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# Are innovative SMEs effectively funded by financing system in Lithuania?

Master Thesis

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## Executive summary

The lack of available access to finance for Small and medium-sized enterprises (SMEs) is widely discussed topic among scholars and public figures. Despite the differences between regions and separate countries, access to finance remains one of the biggest barriers for the overall SMEs sector's growth, which is highly important for work place creation and performance of global economy.

The aim of this thesis was to determine how effective innovative SMEs are financed by financial system in Lithuania addressing similarities and differences to financial growth theory introduced by Berger and Udell in 1998. It investigates which types of financing are being used by SMEs in Lithuania - a post-Soviet country in East Europe, which has started to develop it's free and market-based economy only since 1990<sup>th</sup>.

The empirical data is mainly collected through 3 separate surveys answered by 506 SMEs, 9 companies offering debt financing and 3 companies offering equity financing. The inclusion of both demand and supply elements in the survey allowed to get a better understanding on the SMEs financing situation and it's issues in Lithuania.

The findings show that respondents are actively interested in the possibility to gain external financing and are familiar with the various services offered by the financial intermediaries. However regardless to their age, size or purpose of the investment SMEs identified banks and credit unions as the most popular financial intermediaries applied for external finance. This result is not consistent with the theoretical model saying that SMEs developing innovative ideas or investing in intangible assets should search for equity financing, which is more suitable due to higher information asymmetry. It indicates that external funding process of SMEs in Lithuania has similarities, but is not identical to financial growth theory. Also the thesis suggests that Lithuanian financial system could be more effective by encouraging greater venture capital market activity, which could reduce the dominance of commercial bank sector.

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## 1. Introduction

A large number of scholars agree that small businesses, especially the ones that create innovative products and services in high tech, information and bio-tech sectors are the engines of economic growth (Wu 2007; Berger and Udell 1998; Schwienbacher 2007). According to the data provided by the U.S. Small Business Administration and Eurostat<sup>1</sup>, it is estimated that the small and medium sized enterprises (thereafter in the work SMEs) in US produced around 46 percent, and 58,6 percent of gross domestic product of EU-27 (27 Member States of the European Union in 2008) (Kobe 2012; Eurostat 2011). However according to Eurostat data<sup>2</sup> there are still regional differences in SME presence in Europe. In 2009 the old Member States (EU-15<sup>3</sup>) accounted for 78,5 percent of the total number of SMEs in EU-27 and the other Member States (EU-12<sup>4</sup>) for 21,5 percent.

Despite the importance of SMEs for work place creation and overall economic growth, the requirements to get external financing are high, when these small firms need additional capital for business development (Nofsinger 2011; Miroslav Mateeva 2013). For this reason access to finance for SMEs is a common issue discussed by scholars (Beck, Demircug-Kunt and Maksimovic 2008; Berger and Udell 1998; S. C. Myers 1984; Myers and Majluf 1984). According to the pecking order theory, formalized by S. C. Myers (1984) and Myers and Majluf (1984) due to limited access to external funding, information asymmetry and the moral hazard problems SME's have different choices of capital recourses (internal funds, debt or equity financing). Berger and Udell (1998) also supports and extends the pecking order theory explaining that SMEs and large enterprises rely on different mechanisms accessing external financing based on the model that business companies choose capital structure depending on the financial-growth cycle.

However according to S. C. Myers (2003) "There is no universal theory of capital structure, and no reason to expect one. There are useful conditional theories, however. The theories differ in their relative emphasis on the factors that could affect the choice

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<sup>1</sup> The statistical office of the European Union Unit

<sup>2</sup> [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php?title=File:Enterprise\\_size\\_class\\_analysis\\_of\\_non-financial\\_business\\_economy\\_by\\_country\\_2009.PNG&filetimestamp=20120410135400](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Enterprise_size_class_analysis_of_non-financial_business_economy_by_country_2009.PNG&filetimestamp=20120410135400)

<sup>3</sup> Belgium, Denmark (no data provided), France, Germany, Greece (no data provided), Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, United Kingdom, Austria, Finland, Sweden.

<sup>4</sup> Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta (no data provided), Poland, Slovakia, Slovenia, Bulgaria, Romania.

between debt and equity. These factors include agency costs, taxes, differences in information, and the effects of market imperfections or institutional or regulatory constraints. Each factor could be dominant for some firms or in some circumstances, yet unimportant elsewhere“. So as a result we can also state that the availability of finance can be influenced by the financial system settings of its operating country.

In this paper we investigate whether the financing patterns of small young firms differ from older ones in a specific country (Lithuania) and do they meet financial growth theory, which was developed in more market-based US system. Lithuania – one of the Baltic States, a post-Soviet country in Eastern Europe. Due to historical reasons, only since 1990 Lithuania has started to transform its economy and its financial system to become market orientated country. During this transition period the role of innovative SMEs is very important, as the emerging small firms enabled market to change from mass production to a demand-driven economy (Smallbone 2001). However despite the fact that in 2004 Lithuania became a member of the European Union, its entrepreneurial level is still considerably low, so financial business support and easy access to finance are very significant problems.

## 1.1 Research problem

*Are innovative SMEs effectively funded by financing system in Lithuania?*

The empirical research in this thesis will focus on understanding the current situation in both demand-side and supply-side of external funding for SMEs in Lithuania. Considering the importance of the growth order theory in this paper we will also try to examine, if they can be applied for business environment in Lithuania.

