

## The Impact of Loan Capital on the Baltic Listed Companies' Investment and Growth

Rasa Norvaišienė, Jurgita Stankevičienė, Rytis Krušinskas

Kauno technologijos universitetas  
K. Donelaičio g.73, LT-44029 Kaunas

*Loan capital and investment made with the help of it, grant strategic competitive advantages to companies. Loan capital and investment often are the elements supplementing each other: growth in investment results in the growth of loan capital and vice versa. But the conflicts of interests between shareholders, managers and creditors precondition either underinvestment or overinvestment, which, in its turn, has a negative impact on corporate value. Such an ambiguous influence of loans on corporate investment and growth is one of relevant fields of corporate governance that requires extensive analysis.*

*Empirical tests performed by different authors are based on the data analysis of developed countries' companies and the obtained results are rather ambivalent. So far, no research into interaction between investing and financial decisions has been carried out in the Baltic countries.*

*To investigate the impact of loan capital on the investment and growth of the Baltic companies, financial indicators of Lithuanian, Latvian and Estonian listed companies from the annual reports-prospectuses published by these companies were used. The research includes only non-financial companies' data because financial institutions adopt specific decisions on investing and financing, which are preconditioned by other factors. The research covers the period of 2000-2006 and uses the data of 76 companies (data from all listed non-financial Baltic companies: 35 companies from Lithuania, 28 from Latvia, 13 from Estonia).*

*To determine the strength of influence of corporate debts and other specific factors on investment, the multi-dimensional analysis of correlation between the level of investment and such indicators, as cash flow, debt ratio, the level of non-current debts, the ratio of debts and the market value of asset, growth possibilities, sales, was used.*

*To check the reliability of the obtained correlation, the value  $p$  was used. The presented findings show statistically important values when the level of significance is 0.01 (i.e. correlation between indicators was considered reliable and significant, when  $p < 0.01$ ) and 0.05 (i.e. correlation between indicators is significant and reliable when the value  $p < 0.05$ ).*

*The research findings showed the effect of overinvestment in Latvian companies but the effect of underinvestment in Estonian and Lithuanian companies in the period in question.*

*With the aim to determine whether the impact of loan capital on investment manifests itself alike in companies with different growth possibilities, the study was made on the dependence between investment and specific corporate indicators for the group of companies with a low  $Q$  (Tobin's  $Q < 1$ ) and the group of companies with a high  $Q$  (Tobin's  $Q > 1$ ). The obtained results show that in the Baltic countries the constraining effect of debt was recorded only among the companies with high growth opportunities. In the meantime, the capital structure of companies with low growth opportunities had no clear impact current investing.*

*The results of research into the impact of capital structure on the growth of Baltic companies show that a higher level of debts preconditions a lower corporate value and smaller opportunities of growth.*

Keywords: *financing decisions, investment politics, overinvestment effect, underinvestment effect, growth opportunities.*

### Introduction

Companies' decisions on financing inevitably impact on investments they make and on the value of such investment. Studies made by different researchers (Brander and Lewis, 1986; Maksimovic, 1988; Rotenberg and Scharfstein, 1990; Kovenock and Phillips, 1997) have confirmed a correlation between company's capital structure, its investment costs and behaviour in the market. With the amount of loan capital increasing, company's actions in the commodity market become more aggressive. Loan capital and investments made through it grant strategic competitive advantages to companies. As a rule, the growth of investment preconditions the decrease of marginal production costs and at the same time encourages a company to increase its sales volumes (Brander and Spencer, 1983). Consequently, the use of loan capital preconditions company's aggressive behaviour in the market. In this case loan capital and investments can be the elements supplementing each other: the growth of investment results in the growth of loan capital and vice versa. The use of loan capital enables companies to increase sales volumes, and companies attain an effect because of lower marginal production costs and they can invest more. Companies sustaining lower costs, compared to their competitors, acquire a significant competitive

advantage from which they can benefit taking a larger market share and in this way earning bigger profits.

The growth of debts level is kind of a signal to competitors that the company is minded to fight for a larger market share. This allows the company to avoid inefficient costs for promotional and price wars, which, as a rule, are aimed at intimidating weaker competitors. Consequently, the companies with a higher financial leverage increase their market share more efficiently compared to those with a lower level of debts.

On the other hand, the use of loan capital changes motivation of the company's managers and owners. The increasing of loan capital's share may result in the manifestation of the so-called limited liability effect, which was described in the papers by Brender and Lewis (1986, 1988). The limited liability of managers means liability limited only by the amount of compensation the managers can lose if a company goes bankrupt. Risk is transferred from managers to shareholders. The liability of shareholders, in its turn, is limited by their investments in the company. In this way, the main part of risk goes to creditors.

The limited liability of shareholders encourages the company to raise its production volumes in anticipation of growing demand and maximisation of benefit to the shareholders. While increasing the financial leverage, both the managers and the shareholders expect only a favourable scenario and completely ignore the possibility of the unfavourable one.

As noted by many authors, the company's debts and conflicts of interests between shareholders, creditors and managers stimulate underinvestment or overinvestment, which, in its turn, affect company's growth possibilities and value.

Therefore, the use of loan capital has an ambiguous impact on corporate investment and growth.

**Aim of the article** is to evaluate the impact of loan capital on the investment and growth of the Baltic companies.

**The research object** – investment and growth of Baltic listed companies and the debt level impacting on them.

**The research methods** cover the analysis of scientific literature, the analysis of statistics, the comparative analysis, and the multidimensional correlative analysis.

## **Interaction of financing and investing decisions**

According to Modigliani and Miller (1958) theory of irrelevance, the corporate investment policy should depend only on the factors that predetermine corporate profitability, cash flow and the net value of the company, i.e. on the fundamental factors. Many scientists, who performed empirical and theoretical research (Myers, 1977; Leland, 1977; Aivazian, Callen, 1980; Bradley, 1984; Jensen, 1986; Stulz, 1990; Harris, 1990; Smith, Watts, 1992; Lang, 1996), criticised this opinion. In case of imperfect market, agency conflicts arising between shareholders, creditors and managers encourage underinvestment or overinvestment; these agency conflicts create margins within which investments react to fundamental economic changes either insufficiently or too strongly.

