another part of the survey which examined in what position the manager is (*i.e.* whether he is the owner at the same time, or not). In this context they found that the greater volume of debt finance sources is used by companies led by managers who are not owners at the same time. This fact was also verified in our sample of the building companies.

Regarding the value of the last year ROE and its effect on the return this year, we can see differences in character as well as in heights of the coefficient. While for companies with foreign owners a negative relation is typical, for domestic companies a slightly positive relation is typical. In simple terms it means that if in a foreign-owned company there is a decrease of ROE in one year, the next year there is a significant increase and *vice versa*. For domestic companies there is a typical very slow increase in the value of the ROE indicator. As we see, this supports a statement that foreign owners rather prefer the return of their own means invested in the business. The use of additional debt capital means for them increase in ROE, although this is a strictly individual matter. It is again corroborated here that separation of positions of manager and owner may positively show mainly in that sense that the manager will be “pushed” by the owners to high return of the invested financial means, and thus, his primary interest will not be to decrease the tax base at all costs. Moreover, in the conditions of the Czech Republic, the primarily used debt finance sources are sources from the bank sector, which also means that

with another use of the bank credit, there is increase in the risk for the creditor and then increase in the interest rate for any other bank credit. The use of bank credits was mainly studied in companies with domestic owners and therefore, there was dependence shown – when due to the financial lever – the value of ROE of domestic companies on the contrary falls with the next debt.

The error rate of the panel model of the sample of companies with foreign owners that we illustrate here is the highest. Nevertheless, we are of an opinion that our results are in good condition. Though in tests of model residuals' heteroscedasticity of foreign owned companies the correlation between the residual part of the model and the rate of debt was proven on the level of 0.23, which may point out a problem of heteroscedasticity presence. However, the panel estimation may not be tested *e.g.* through ARCH/GARCH models. So from the view of the panel model it is not possible to choose any other variant than regression generalized method of moments (GMM). The last model for companies with domestic owners is in good condition from this point of view.

Theoretically there should be a relation of selected quantities of financial analysis for rate of GDP growth of the selected industry, mainly ROE, ROA as well as indicators of indebtedness and liquidity. From the theoretical point of view – due to the fact that building may be considered a procyclic branch – we should study the positive correlation of relation between ROE and GDP. If we study the relation of ROE and GDP on average values in building as a whole, then only limited dependence is apparent and the relation is almost uncorrelated on the level of 0.11. If we classify company owners, then with domestic owners we find a more clearly correlated relation (on the level of 0.51) from 2004 to 2011. With companies with foreign owners the relation is uncorrelated, which means that there is not dependence between the rate of growth of gross domestic product and ROE of foreign-owned companies. For indebtedness we may say that when the economic growth increases, then there is greater willingness to use debt finance sources than in times of economic crises, so here too, we should notice a positively correlated relation. On the contrary, when the economy grows, then liquidity should report either falling or stable position. This idea is mainly based on the fact that with growth of investment opportunities, the willingness to keep financial means in little efficient current assets on which liquidity is primarily based will fall. Therefore, we have focused on searching for possible existing dependences of such character.

Table 5 shows us then, that the greatest functional effect on the GDP growth rate naturally lies with the GDP growth rate of the previous year. Therefore, the other coefficients we have estimated are also on such a low level. However, we may again watch a various functional relation of the selected variables on the GDP growth rate of the whole branch for foreign-owned companies and companies with domestic owners. From the view of liquidity L1, companies with foreign owners would clearly do better if they cut down ready cash. For companies with domestic owners this relation was not proven, only in much smaller scale there was detected a negative effect of growth of their claims in case of liquidity L2.

Table 5 | GDP Growth Rate as Dependent Variable

	All	All	Foreign owner	Domestic owner	Domestic owner
γ_1	0.5502 ^a	0.5679 ^a	0.5326 ^a	0.5550 ^a	0.5588 ^a
λ_{own}	0.0024	0.0023 ^a	0.0061 ^a	-0.0122 ^a	-0.0118 ^a
ϱ_{own}	-0.0047 ^b	-0.0083 ^a	-0.0047 ^a	0.0056	
$\delta_{own}(L1)$	-0.0169 ^a		-0.0207 ^a	-0.0110	
$\delta_{own}(L2)$					-0.0065 ^b
S.E. of regression	0.0348	0.0351	0.0342	0.0352	0.0351

Note: Symbol ^a, ^b means statistical significant coefficient at 1 %, 5% level.

The negative relation of ROE and GDP of the domestic owners may be due to the above mentioned strategy to use debt finance sources to a lesser extent as well as to try to pay less taxes into the state budget that means to try to decrease the tax base in a different way than just by tax eligible interests. Thus in domestic companies the function of the tax shield is probably performed by a non-debt tax shield in the form of depreciation. What may be seen as problematic is the fact that building makes its business in a long-term horizon and the effect on GDP may be delayed to a certain degree.

In foreign-owned companies we can see quite contrary positive functional effect of ROE on GDP development of the branch. A significant functional relation between the share of debt capital and GDP growth rate was not proven in any of the models. However, in foreign-owned companies there was proven a negative effect of the share of equity capital. That means, when the equity capital of companies with foreign owners grows, the GDP growth rate in building decreases. Again, it is a logical dependence – when the economy grows, demand for building and willingness grow because of use debt finance sources to a larger degree, too.

From the view model residual's part of heteroscedasticity, there was no statistically significant correlation between the residuals and regressors estimated in any of the created models. Moreover, values of correlation coefficients were close to zero. Therefore, we are inclined to the idea that heteroscedasticity is not present.

5. Conclusion

The aim of the study was to prove differences between the capital structure development that are based on the type of the Czech companies' ownership in the selected NACE industrial branch and to point out some other particularities. In order to meet the goal, we also evaluated our hypotheses which were created on the theoretical basis:

- The possibility of an interest tax shield is not sufficiently motivating to use debt finance sources.
- Foreign owners with emphasis on recoverability of the invested means will be more willing to use debt finance sources.
- From the view of risk, managers will incline to a greater use of own finance sources.

Based on the analysis performed, the first hypothesis was proven as own finance sources significantly prevail in financial structures of the companies. Insufficient functionality of the interest tax shield was mainly apparent in the sample of domestic companies where – on the contrary – any increase in debt finance sources led to decrease in efficiency of such companies. It also means that creditors assessed their risk as more significant and debt sources were provided under conditions that did not support growth of ROE. It may be supposed that these companies will prefer to use the non-interest tax shield than the interest one. The second hypothesis was also proven, mainly on the analysed sample of companies with turnover over CZK 1.5 billion. In our opinion, the argument is supported here that foreign owners rather prefer the return of their means invested into business. In such cases, the use of additional debt capital leads to increase of ROE, although it is strictly individual. It is again proven that separation of positions of manager and owner may positively prove in that sense that the manager will be “pushed” by owners to high return of the invested financial means. From the information stated above it is clear that the third hypothesis was not completely met as we got different results in domestic and foreign companies. The dominant role lies with own finance sources mainly for domestic owners, and it may be also stated that the greater use of own finance sources may also be connected to the fact that domestic companies are not pushed to distribute the realized profit so much from the view of fragmentation of owners a large share of minority owners, and thus the profit may be reinvested. Sufficiency of financial means and insufficiency of other investment opportunities logically leads to reinvestments of profit. Based on the results, it would surely be interesting to focus on other business branches as well, because the finance source analysis itself suggested that each business branch behaves in a different way and thus it may be expected that mutual relations of individual indicators may develop in a different way, as well.

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