## 1.2 Structure of the thesis

The thesis is divided into five main sections. Section 1 begins with an introduction, which highlights the research question followed by the presentation overall structure of the thesis. Section 2 presents the research design and method used in this thesis, pointing out delimitations and describing of the research data set. Section 3 gives an overview of the relevant theoretical and empirical literature on SMEs financing methods and states the hypotheses. Section 4 begins with an overview of general SMEs situation in Lithuania followed by the description of Lithuania's financial system. At the end of Section 4 we

provide the empirical results from the data set of research. In Section 5 we discuss our empirical results making conclusions.

## 2. Research design and method

As Ghauri and Gronhaug (2005), point out the research design should be used an overall plan for a researcher who often faces three major constraints. A good research design should effectively deal with time, money and competence constraints also enable to collect and analyse the data. Exploratory, descriptive and explanatory or causal research designs are the main three described by Ghauri and Gronhaug (2005) to collect the data. In this thesis we use a causal research design as we try to understand the reasons for the situation between SMEs and external funding institutions in Lithuania, not only describing the situation itself.

To find out what are the key factors and how they influence both: SMEs choosing the method and applying for external financing as well as financial institutions providing external funds for SMEs, survey was used as a research method to collect primary data. Surveys are popular and effective research method used in business studies to get opinions, attitudes and descriptions as well as for getting cause-and-effect relationships (Ghauri and Gronhaug 2005).

To get a better understanding on the SMEs financing situation and issues, research included both elements, the supply and demand of external financing. SMEs (the demand side), banking sector and private equity sector (the supply side) have been given three separate questionnaires in order to collect essential information necessary to carry out the survey. The survey for SMEs was most structured as the number of respondents was the largest and the possible control was minimal. However as the number of respondents in banking and private equity sector was much smaller the survey was less structured, this approach allowed to collect important information which may be lost because of too structured approach. All questionnaires were sent to the selected target respondents by email.

### 2.1 Delimitations

Firstly, the scope of this research is delimited to Lithuanian SMEs external financing market, this was done due to time and resource constraints gathering representative empirical data. The sample includes financial institutions that provide service in Lithuania



as well as SMEs only registered in Lithuania. However the results of the research may be applied to other Baltic state countries, as all three of them due to historical reasons are similarly economically developed and have highly comparable financial systems with almost the same most important players.

Secondly, since there is no available specialized database of innovative SMEs in Lithuania, it was chosen to question only random SMEs registered in Lithuania. Also due to time constrain only the most active players in the external financing market were asked to participate in the supply side survey.

Thirdly, the role and influence of government and other public sector measures applied only to Lithuanian financial system will be discussed in the research results, as they actively and passively change the financial environment between SMEs and financial institutions.

## 2.2 Research data

The first questionnaire with 28 questions was focused on the demand-side for external funding analysis. In April 2-19 2013 an electronic survey had been conducted among SMEs operating in Lithuania. Information about the survey was announced INVEGA website ([www.invega.lt](http://www.invega.lt)). Questionnaires were also sent to randomly chosen 4000 SMEs registered in Lithuania, as well as to various organizations associated or representing SMEs: Lithuanian Business Employers' Confederation, Society of Entrepreneurs and Managers in Lithuania, Association of Lithuanian Chambers of Commerce, Industry and Crafts, and regional business associations. 506 SMEs have fully responded to the questions on access to external finance in Lithuania. The main focus of the survey was to find out whether the access to finance problems encountered were as a result of risk aversion of debt or equity financing institutions, or as opposed to poor business proposals and/or the poor financial status of applicants etc.

There is always a statistical margin of error, which must be taken into account when interpreting the data in selective quantitative studies. Therefore while assessing the results, we must also take into account the statistical error. According to Statistics Lithuania at the end of first quarter of 2013 there were around 114 thousand registered

small and medium size business organizations including SME companies and natural persons engaged in individual business activities in Lithuania. With a confidence level of 95 per cent, tolerated 5 per cent margin of error and 50 per cent of response distribution a recommended sample size would be 383 SMEs. Nevertheless as there were 506 SMEs, which responded to the survey the tolerated margin of error decreased to 4,3 per, cent and we can assume that that the sample is representative.

The second questionnaire was created for the debt financing suppliers and was answered by 5 out of 7 Lithuanian randomly chosen commercial banks; Lithuanian central credit union; one credit union and two leasing companies<sup>5</sup>. And the third survey was given to three most active equity finance providers<sup>6</sup> in Lithuania.

In both surveys the questions covered the description of most popular products among SMEs, terms of lending, other factors that impact the supply of external financing.

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<sup>5</sup> AB bankas „Citadele“, UAB Medicinos bankas, AB SEB bankas, AB bankas „Swedbank“, LCKU, Kauno credit union, AB Šiaulių bankas, AB Šiaulių banko leasing, A/S UniCredit Bank leasing.

<sup>6</sup> PEF KŪB „LitCapital I“, bendrai investuojančio fondo („Verslo Angelai I“), early-stage PEF „Practica Capital“).

### 3. Theoretical section of the thesis

#### 3.1 The importance of SMEs

SMEs play an important part fostering each country's economic development. An effective SMEs sector is essential to ensure regional economic growth, improve the competitiveness of the market economy and deal with employment problems. SMEs are the most mobile and constantly changing group of companies that is able immediately to respond and adjust to varying market conditions or technological requirements (Wu 2007; Berger and Udell 1998).