Myers (1977) analysed factors conditioned by debt and having influence on the investment strategy formulated by shareholders (and managers). In his opinion, debt reduces the owners and managers' wish to invest in the projects of a positive net present value because investment not only increases the asset's value but also creditors' claims on the company. If the increase in creditor claims' value becomes larger than the project's net present value (NPV) then the project of the positive NPV from the company's attitude in general becomes the project of the negative NPV from the shareholders' attitude and due to this reason should not be accepted. Therefore, there is a smaller probability that companies using more loan capital will use up all valuable possibilities of growth compared to the companies with a lower level of debts, if, upon accepting the project, benefit will go to creditors without enhancing the shareholders' welfare. Thus, this problem of underinvestment may reduce the corporate value, in particular, concerning the companies with big future investment opportunities.

The theory of underinvestment (Aivazian, Callen, 1980), confirming these statements, is oriented to the effect of liquidity when companies with big debts make smaller investments irrespective of their growth opportunities.

Another potential problem discussed in literature is the problem of overinvestment when a conflict arises between the company's managers and shareholders. The managers are inclined to expand a company even on the account of poor project acceptance and reduction of the shareholders' welfare. According to Jensen (1986), when companies possess more internal financing resources than projects of the positive NPV, overinvestment is made. The managers' capacity to pursue such policy is restricted by the accessibility to free cash flows and this constraint can still intensify when borrowing. The debt obligates the company to pay interest and repay loans, and therefore such liabilities are serviced with the funds which, in other case, could be allotted to bad investment projects. Therefore, loan funds are one of the mechanisms helping overcome the problem of overinvestment and preconditioning a negative relationship between a debt and investment at companies with low possibilities of growth.

On the other hand, Lyandres and Zhdanov (2005) determined that the accelerated investment effect, also called overinvestment, forces the shareholders of levered companies to invest more intensely.

As maintained by Stulz (1990), a debt may have a positive and a negative impact on corporate investment and value. In his opinion, the optimum structure of capital minimises the net general agency and other costs of the debt as well as the capability of dealing with the problems of underinvestment and overinvestment. The preconditions, related to the effect of overinvestment, are simple: in a dynamic setting a company may optimally delay an investment in a positive NPV project, if by waiting and making the investment at a future date, it is able to increase the value of the investment opportunity. In other words, the value of the option to wait must be taken into account when assessing the profitability of a project. Due to this reason, the optimum investment timing is described by the balance of the present cash flow from investment and loss from the option to wait. The option's to wait value is influenced by the probability that investment will be made

at some time in the future. But it will not be made if in the future the company's cash flow value becomes rather low and shareholders decide to liquidate the company and reduce losses. A higher level of debts increases the probability of default liabilities. Consequently, the presence of debt makes the value of the option to wait less valuable. This encourages a more rapid implementation of the option to wait and forces the shareholders to speed up the investment. Lyandres and Zhdanov (2005) showed that the acceleration of investment converts into a higher investment yield. Therefore, the effect of overinvestment works in the opposite direction than the effect of underinvestment described by Myers (1977). The impact of a conflict between shareholders and creditors on the fluctuations in investment volumes is predetermined by a relative importance of drives of underinvestment and overinvestment.

The effect of underinvestment is based on the financing of new investment with equity. However, if shareholders finance investments partially with debt, for example with the aim to maintain the company's target leverage ratio, the underinvestment effect is mitigated and potentially totally eliminated. Therefore, in many real cases, the previously described overinvestment effect dominates the underinvestment effect.

It is important to note that underinvestment and overinvestment work in opposite directions. If the effect of underinvestment forces a company having borrowed funds to reject some projects of the positive NPV and invest less compared to the similar company without debt, the effect of overinvestment forces the company to invest more than the company without debt.

The propositions of both theories (overinvestment and underinvestment) were confirmed by empirical tests performed by different authors. When testing US non-financial corporations, McConnell, Servaes (1995) determined a negative correlation between corporate value and debt level at the companies with high growth opportunities (a high Tobin's Q) and a negative one at the companies of low growth opportunities (a low Tobin's Q). The findings of this test confirm the hypothesis that debt at companies with low growth opportunities performs a disciplinary role in this way preconditioning the growth of the corporate value, in the meantime debts at companies with high growth opportunities precondition overinvestment and in this way reduce the corporate value.

Lang et al. (1996), having studied US industrial companies, established a strong negative relation, not depending on company's size, factors used for growth prognosis and debt level ratios, between the leverage and subsequent investment but only in companies of low growth opportunities. Again, the results confirm the hypothesis that the use of loan funds reduces incentives to invest in poor projects.

The differences in results of empirical testing of high and low growth opportunity companies may arise because the access to the capital market is influenced by the opportunities of growth. Companies with big growth opportunities hope for bigger cash flows or higher net values and this can reduce the problems of financing. In such companies the leverage ratio constrains investments less because they can finance themselves easier. In the

meantime the liabilities of companies with low growth opportunities represent a tougher constraint on investments because it is more difficult for such companies to attract necessary funds due to lower growth prospects.

Cantor (1990), Whited (1992) have determined that investments are more sensitive to cash flows at the companies with a high debt level compared to those with a low one. It is the conviction of Kopcke, Howrey (1994) that the influence of the capital structure on investments is not important.

Based on the data of large US industrial corporations, Singh and Faircloth (2005) measured the influence of debt on research and experimental development expenses. The test results show a strong negative relation between a leverage ratio and these expenses. The negative relation remains reliable upon changing models, assessing other specific characteristics of companies in different periods. A still more important fact is that a higher debt level predetermines smaller expenses for research and development but it is not these expenses that influence change in the future debt level. The results showed that a higher debt level had a negative influence on future investments in research and experimental development, which in future periods might have a negative influence on long-term activities and future growth opportunities.