In general, SMEs due to their size have advantages compared to large established companies. Firstly, SMEs owners have a direct involvement and this allows avoiding the bureaucracy which is created through formal human recourse management and control. Secondly, the fast decision-making enables SMEs to adopt the best practices of others companies in the market or innovate the processes themselves. As SMEs operate in various industries they differ in their dynamism, technical advancement and risk attitude. Some of the companies can be high-tech niche players in the market considered as relatively risky, and others exactly the opposite (United Nations 2013).

However it is instructive to note that term “micro, small and medium-sized enterprises” has various definitions across the globe. Most of definitions are mainly based on the number of employees, total net assets, sales and investment level (Ayyagari, Beck and Asli 2007). In this thesis, we follow the European Union definition: “The category of micro, small and medium-sized enterprises is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro”.<sup>7</sup> It is worth pointing out that by the same definition of EU, SME is “any entity engaged in an economic activity, irrespective of its legal form”.

Table 1 Definition of SMEs

Company category	Employees	Turnover		Balance sheet total
Medium-sized	< 250	≤ € 50 m	or	≤ € 43 m
Small	< 50	≤ € 10 m	or	≤ € 10 m
Micro	< 10	≤ € 2 m	or	≤ € 2 m

Source: European Commission, Enterprise and Industry, 2011. “Small and medium-sized enterprises (SMEs), SME Definition

<sup>7</sup> Extract of Article 2 of the Annex of Recommendation 2003/361/EC

According to Eurostat, SMEs constitute a major segment in the European Union economy. The overwhelming majority (99,8 %) or 20,7 million of enterprises active within the EU-27 non-financial business economy in 2012 were SMEs. Together they accounted for 67,4 per cent of work places. 92,2 per cent of all SMEs in the EU-27 were micro enterprises (employing fewer than 10 employees, while large businesses), and companies with more than 250 employees, accounted only for just 0,2 of enterprises in the EU-27 non- financial sector.

Across the whole of the EU-27 non-financial business economy, SMEs accounted for 58,1 per cent of value added generated in 2012 (3.578 thousand millions EUR).

**Table 2 Number of enterprises, employment and gross value added in EU-27, by size-class, 2012 (estimates)**

	SMEs	Large	Total
Number of enterprises (thousands)	20.727,60	43,60	20.771,20
Percentage	99,8%	0,2%	100%
Employment (thousands)	87.477,30	42.318,80	129.796,10
Percentage	67,4%	32,6%	100%
Gross value added EUR Millions	3.587.540,00	2.591.731,50	6.179.271,50
Percentage	58,1%	41,9%	100%

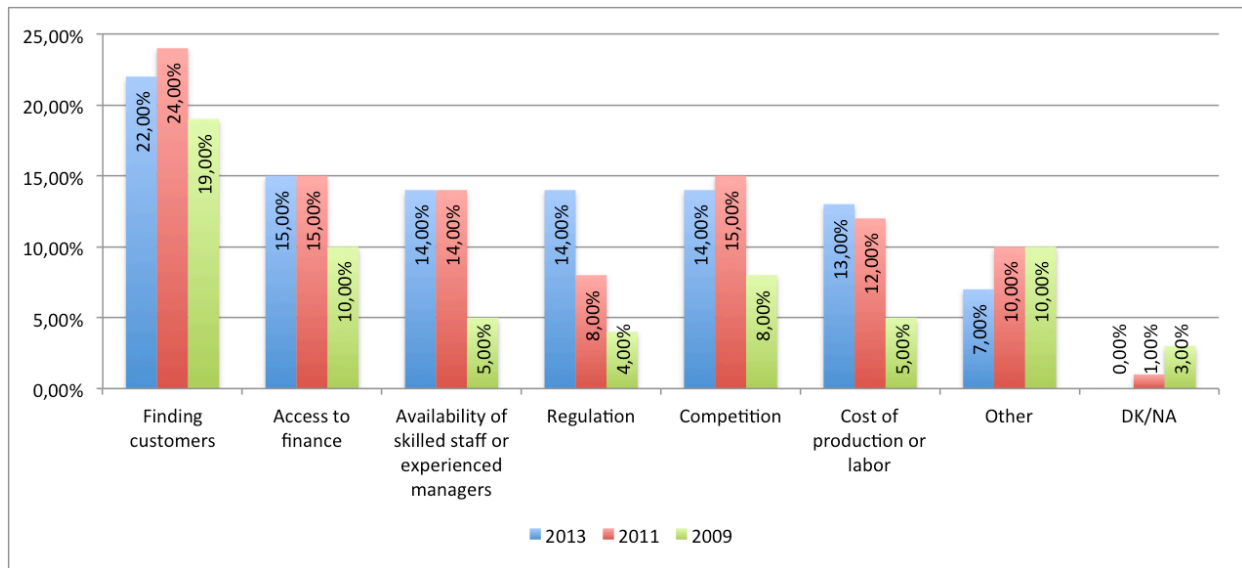
Source: Eurostat/National Statistics Offices of Member States/Cambridge Econometrics/Ecorys

However despite the importance of SMEs for work place creation and overall economic growth, the requirements to get external financing are high, when these firms need additional capital for business development (Nofsinger 2011; Miroslav Mateeva 2013).

The 2013 SMEs' Access to Finance survey<sup>8</sup>, which was requested by the Directorate General for Enterprise and Industry of the European Commission, identifies the specific problems faced by SMEs in Europe. According to that survey, three most important business challenges faced by SMEs have not changed in the last four years: 22 per cent of the companies indicated that finding the customer for their products and services was the biggest concern. Limited access to external finance (15 per cent) and limited availability of skilled staff or experienced managers were second and third biggest problems (see Figure 1).

<sup>8</sup> [http://ec.europa.eu/enterprise/policies/finance/files/2013-safe-analytical-report\\_en.pdf](http://ec.europa.eu/enterprise/policies/finance/files/2013-safe-analytical-report_en.pdf)

Figure 1 Problems faced by SMEs managers in EU



Source: 2013 SMEs' Access to Finance survey

However authors of this survey emphasise a fact that there was a high variation across countries evaluating the problem of access to finance. For example 40 per cent of SMEs in Cyprus, 32 per cent in Greece, 23 per cent in Spain and Croatia, 18 per cent in Lithuania stated that getting external financing is the most important problem. These results of the survey indicate that SMEs in less financially developed countries face a major challenges obtaining external finance. Lack of available access to finance for SMEs has been brought into larger focus after the world economy crisis.

Taking in to consideration that financing possibility through public sources involves significant fixed costs, which are too big for most of the SMEs the supply and demand of external funding for is limited to relay on private market only. There for the commercial banks and finance companies are the main external funding suppliers for SMEs, however the availability of the funds is lower and the cost of capital provided is higher for SMEs comparing to lager and older companies (Wu 2007; Berger and Udell 1998). The main reasons for this limited access are: high administrative costs of small-scale lending, country's financial system and high risk-aversion related to information asymmetry and the moral hazard problems (Calugi, Caselli and Cerno 2011).

## 3.2 Problems related with SMEs financing

### 3.2.1. Information asymmetry problem

It is widely agreed that information asymmetry problems between SMEs and external investor leads to situation in the market when potentially profitable business ideas are underfinanced. S. C. Myers (1984) and Myers and Majluf (1984) developed the pecking order theory based on the fact that entrepreneur/ manager has better information about the innovative business than a potential investor. Investor demands higher returns, if he assumes that the lack of information is meaningful, and the risk of losing his investment is high, as well in same situation potential investor perceives equity to be riskier than debt (Hall 2009). In an attempt to avoid higher costs of capital, entrepreneurs use their internal finances as primary major source of finance. According to pecking order theory when internal financial sources are exhausted, companies use debt financing, leaving external equity as last choice. The main prediction of this theory is that SMEs owners source their capital from a pecking order: first - their personal savings and retained earnings; second - short-term debt; third - long-term debt; and fourth - by equity (Miroslav Mateeva 2013; S. C. Myers 1984; Myers and Majluf 1984).

The pecking order theory may be even more relevant for the SMEs, because information asymmetries problem is even greater (Berger and Udell 1998). According to this theory we can assume that younger and smaller companies choose to be financed more by external funding recourses comparing to older ones, because older companies should have a greater sum of accumulated retained earnings. Berger and Udell (1998) in their work also suggest that younger firms are heavily financed by external debt from financial institutions (commercial banks, financial companies etc.), however the owner of young SMEs is required to personally guaranty the loan, which lowers the risk for the lender. The lack of possible collectable assets and no trading history restricts access to external debt (Berger and Udell 1998). Innovative SMEs, due to their new to the world ideas may require big start-up financing and that makes some financing options unavailable. For these reasons SMEs might favour external equity as a best finance solution (Cassar 2004).

Entrepreneurs also could reduce the importance of information asymmetries problem by revealing their innovative ideas, however this increases a threat that revealed ideas could be copied or reinvented by potential competitors in the market is (Hall 2009).

### 3.2.2. Moral hazard Problem

Jensen and Meckling (1976) put forward the theory of the agency that investigates the conflict of interests between the various stakeholders of the firm. Authors defined situations when agent due to information asymmetry does not always make the best decisions for the principal. According to the agency theory the conflict may arise between shareholders and managers, or in some situations between shareholders and debt holders. SMEs are more likely to deal with second problem, because shareholders and managers are same people (Miroslav Mateeva 2013). A major concern for external finance investors arises from moral hazard.

The moral hazard problem occurs after the agent (the owner of SME) has received the external financial resources from the principal (the investor). The firm owner may have informational advantages and an incentive to use the resources to fund riskier projects with possible higher returns, while investor may not have an effective way to monitor and prevent such behaviour. An explanation for such a behaviour is that the owner of SME benefits fully from any additional returns from higher risk projects, but does not have to cover all the losses in worst case scenario (the bankruptcy of the firm).

According to Baas and Schrooten (2006) debt providers deal with moral hazard problem by using four lending techniques.

Type of lending	Efficiency	Type of information
<b>Relationship lending</b> Private information about the firm and the owner	Depends on the tightness of banking relationship	“soft” information
<b>Financial statement lending</b> Standardized financial reporting data	Depends on the quality of the available data. More used to finance large firms, because SMEs face less legal requirements	“hard” information
<b>Asset based lending</b> Credit collateral	No credit loss if credit volume is in the limit of collateral value. High monitoring costs and requires high quality receivables.	“hard” information
<b>Credit scoring</b> ; Standardized financial data of owner and firm	Depends on the quality of the available data but can be only a proxy of financial insight.	“hard” information

Source: (Baas and Schrooten 2006)

Overall, asymmetric information and moral hazard problems cause more problems for SMEs especially for innovative ones comparing to older and large companies as they have longer credit history and more collateral assets on their balance sheets. This is one of the explanations why it is so hard for SMEs to find an optimal external funding option. (Calugi, Caselli and Cerno 2011; Hall 2009). However, close and continued interaction, between potential investor and the firm may provide sufficient information about it lowering the cost and increasing availability of the credit.