Lyandres and Zhdanov (2005) established a positive relation between leverage and investment intensity. As maintained by these authors, the results of the test by Lang and others (1996) are not robust to the choice of an estimation technique and may be caused by a measurement error-related bias. When this bias is corrected, the association between investment and market leverage becomes positive, while the relation between investment and book leverage tends to stay negative.

### **The impact of loan capital on corporate growth**

One of the main indicators reflecting corporate growth is the growth in corporate value. Based on the reasons given by (1986), Myers (1977) and Stulz (1990), it can be stated that debt may have a positive and a negative impact on the value, depending on a company's investing opportunities in the future. Therefore, the number of growth options in a set of company's investing opportunities plays an important role because a bigger number of growth options mitigates the problem of overinvestment and debt do not necessarily prevent overinvestment made by managers (Morellec, 2001).

Works by different authors showed that the impact of debt on the corporate value should not be the same for companies with different growth opportunities and at the presence of different levels of institutional costs.

When testing the interaction of debt and growth, Lang et al (1995) established a negative relation irrespective of the variables used for estimation, the measuring technique of the financial leverage and the company's size. These authors showed that the decrease in activity cash flow was related to a slower decrease in investment than the cash flow decrease, related to servicing increased debts. Many theories of capital structure state that such relation should exist because companies with a high debt level might be unable to use the growth opportunities, and the companies

having low growth opportunities should not waste money on poor projects. As stated by Lang et al. (1995), a negative relation between growth intensity and the level of financial debts exists only at companies of low growth opportunities and is valid in different periods of times when assessing different branches of industry, companies of different sizes, using different leverage measures, different investment opportunity measures and different estimation methods.

A negative correlation of financial leverage and growth intensity only at companies with low growth opportunities is testified by the fact that a negative impact of debts on growth intensity is applicable only to the companies whose good investment opportunities are not recognised by the market as well as for the companies not having good investment opportunities but willing to grow anyway. If the major sample of companies with low growth opportunities is composed of companies with marginal growth possibilities and poor performance the fact that debts work as brakes of their growth may be useful to shareholders. It can also confirm the theories of the capital structure, which emphasize the disciplinary role of debt.

A negative relation between market leverage and growth opportunities was established by Bradley, Jarrell, Kim (1984), Lomg, Malitz (1985), Smith, Watts (1992), Gaver, Gaver (1993) and Barclay, Smith, Watts (1995). Rajan, Zingales (1995), having performed studies in G7 countries, also established a negative association between debt and growth prospects. Barclay, Marx, Smith (2003), Alonso et al (2005), Barclay, Morellec, Smith (2006), Harvey, Lins, Roper (2004), Jung, Kim, Stulz (1996) and McConnell, Servaes (1995) confirmed a value-creating role of debt at companies with low growth opportunities and a value-reducing role of debt at companies with high growth opportunities.

The impact of debt on value is most often analysed in the context of one country and the impact of context of different countries on this leverage-value relation is not analysed at all. Despite this, there are reasons to believe that this leverage-growth ratio may differ from country to country. Taking into consideration the fact that the legal and bureaucratic setting and the efficiency of investor right protection differ in different countries, practically there are no doubts that the financing options increasing value should also differ in different countries. Consequently, assumptions based on the context of one country cannot be generally applied to companies based in countries with different bureaucratic and financial settings and incurring different levels and types of institutional costs. For instance, as maintained by Jo at al. (1994), institutional conflicts in Japan are smaller due to specific legal and bureaucratic setting, and therefore the relation between debt and growth opportunities at Japanese companies is positive and is opposite to that established at US companies.

Aggarwal, Kyaw (2006) in their work analysed how the differences of bureaucratic factors and financial development in separate countries influence the role of debt in increasing corporate value. They analysed the impact of debt at companies with low and high growth opportunities in twenty six countries in the period of 14 years (1990-2003). The authors determined that debt reduced value at companies of high growth opportunities and increased it at

companies of low growth opportunities in every country but the value-debt relation is stronger in the countries having weak bureaucratic structures and relatively high institutional costs. It was also demonstrated that these international differences could be explained by the complexity of problems in different countries with different bureaucratic structures and financial development levels.

Thus, based on the theoretical as well as empirical tests performed by different authors, it can be stated that the impact of debt on corporate value in the majority of cases depends on the future investment opportunities of a company.

## Research data

To test the influence of loan capital on the investment and growth of the Baltic listed non – financial companies, financial indicators of Lithuanian, Latvian and Estonian listed companies from the annual reports-prospectuses published by these companies were used (data from all listed non-financial Baltic companies: 35 companies from Lithuania, 28 from Latvia, 13 from Estonia). The research covers the period of 2000-2006 and uses the data of 76 companies.

In order to more extensively assess the impact of financial decisions on corporate investment into their studies many authors also include other specific factors of companies having influence on investment intensity, such as cash flow, sales volumes, Tobin's Q indicator reflecting growth opportunities. The impact of specific corporate factors on investments is most frequently assessed according to Lang et al (1996) formula:

$$\frac{I_{i,t}}{K_{i,t-1}} = \alpha + \lambda_t + \beta \frac{CF_{i,t}}{K_{i,t-1}} + \delta Q_{i,t-1} + \eta L_{i,t-1} + \phi \frac{S_{i,t-1}}{K_{i,t-1}} + \mu_i + \varepsilon_{i,t},$$

where  $I_{i,t}$  – net investment of firm  $i$  at time  $t$ ,  
 $K_{i,t-1}$  – net fixed assets of firm  $i$  at time  $t-1$ ,  
 $CF_{i,t}$  – cash flow of firm  $i$  at time  $t$ ,  
 $Q_{i,t-1}$  – Tobin's Q of firm  $i$  at time  $t-1$ ,  
 $L_{i,t-1}$  – leverage of firm  $i$  at time  $t-1$ ,  
 $S_{i,t-1}$  – net sales of firm  $i$  at time  $t-1$ ,  
 $\alpha$  – constant,  
 $\lambda_t$  – set of time dummy controlling for possible differences in the macroeconomic environment of each year,  
 $\mu_i$  – individual effect of firm  $i$ ,  
 $\varepsilon_{i,t}$  – error term.