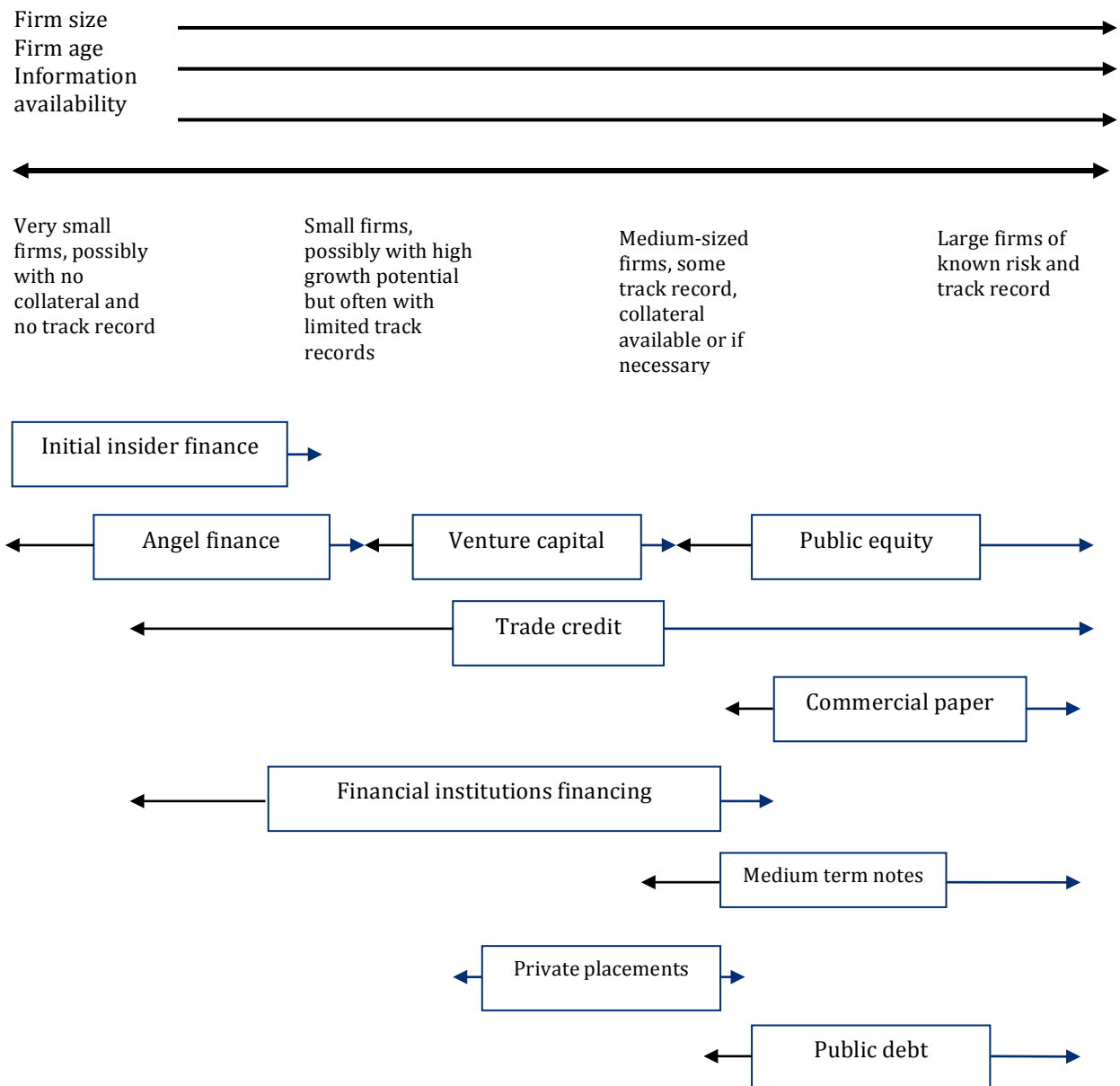
### **3.3 Sources of SME external financing:**

As mentioned above due to limited access to external funding, SME's have different choices of capital recourses (S. C. Myers 1984; Myers and Majluf 1984). According to the pecking order theory the owners of SME's may choose to use more internal capital recourses because of the costly external capital. Berger and Udell (1998) propose a theory of financial growth cycle for small businesses, which supports and extends the packing order theory. Authors explain how external funding options depend and change based on SME's development phase. Every phase has three determinant variables: size, age, and information availability to possible external investors (Figure 2). Financial growth cycle theory gives as the explanation, why newly found small companies rely more on internal sources of funding, but as SMEs become bigger, older and more less informational opaque (publish more information about their existence and performance) they develop a better access to external funds (Gregory and et. al 2005; Berger and Udell 1998).

Berger and Udell (1998) provide empirical support that at the beginning of the growth cycle, SMEs are heavily dependent on initial insider finance and business angels as external investors. Theory predicts that as the SMEs grow, they will gain access to venture capital as a source of intermediate equity and banks, finance companies etc. as a source of intermediate debt.