This dependence was used to analyse the impact of loan capital on investments being made by the Baltic companies.

Taking into consideration the fact that investment volumes are greatly different in companies of different sizes, the majority of authors having performed empirical tests use the relative indicator of investment level – the amount of investment per one unit of fixed asset. Such investment level indicator (*INVEST*) is also used in this research.

A large variety of indicators is employed in empirical tests aimed at assessing the capital structure but, in the opinion of the authors of this article, the most typical ones are the leverage ratio showing the total level of debts, long-term debt ratio, which is directly related to corporate investing, and market value-based indicator of the capital structure, i.e. debt and asset market value ratio. The above mentioned indicators were used in his research.

Therefore, to test the dependence of investment on loan capital level, growth opportunities and specific corporate characteristics, the following indicators were used:

- cash flow level ratio *CF* ((net profit at time  $t$  + depreciation at time  $t$ )/total asset at time  $t-1$ );

- company growth possibilities *TOBIN Q* ((market value of equity + total liabilities)/total assets);
- total debt ratio *TD* (total debt/total asset);
- long-term debt ratio *LTD* (long-term debt/total asset);
- market total debt ratio *MTD* (total debt/(total debt + the market value of equity));
- sales *S* (sales/fixed asset).

Table 1 presents the means of the above-mentioned indicators (in columns, marked by M) of the Baltic listed companies as well as their standard deviations (in columns, marked by  $\sigma$ ), illustrating the spread of separate companies' indicators.

Table 1

**Investment and independent variables of Baltic states companies in the period of 2000-2006**

Indicators	Baltic states		Lithuania		Latvia		Estonia	
	M	$\sigma$	M	$\sigma$	M	$\sigma$	M	$\sigma$
INVEST	0.21	0.22	0.16	0.16	0.29	0.30	0.27	0.36
CF	0.13	0.13	0.11	0.09	0.14	0.16	0.19	0.19
TOBIN Q	1.03	0.68	1.00	0.61	0.93	0.91	1.43	0.75
TD	0.36	0.19	0.38	0.19	0.31	0.19	0.38	0.21
LTD	0.14	0.13	0.16	0.14	0.10	0.09	0.13	0.14
MTD	0.43	0.26	0.45	0.24	0.45	0.27	0.36	0.27
S	2.41	1.89	2.16	2.01	2.77	2.18	3.33	2.60

Upon summarising the collected data it becomes obvious that the level of investment of the Baltic listed companies was not uniform in the period of 2000-2006 – on average, EUR 0.21 of investment expenses per one unit of non-current asset but the standard deviation of 0.22 shows an especially big spread. Lithuanian companies considerably lag behind the neighbouring countries' companies in terms of investment volumes, with the average investment-long-term asset ratio of 0.16. Latvian companies were the most active ones in the field of investment.

In the period in question Lithuania's companies were behind other neighbouring countries' companies by the level of cash flow too – the ratio of cash flow to assets hardly reached 0.11, in the meantime the respective indicator of Estonian companies was 0.19.

In the period of 2000-2006 the growth opportunities of different Baltic companies received very different valuations in the market – Estonian companies were distinguished by rather high growth opportunities with the average TOBIN'S Q of 1.43, in the meantime in Latvian companies this indicator hardly reached 0.93.

During the period in question, Lithuanian and Estonian listed companies had rather similar structures of capital: nearly 38 percent of stocks were financed with borrowed funds. But Estonia's companies use slightly less of long-term borrowed funds for financing: the non-current liabilities, on average, accounted for 13 percent of the total financing sources when in Lithuania this indicator was 16 percent. Latvian companies tend to use less borrowed funds: the total debts account for 31 percent of all financing sources, and non-current liabilities hardly reach 10 percent of the total funds.

In the period of 2000-2006, Estonian companies managed to use their non-current assets most efficiently by earning, on average, EUR 3.33 in sales income from EUR 1 of non-current assets. In the meantime Lithuanian companies were lagging behind in this respect because they earned, on average, EUR 2.16 in sales income.

## Research results

With the aim to analyse the impact of loan capital on investment and growth, a multi-dimensional correlative analysis (with the help of SPSS software package) was made. To check the reliability of the obtained correlation, the value  $p$  was used. The presented findings show statistically important values when the level of significance is 0.01 (i.e. correlation between indicators was considered reliable and significant, when  $p < 0.01$ ) and 0.05 (i.e. correlation between indicators is significant and reliable when the value  $p < 0.05$ ). The coefficients of correlation not marked by one or two asterisks are statistically insignificant because the obtained  $p$  – values exceeded the established levels of significance. The results obtained are given in Table 2. The top line of every box shows the obtained coefficient of correlation, and the bottom one (in brackets) –  $p$ -value.

In the period from 2000 to 2006, an average positive correlation between activity cash flow and investment, and a weak positive correlation between Tobin's Q, an indicator describing growth opportunities, non-current assets turnover and investment level were determined at the Baltic listed companies.

The obtained weak negative correlative dependence of investment on the level of non-current debts confirmed the

Correlation of the investment and specific corporate indicators in the Baltic companies

	<i>Baltic states</i>	<i>Lithuania</i>	<i>Latvia</i>	<i>Estonia</i>
CF	0.545(**) [0.000]	0.367(**) [0.000]	0.563(**) [0.000]	0.575(**) [0.000]
TOBINQ	0.236(**) [0.000]	0.284(**) [0.000]	0.127 [0.175]	0.332(**) [0.005]
TD	0.069 [0.175]	0.000 [0.999]	0.240(**) [0.009]	0.089 [0.462]
LTD	-0.142(**) [0.005]	-0.028 [0.697]	-0.022 [0.814]	-0.277(*) [0.019]
MTD	-0.094 [0.063]	-0.228(**) [0.001]	0.172 [0.065]	-0.208 [0.082]
S	0.395(**) [0.000]	0.151(*) [0.034]	0.467(**) [0.000]	0.624(**) [0.000]

\*\* significant at the 0.01 level

\*significant at the 0.05 level

hypothesis that the level of non-current debts is an investment-constraining factor at Baltic listed companies.

Research results obtained in separate Baltic countries are rather different. A weak positive correlation between investment and cash flow, growth opportunities, and a weak dependence of investment on non-current assets turnover were determined at Lithuania's companies during the period analysed. The established weak negative dependence of investment on market leverage rate confirms the constraining role of debts in adopting investing decisions.

An average positive correlation between cash flow, non-current assets turnover and investment as well as a weak positive correlation between growth opportunities and investment in Estonian companies show that these factors play an investment-promoting role. In the meantime the obtained weak negative correlation between investment and non-current debt ratio shows that Estonian companies with a higher level of non-current debts reduce further investments in this way seeking to minimise possible risk.

But a completely different relation was obtained after testing the dependence of investment on capital structure at Latvian companies. Based on the obtained research results, it can be stated that Latvian companies with a higher level of debts, differently from other Baltic countries' companies, invest more. Therefore, during the period in question, Latvian companies saw the effect of overinvestment, in the meantime Estonian and Lithuanian companies experienced the effect of underinvestment.

In order to determine whether a level of debts has the same impact on the investment of companies with different growth opportunities, the test of dependence between investment and specific corporate indicators was performed for a group of companies with low growth opportunities (Tobin's  $Q < 1$ ) and a group of companies with high growth prospects (Tobin's  $Q > 1$ ). The obtained results are given in Table 3.

Table 3

Correlation of investment and specific corporate indicators in the Baltic companies with different growth opportunities

	<i>TOBIN Q&lt;1</i>	<i>TOBIN Q&gt;1</i>
CF	0.554(**) [0.000]	0.545(**) [0.000]
TOBINQ	0.037 [0.585]	0.234(**) [0.002]
TD	0.089 [0.190]	-0.020 [0.795]
LTD	-0.106 [0.121]	-0.185(*) [0.017]
MTD	0.069 [0.313]	-0.155(*) [0.047]
S	0.428(**) [0.000]	0.347(**) [0.000]

\*\* significant at the 0.01 level

\* significant at the 0.05 level

After testing the dependence of investment on the level of debt at companies with different growth opportunities it was determined that the constraining impact of debt on investment manifested itself only in the Baltic companies having high growth opportunities. In the meantime in the companies with low growth prospects the level of debts had no a evident impact on current investments.

With the aim to determine the impact of loan capital on the growth of Baltic companies, the dependence of the growth illustrating indicator Tobin's Q on the indicators describing the level of debt, such as debt ratio, non-current debt ratio and market leverage ratio, was researched. The research results are given in Table 4.

Table 4

**Correlation of growth opportunities and level of debts in the Baltic companies**

	<i>Baltic states</i>	<i>Lithuania</i>	<i>Latvia</i>	<i>Estonia</i>
TD	0.155(**) [0.003]	0.405(**) [0.000]	0.193(*) [0.041]	-0.356(**) [0.002]
LTD	0.077 [0.141]	0.283(**) [0.000]	0.146 [0.123]	-0.441(**) [0.000]
MTD	-0.508(**) [0.000]	-0.473(**) [0.000]	-0.457(**) [0.000]	-0.666(**) [0.000]

\*\* significant at the 0.01 level

\* significant at the 0.05 level

The results of research, made on the basis of the data of all Baltic listed companies, confirmed a negative relation of growth and market leverage ratio, established by many researchers. The obtained average negative correlation of Tobin's Q and market value-based level of debt shows that a higher level of debts preconditions a lower corporate value and lower growth opportunities. This confirmed the hypothesis that the use of loan funds encouraged underinvestment and had a negative impact on corporate growth.

### Conclusions

1. Company's debts and the conflicts of interests between shareholders, managers and creditors precondition either underinvestment or overinvestment, which, in its turn, has a negative impact on corporate growth opportunities and value. If the effect of underinvestment forces a company having loan funds to reject some projects of the positive NPV and invest less compared to the similar company without debt, the effect of overinvestment forces the company to invest more compared to the respective company having no debt.
2. The problem of underinvestment is caused by the conflict of interest between creditors and the company's owners because debt reduces owners' and managers' wish to invest in positive net present value projects. The effect of underinvestment is based on the financing of new investment with equity, which impedes corporate growth.
3. The problem of overinvestment arises from a conflict between managers and shareholders. Managers are inclined to expand a company even on the account of acceptance of negative NPV projects and reduction of shareholders' welfare. The managers' capacity to pursue such policy is constrained by accessibility to free cash flows and this constrain can still intensify when borrowing. Loan funds are one of the mechanisms helping overcome the problem of overinvestment and preconditioning a negative relationship between debt and investment at companies with low opportunities of growth.
4. A weak negative dependence between investment and market leverage ratio established at Lithuanian companies during the period in question confirms the constraining role of debts in adopting investing decisions. In the meantime, no dependence was

established between book leverage ratios and investments. A weak negative correlation between investment and non-current debt ratio established at Estonian companies shows that Estonia's companies with a higher level of non-current liabilities curtail further investments in this way seeking to minimise potential risk. Latvian companies with a higher level of debts, differently from other Baltic companies, invest more. Consequently, during the period in question Latvian companies saw the effect of overinvestment, in the meantime Estonian and Lithuanian companies experienced the effect of underinvestment. But the impact of debt on investments of the Baltic listed companies is rather small.