Figure 2 Firm continuum and sources of finance



Source: (Berger and Udell 1998)

### 3.3.1 Initial insider finance

Berger and Udell (1998) define initial insider finance “as funds provided by the start-up team, family or friends prior to and at the time of the firm’s inception”. While the possibility to get external financing is low, initial insider finance can be seen as a “seed

financing<sup>9</sup>”, when the entrepreneur is still developing the product or business concept and the firm's assets are mostly intangibles. Funds gained from SMEs start-up team that consists of entrepreneur's family, friends, relatives and colleagues are also considered as source of internal finance. Often they may act as a funding source in the form of interest free loans, or even donations to the start-ups with no formal requirements (Berger and Udell 1998).

Despite the fact that insider financing from family, friends and colleagues is very important, it is relatively a small compared to other possible financing options. According to the results of the surveys<sup>10</sup> the capital provided by the principal owner is the largest and most important as a source of insider financing for SMEs. However the majority of this capital comes in some form of credit, either through personal guaranteed loans or through business credit cards (Berger and Udell 1998; Robb and Robinson 2008).

**H1: The use of initial insider finance by SME is negatively related with age.**

### **3.3.2 Equity financing:**

#### **Business Angels:**

The ability to raise initial internal funds for entrepreneurs is important but in most of the time it is very limited. Entrepreneurs should search for angel finance investment after they reach a point when all of the internal funds were used and their companies still need additional funding for optimal business development (Berger and Udell 1998). Angel financing is recognized as important and one of the largest source of funding and it operates in a segment, which falls in between informal founders, friends and family financing and formal venture capital investors. Angel investors are defined as individuals of high net worth, who invest directly in SMEs on their own account through equity contracts. (Sohl 1999; Berger and Udell 1998)

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<sup>9</sup> Seed financing – definition

<sup>10</sup> National survey conducted in 1993 in the United States for small business finance (Berger and Udell 1998) and survey done by Kauffman Firm Survey in the United States (Robb and Robinson 2008), which collected annual three year information from 4928 start-up firms from 2004.

As angel investment is done in small and early stage business companies, business angels tend to use more “intuitive” criteria, giving more importance to intangible assets such as business idea, the experience of the entrepreneur or managing team etc. Using formal information sources may not be useful at that time (OECD 2006). In addition to that Bottazzi and et al. (2002) explains that business angels provide not only finance but also the managerial experience, since many of the investors have made their fortunes in the same industries that they subsequently invest in. Due to special knowledge and experience they may have a higher ability to screen for higher quality projects, increase the survival probability of the company or both at the same time.

Business angels most often choose a multiple round investment, because they invest their money in early stage business while information asymmetry is high. Geographical proximity also plays a large role dealing with information asymmetry and moral hazard problems. A possibility to have a close contact and the high degree of post-investment assistance allows maintaining a better control for the private investor (Berger and Udell 1998; OECD 2006).

### **Business angel networks**

Significant search and information costs maybe one of the main reasons, why informal business angel investors, choose to formalize their market by getting together in Business Angel Networks. The purpose of the network is to function as an intermediary between entrepreneurs who seek capital and the business angels (Berger and Udell 1998). Business angel networks over time develop a well-functioning communication channels to share information between different informal venture capital investors, who otherwise are fragmented and invisible to one another. These communication channels also connect them with potential high growth SMEs owners searching for external funding. To ensure a stable deal flow business angel networks maintain contracts with other sources such as universities, government investment promotion agencies, incubators, financial institutions, lawyers and consultants. Most of the networks operate at a regional or national level (OECD 2006; Berger and Udell 1998). Business angel networks also allow effectively manage the continuous financing process, which is a problem for most individual business angels.

According to data described in The European Business Angel Network (EBAN) survey<sup>11</sup>, business angels have invested 5,086 billion Euros in 2012. There were 260.000 angel investors and the leading countries in Europe as far as their business angel activity are the United Kingdom, Spain, France, Germany and Sweden. For comparison business angels invested 17,39 billion Euros in the United States, but the number of the angel inventors was almost the same - 268.160<sup>12</sup>. However, the both surveys due to the informal nature of the business angel market have a number of limitations.

### **Venture Capital:**

Proceeding towards other sources of finance, the venture capital is another considerable option. Venture capital is a financial intermediary, which operates as a special form of private equity. Both venture capital and other forms of private equity companies collect capital from investors (such as pension funds, insurance companies, financial institutions and other institutional investors) and makes investments in private ventures. However the main difference from other private equity products is that venture capital is primary focused to provide several stage financing for young, unlisted dynamic venture companies, while private equity deals with a broader range of companies, frequently even mature companies with prospects for restructuring. Venture capitalists expect to get the returns from their investments in the form of capital gain through selling the companies at exit, rather than through on-going dividend returns. There are several main exit strategies used by venture capital investors:

1. Initial public offering - taking the company public at the stock exchange, and selling the venture capital company's stake.
2. Trade sale - sale of the portfolio company to a larger company in the same industry sector.
3. Selling the company to another investor.