5. The obtained results showed that the constraining impact of debt on investment was discovered only at the Baltic companies having high growth prospects. In the meantime the capital structure of companies with low growth opportunities had no clear impact on current investing.
6. The results of research, made on the basis of the data of all Baltic listed companies, confirmed a negative relation of growth and market leverage ratio, established by many researchers. The obtained average negative correlation of Tobin's Q and market value-based level of debt shows that a higher level of debts preconditions a lower corporate value and lower growth opportunities. This confirmed the hypothesis that the use of loan funds encouraged underinvestment and had a negative impact on corporate growth.

### References

1. Aggarwal, R. Leverage, investment opportunities, and firm value: a global perspective on the influence of financial development / R. Aggarwal, N.A. Kyaw // Kent State University Working Paper, 2006.
2. Aivazian, V.A. Corporate leverage and growth: the game-theoretic issues / V.A. Aivazian, J.L. Callen // Journal of Financial Economics, 1980, 8, p. 379-399.
3. Aivazian, V.A. The impact of leverage on firm investment: Canadian evidence / V.A. Aivazian, Y. Ge, J. Qiu // Journal of Corporate Finance, 2005, 11, p. 277 – 291.
4. Alonso, P. A. Financial Decisions and Growth Opportunities: A Spanish Firms Panel Data Analysis / P.A. Alonso, F.J.L. Iturriaga, J.A. Rodriguez Sanz // Applied Financial Analysis, 2005, 15, p. 391 – 407.
5. Barclay, M. J. The Determinants of Corporate Leverage and Dividend Policies / M.J. Barclay, C.W. Smith, R.L.Watts // Journal of Applied Corporate Finance, 1995, 7, p. 4 – 19.
6. Barclay, M. J. The Joint Determination of Leverage and Maturity /M.J. Barclay, L.M. Marx, C.W.Jr. Smith // Journal of Corporate Finance, 2003, 9, p. 149 – 167.
7. Barclay, M. J. On the Debt Capacity of Growth Options / M.J. Barclay, E. Morellec, C.W.Jr. Smith // Journal of Business, 2006, 79 (1), p. 37 – 60.
8. Bradley, M. On the Existence of an Optimal Capital Structure: Theory and Evidence / M. Bradley, G. Jarrell, E.H. Kim // Journal of Finance, 1984, 39, p. 857 – 878.
9. Cantor, R. Effects of leverage on corporate investment and hiring decisions / Federal Reserve Bank of New York Quarterly Review, 1990 (Summer), p. 31 – 41.
10. Cleary, S. The relationship between firm investment and financial status / Journal of Finance, 1993, 54(2), p. 673 – 692.
11. Gaver, J. J. Additional Evidence on the Association between the Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies / J.J. Gaver, K.M. Gaver // Journal of Accounting and Economics, 1993, 16, p. 125 – 160.

12. Harris, M. Capital structure and the informational role of debt / M. Harris, A. Raviv // *Journal of Finance*, 1990, 45 (2), p. 321 – 349.
13. Harris, M. The theory of capital structure / M. Harris, A. Raviv // *Journal of Finance*, 1991, 46 (1), p. 297 – 356.
14. Harvey, C. R. The Effect of Capital Structure When Agency Costs are Extreme / C.R. Harvey, K.V. Lins, A.H. Roper // *Journal of Financial Economics*, 2004, 74, p. 3 – 30.
15. Jensen, M. C. Agency costs of free cash flow, corporate finance, and takeovers / *American Economic Review*, 1986, 76 (2), p. 323 – 329.
16. Jensen, M.C. Theory of the firm: managerial behavior, agency costs and ownership structure / M.C.Jensen, W. Meckling // *Journal of Financial Economics*, 1976, 3, p. 305 – 360.
17. Jo, H. Financing decisions and the Investment Opportunity Set: Some Evidence from Japan / H. Jo, J.M. Pinkerton, A. Sarin // *Pacific Basin Finance Journal*, 1994, 2 (1), p. 227 – 242.
18. Jung, K. Timing Investment Opportunities, Managerial Discretion, and the Security Issue Decision / K. Jung, Y.-C. Kim, R.M. Stulz // *Journal of Financial Economics*, 1996, 42, p. 159 – 185.
19. Kopcke, R.W. A panel study of investment: Sales, cash flow, the cost of capital, and leverage / R.W. Kopcke, M.M. Howrey // *New England Economic Review*, 1994, January-February, p. 9 – 30.
20. Lang, L.E. Leverage, investment and firm growth / L.E. Lang, E. Ofek, R. Stulz. *Journal of Financial Economics*, 1996, 40, p. 3 – 29.
21. Leland, H. E. Informational asymmetries, financial structure and financial intermediation / H.E. Leland, D.H. Pyle // *Journal of Finance*, 1977, 32 (2), p. 371 – 387.
22. Long, M. The Investment-Financing Nexus: Some Empirical Evidence / M. Long, I. Malitz // *Midland Finance Journal*, 1985, 3, p. 53 – 59.
23. Lyandres, E. Underinvestment or overinvestment: the effects of financial leverage on investment / E. Lyandres, A. Zhdanov // *Rice University Working Paper*, 2005.
24. McConnell, J.J. Equity ownership and the two faces of debt / J.J. McConnell, H. Servaes // *Journal of Financial Economics*, 1995, 39, p. 131 – 157.
25. Modigliani, F. The cost of capital, corporation finance, and the theory of investment / F. Modigliani, M.H. Miller // *American Economic Review*, 1958, 53, p. 433 – 443.
26. Morellec, E. Can Managerial Discretion Explain Observed Leverage Ratios? // *Review of Financial Studies*, 2001, 17 (No1), p. 257 – 294.
27. Myers, S. Determinants of corporate borrowing // *Journal of Financial Economics*, 1977, 5, p. 147 – 175.
28. Myers, S. C. Corporate financing and investment decisions when firms have information that investors do not have / S.C.Myers, N.S. Majful // *Journal of Financial Economics*, 1984, 13 (2), p. 187 – 221.
29. Rajan, R. G. What Do We know about Capital Structure? Some Evidence from International Data / R.G. Rajan, L. Zingales // *Journal of Finance*, 1995, 50 (5), p. 1421 – 1460.
30. Ross, S.A. The determination of financial structure: the incentive-signaling approach // *Bell Journal of Economics*, 1997, 8 (1), p.23 – 40.
31. Singh, M. The impact of corporate debt on long term investment and firm performance / M. Singh, S. Faircloth // *Applied Economics*, 2005, 37, p. 875 – 883.
32. Smith, C. W. Jr. Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies / C. W. Jr. Smith, R.L. Watts // *Journal of Financial Economics*, 1992, 32, p. 263 – 292.
33. Stulz, R. M. Managerial discretion and optimal financing policies // *Journal of Financial Economics*, 1990, 26 (1), p. 3 – 28.
34. Whited, T. Debt, liquidity constraints, and corporate investment: Evidence from panel data // *Journal of Finance*, 1992, 47, p. 1425 – 1461.
35. Williamson, O. E. Corporate finance and corporate governance // *Journal of Finance*, 1988, 43 (3), p. 567 – 591.