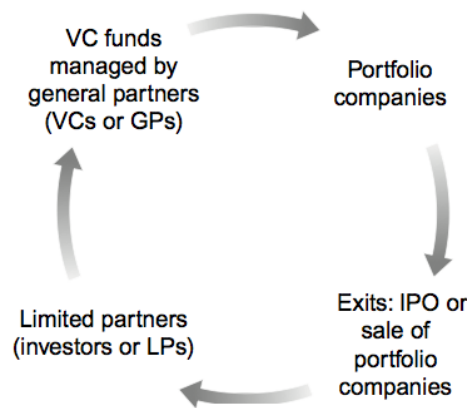
(Ländstrøm 2007; Bottazzi and et al. 2002; OECD 2006; Berger and Udell 1998; Metrick and Yasuda 2007)

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<sup>11</sup> <http://www.eban.org/wp-content/uploads/2013/07/EBAN-Angel-Investment-Overview-2012.pdf>

<sup>12</sup> according to the data provided by Center for Venture Research at the University of New Hampshire [http://paulcollege.unh.edu/sites/default/files/2012\\_analysis\\_report.pdf](http://paulcollege.unh.edu/sites/default/files/2012_analysis_report.pdf)

Figure 3 Venture capital cycle



Source: (Metrick and Yasuda 2007)

According to Ländstrøm (2007) since 1980s the limited partnership is the dominant organizational form in venture capital. Typically Venture Capital Company consists of limited and general partners.

General partner is the fund manager that has a team of active professionals who combine both technical expertise and industry experience (Metrick and Yasuda 2007). Such a background helps the investors to have the appropriate knowledge about industry sectors where they focus their attention, because they need to deal with continues flow of business plans of new technological innovations (Berger and Udell 1998; Ländstrøm 2007). Limited partners are the investors who act as a source of capital to the venture capital fund. Most often these investors are pension funds, insurance companies, banks, private individuals, fund of funds, corporations and others (Metrick and Yasuda 2007).

The partnership between general and limited partners is structured under contract agreements, which describes the roles of each party and mitigates information asymmetry and moral hazard problems. Also the partnership has a definite lifetime, which is typically around 10 years with an option to continue for 1-3 years, after which it terminates. This 10-13 year period is used by the general partner for screening and selecting SMEs in which venture capital fund will provide equity investment and get the returns through IPO or an acquisition (Ländstrøm 2007).

During all the lifetime of the partnership, general partner receive their income in combination from two sources annual management fee and performance fee (carried interest). Fixed annual management fee, which is typically 1-3 per cent of committed capital per year. The purpose of the fee is to provide capital for the general partner's daily

operations and pay the fund manager a salary prior the exit of the investment. However the largest part of the income for the general partner comes from the performance fee (carried interest), which is typically 20-30 per cent of profits over returns of capital. The performance fee allows aligning the incentives of general partner and limited partner to maximize the value of the portfolio companies. In most funds, the compensation scheme is negotiated in advance with both partners knowing what share of the overall carry they are due to receive (Ländstrøm 2007; Metrick and Yasuda 2007; Bottazzi and et al. 2002).

Venture capital investors are generally considered as financial intermediaries who provide not just financing, but also do extensive monitoring and value-adding activities. As mentioned before venture capitalists are active investors, who have to overcome the information asymmetry (the private information that both entrepreneur and venture capital investor manages about venture company, industry, technology, etc.) and moral hazard problems, which are caused by the early stage of the venture and technological innovation. Depending on how risky is the business and how great is the information asymmetry venture capital investors often may place a contractual agreement, which allows obtaining an extensive control of the firm. Board seats, veto rights, and various contingent control rights are the most common measures that investors choose to monitor and control the financially backed company (OECD 2006; Ländstrøm 2007; Metrick and Yasuda 2007). However Kaplan, S. N. and Stromberg, P. (2002) in their study point out a result that “in general, board rights, voting rights, and liquidation rights are allocated such that if the firm performs poorly, the VCs obtain full control. As performance improves, the entrepreneur retains/obtains more control rights. If the firm performs very well, the VCs retain their cash flow rights, but relinquish most of their control and liquidation rights.”

Furthermore, venture capital investors not only focus how to minimize the potentially harmful behaviour by entrepreneur, but also try to increase the value of the company by using the value-adding activities (Ländstrøm 2007). Sapienza (1994) in his study reveals three main roles of venture capitalists in their relationship with entrepreneurs - strategic, operational and personal. The value-maximizing activities can take many forms depending on the entrepreneur and the venture capital investor but most important are: sounding boards of strategic initiatives; business advisors and mentors; contact providers acting as talent recruiters; attracting additional venture capital investors

by using their reputation to or industry contracts (Ländstrøm 2007; Metrick and Yasuda 2007; Sapienza 1994).

To sum up venture capitalists primarily invest in young, high-technology companies that have a capacity for rapid growth, in some respect they have some similarities to angel investors. However due to high fixed overhead costs and limited time frame venture capital provide mostly large external funding for SMEs by average ten times bigger than angel investment (Ländstrøm 2007).

According to EVCA<sup>13</sup> there was 3,2 billion Euros invested by venture capital firms in 2012 in Europe. The overall amount decreased by 14 per cent compared to 2011, however the number of venture backed companies remained stable (2900 companies). The majority of venture capital was invested in start-up stage companies. Europe's venture capital market is more than six time smaller compared to the US market. According to the MoneyTree Report by PricewaterhouseCoopers LLP and the NVCA<sup>14</sup> venture capitalists in US market invested 19,99 billion Euros in 3,698 deals in 2012, however overall the overall amount also decreased by 10 per cent compared to 2011.