Rasa Norvaišienė, Jurgita Stankevičienė, Rytis Krušinskas

#### **Skolinto kapitalo įtaka Baltijos šalių listinguojamų įmonių investicijoms ir augimui**

Santrauka

Skolintas kapitalas ir jo dėka vykdomos investicijos suteikia kompanijoms strateginių konkurencinių pranašumų. Dažnai skolintas kapitalas ir investicijos yra vienas kitą papildantis elementai: investicijų augimas sąlygoja skolinto kapitalo augimą, ir atvirkščiai. Tačiau interesų konfliktai tarp akcininkų, vadovų ir kreditorių sąlygoja nepakankamas arba perteklines investicijas, kurios savo ruožtu turi neigiamą įtaką įmonių vertei.

Toks nevienareikšmiškas skolų poveikis įmonių investicijoms ir jų augimui yra viena iš svarbių išsamaus tyrimo reikalaujančių įmonių finansų valdymo sričių.

Įvairių autorių atlikti empiriniai tyrimai remiasi išsivysčiusių šalių įmonių duomenų analize, o gauti rezultatai yra gana prieštaringi. Baltijos šalyse investavimo ir finansavimo sprendimų sąveikos tyrimų iki šiol nebuvo atlikta.

**Straipsnio tikslas** – įvertinti skolinto kapitalo poveikį Baltijos šalių įmonių investicijoms ir augimui.

**Tyrimo objektas** – Baltijos šalių listinguojamų įmonių investicijos, augimas ir jiems įtaką daranti kapitalo struktūra.

**Tyrimo metodai:** mokslinės literatūros analizė, statistinių duomenų analizė, lyginamoji analizė, daugiamatė koreliacinė analizė.

Įmonių finansavimo sprendimai neišvengiamai turi įtakos tiek jų vykdomoms investicijoms, tiek jų vertei. Įvairių mokslininkų tyrimai patvirtino ryšį tarp įmonės kapitalo struktūros, jos investicinių išlaidų ir elgsenos rinkoje. Augant skolinto kapitalo dydžiui, įmonės veiksmas prekių rinkoje tampa agresyvesnis. Skolintas kapitalas ir jo dėka vykdomos investicijos suteikia kompanijoms strateginių konkurencinių pranašumų. Investicijų augimas paprastai sąlygoja ribinių gamybos išlaidų mažėjimą ir kartu skatina įmonę didinti pardavimų apimtį. Skolintas kapitalas ir investicijos gali būti vienas kitą papildančiais elementais: investicijų augimas sąlygoja skolinto kapitalo augimą, ir atvirkščiai. Skolinto kapitalo panaudojimas įgalina didinti pardavimų apimtį, įmonė gauna efektą dėl mažesnių ribinių gamybos kaštų ir gali dar daugiau investuoti.

Kita vertus, skolinto kapitalo panaudojimas keičia įmonės vadovų ir savininkų motyvaciją. Didinant skolinto kapitalo dalį, gali pasireikšti vadinamasis ribotos atsakomybės efektas. Ribota akcininkų atsakomybė skatina įmonę didinti gamybos apimtį, kartu tikintis ir paklausos augimo bei akcininkų naudos maksimizavimo. Didindami finansinį svorį, tiek vadovai, tiek akcininkai tikisi tik palankaus scenarijaus ir visiškai ignoruoja nepalankaus scenarijaus galimybę.

Įmonės turimos skolos ir interesų konfliktai, kylantys tarp akcininkų, kreditorių ir vadovų, skatina nepakankamas arba perteklines investicijas, kurios savo ruožtu neigiamai veikia įmonės augimo galimybes ir jos vertę. Jei nepakankamų investicijų efektas priverčia įmonę, turinčią skolintų lėšų, atmesti kai kuriuos teigiamos NPV projektus ir mažiau investuoti nei analogiška įmonė, neturinti skolos, tai perteklinių investicijų efektas priverčia įmonę investuoti daugiau nei atitinkama įmonė, neturinti skolos.

Nepakankamų investicijų problemą sukelia interesų konfliktas tarp kreditorių ir bendrovės savininkų, nes skola mažina savininkų ir vadovų norą investuoti į teigiamos grynosios esamosios vertės projektus. Nepakankamų investicijų efektas remiasi tuo, kad naujos investicijos yra finansuojamos nuosavomis lėšomis, o tai stabdo įmonės augimą.

Perteklinių investicijų problemą sukelia konfliktas, kylantis tarp vadovybės ir akcininkų. Vadovybė yra linkusi plėsti įmonę netgi prastų projektų priėmimo ir akcininkų gerovės mažinimo sąskaita. Vadovybės gebėjimą vykdyti tokią politiką varžo lėšų pinigų srautų prieinamumas, ir šis suvaržymas gali dar labiau sustiprinti skolinantis. Skola įpareigoja įmonę mokėti palūkanas ir grąžinti paskolas, taigi tokie įsipareigojimai aptarnaujami lėšomis, kurios kitu atveju galėtų būti skirtos blogiems investiciniams projektams. Todėl skolintos lėšos yra vienas iš mechanizmų, padedančių įveikti perteklinių investicijų problemą ir sąlygojantis neigiamą skolos ir investicijų sąryšį mažų augimo galimybių įmonėse.

Siekiant iširti Baltijos šalių įmonių skolų įtaką investicijoms ir augimui, buvo naudojami Lietuvos, Latvijos ir Estijos listinguojamų įmonių finansiniai rodikliai iš šių įmonių skelbiamų metinių ataskaitų – prospektų. Į tyrimą įtraukti tik nefinansinių kompanijų duomenys, kadangi finansų institucijų priimami investavimo ir finansavimo sprendimai yra specifiniai ir sąlygojami kitų veiksnių. Tyrimo laikotarpis apima 2000 – 2006 m. Tyrimo panaudoti 76 įmonių (visų listinguojamų nefinansinių Baltijos šalių įmonių) duomenys: 35 Lietuvos įmonių, 13 Estijos įmonių, 28 Latvijos įmonių.

Skolų ir kitų specifinių įmonės veiksmų poveikio investicijoms stiprumui nustatyti naudota daugiamatė koreliacinė analizė tarp investicijų lygio ir tokių rodiklių: pinigų srautų, skolos koeficiento, ilgalaikio įsiskolinimo lygio, skolų ir turto rinkos vertės santykio, augimo galimybių, pardavimo pajamų.

Gautam koreliacinio ryšio patikimumui patikrinti naudota p – reikšmė. Pateikiant rezultatus pažymėtos reikšmės, kurios statistškai reikšmingos, kai reikšmingumo lygis 0,01 (t.y., ryšys tarp rodiklių laikytas patikimu ir reikšmingu, kai p – reikšmė < 0,01) ir kai reikšmingumo lygis – 0,05 (t.y., ryšys tarp rodiklių reikšmingas ir patikimas, kai p – reikšmė < 0,05).

Atskirose Baltijos šalyse gauti tyrimo rezultatai gana skirtingi. Lietuvos bendrovėse analizuojamu laikotarpiu nustatyta silpna neigiama investicijų ir rinkos verte pagrįsto skolos koeficiento priklausomybė patvirtina ribojantį skolų vaidmenį investiciniams sprendimams priimti. Tuo tarpu priklausomybės tarp balansine verte pagrįstų kapitalo struktūros rodiklių ir investicijų nenustatyta.

Estijos įmonėse nustatytas silpnas neigiamas koreliacinis ryšys tarp investicijų ir ilgalaikio išsiskolinimo koeficiento rodo, kad Estijos bendrovės, turinčios aukštesnį ilgalaikių išsipareigojimų lygį, mažina tolimesnes investicijas, taip siekdamos sumažinti galimą riziką. Skirtingai nei kitose Baltijos šalyse, Latvijos bendrovės, turinčios aukštesnį skolų lygį, daugiau investuoja. Taigi Latvijos bendrovėse tiriamu laikotarpiu pasireiškė perteklinių investicijų efektas, tuo tarpu Estijos ir Lietuvos bendrovėse – nepakankamų investicijų efektas. Tačiau skolų įtaka Baltijos šalių listinguojamų įmonių investicijoms gana nedidelė.

Norint nustatyti, ar skolų poveikis investicijoms vienodai pasireiškia skirtingų augimo galimybių įmonėse, atliktas priklausomybės tarp investicijų ir specifinių įmonės rodiklių tyrimas mažų augimo galimybių įmonių grupei (Tobin's  $Q < 1$ ) ir didelių augimo galimybių įmonių grupei (Tobin's  $Q > 1$ ). Gauti rezultatai parodė, kad Baltijos šalyse skolos ribojantis poveikis investicijoms pasireiškė tik didelių augimo galimybių įmonėse. Tuo tarpu mažų augimo galimybių įmonėse kapitalo struktūra neturėjo aiškaus poveikio vykdomoms investicijoms.

Siekiant nustatyti, kokią įtaką skolintas kapitalas turi Baltijos šalių įmonių augimui, tirta augimą iliustruojančio rodiklio Tobin's  $Q$  priklausomybė nuo skolų lygį atskleidžiančių rodiklių: skolos koeficiento, ilgalaikio išsiskolinimo koeficiento ir rinkos verte pagrįsto išsiskolinimo koeficiento.

Atlikus tyrimą visų Baltijos šalių listinguojamų įmonių duomenų pagrindu, gauti rezultatai patvirtino daugelio tyrėjų nustatytą neigiamą augimo ryšį su rinkos verte pagrįstu išsiskolinimo koeficientu. Gautas vidutinis neigiamas Tobin's  $Q$  koreliacinis ryšys su rinkos verte pagrįstu skolos lygiu rodo, kad aukštesnis skolos lygis sąlygoja mažesnę įmonės vertę ir mažesnes jos augimo galimybes. Tai patvirtino hipotezę, kad skolintų lėšų panaudojimas skatina nepakankamas investicijas ir turi neigiamą poveikį įmonei augti.

Raktažodžiai: *finansavimo sprendimai, investicijų politika, nepakankamų ir perteklinių investicijų efektas, augimo galimybės.*

The article has been reviewed.

Received in February, 2008; accepted in April, 2008.