**H2: SMEs developing innovative ideas and investing R&D apply for equity financing relatively more compared to debt financing.**

**H3: The average level of funding required by SMEs from private equity investors is usually larger compared to debt investors.**

### **3.3.3 Debt financing:**

Banks are the financial intermediaries that provide the biggest share of external private debt financing. Berger and Udell (1998) study reveals that only 1,85 per cent of small firms in the United States are financed by venture capital and 3,59 per cent by business angels, compared to 18,75 per cent that are financed by bank debt. This may be explained that angel investors and especially venture capital firms focus their activity on high-grows, innovate small firms, which operates in high-tech industry and need big

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<sup>13</sup> European Private Equity & Venture Capital Association

<sup>14</sup> National Venture Capital Association in the US

investment. However not all of the innovative SMEs are able to attract external equity financing and must search for an alternative. In some cases entrepreneurs intentionally avoid equity financing, because of the reluctance to give away the control or ownership of their venture (Berger and Udell 1998).

As discussed above, there are differences between external private equity financing and private debt financing. Typically SMEs borrow money from a commercial bank or other financial institution in a form of a loan or short-term credit (Berger and Udell 1998). However despite the fact that SMEs more often choose debt as a form of external financing, the cost of this capital is higher compared to larger firms. Scholars point out several barriers why access to debt finance SMEs is limited, costly and may be even inappropriate.

First of all credit constrain can arise due to high investment uncertainty and information asymmetry. Entrepreneur has a better understanding about the true value of his firm and the potential investment returns comparing to debt provider. In a situation when investor assumes that information asymmetry is relatively high it may choose to raise interest rates. Higher interest rates, implemented controlling and monitoring methods may reduce the level of the risk, but they do not eliminate it and in some cases external debt providers limit the supply of lending in other words starts credit rationing. Financial institutions that provide external debt are also more risk-averse compared to venture capital investors. Due to legal regulations debt providers must be certain that majority of the debts will be repaid allowing just a few defaults, while venture capital can tolerate unsuccessful investments more often (Carpenter and Petersen 2002; OECD 2006).

Secondly, the moral hazard problem that may occur after the SME receives the investment. It depends of the ability of monitoring and controlling the borrower by the debt provider. Entrepreneur may alter his behaviour and take riskier projects because the cost of the risk is fixed and all additional capital gain will be acquired by him as the owner (Carpenter and Petersen 2002).

Thirdly, availability of the adequate collateral. Financial intermediary institutions often ask for collateral to reduce the potential losses, by insuring that investor has an alternative source of repayment, if borrower goes bankrupt. Also it can be used to deal with moral hazard problem, as often entrepreneur has to pledge his own assets that do not belong to the firm. However innovative SMEs often lack of tangible assets, as they invest heavily in R&D or in other words firm specific intangible assets that are not attractive to



external debt provider because investor must have technical knowledge to make a correct evaluation of them. Also it requires intensive monitoring of the assets pledged as collateral and this may increase the price of the provided capital. (Carpenter and Petersen 2002; Berger and Udell 1998; OECD 2006)

**H4: The use of debt finance by SMEs is positively related with the provision of collateral.**

**H5.1: The use of debt finance by SMEs is positively related with firms' age.**

**H5.2: The average level of funding required by SMEs from debt is positively related with firms' age.**

### **3.3.4 Public sector support:**

Governments had focused their attention to financial and other constraints that are faced by high-growth SMEs in their early life-cycle stage. Many of the countries have launched a number of direct and indirect policies to utilize public funds in order to facilitate entrepreneurship. It may depend on the level of the implementation (local, regional, national, community of countries), but most often the policies and programmes include taxation, regulation, legal requirements, expenditures etc. (European Commission 2011). Three capital recourse measures that facilitate SMEs external financing are considered in this section.

#### **Development banks:**

According to Armendáriz de Aghion B. (1999) "development banks are government-sponsored financial institutions concerned primarily with the provision of long-term capital to industry." Development banks focus their business to provide financing for projects and development programs that will provide economic, social, or environmental benefits to the country. Often development banks are seen as the last financing institutions, lending money for socially beneficial projects which otherwise would not receive money from private sector (Bruck 1998; OECD 2006).

## **Loan guarantee schemes**

As discussed above, information asymmetry and moral hazard problems limit the possibility to get the external capital for innovative SMEs with potential of high-growth. Also lending is more expensive per unit lent for SMEs because the amount of funds requested by SMEs is small, but the lenders overhead costs are fixed. Thus financing institutions request collateral using it as a device which lowers the information based risks and allows sorting out high risk and low risk borrowers. However, providing collateral is difficult for young SMEs with high-growth projects. As a result governments in many countries have launched programmes in the form of loan guarantee schemes. Loan guarantees are used to provide external credit support in place of collateral from the SMEs and lowering the risk of losing money for the lender in case of default. In other words loan guarantees encourage financial institutions to make more debt finance available to SMEs (OECD 2006; Cowling and Mitchell 2003).

Nevertheless, the public sector intervention in capital markets has a positive impact, but not always reaches all the targets. In some countries it was recognized that loan guarantee schemes were too expensive, complex and most importantly failed to support those SMEs that are most financially constrained (OECD 2006).

### **H6. The usage of state support by SMEs is positively related with firms' age**

#### **Hybrid Venture Capital**

It is a common understanding that SMEs are the main contributors to country's economic growth and external equity financing may be the best option for young ventures, especially those with technological background due to high risk, information asymmetry and lack of assets. Unfortunately due to financial crisis and poor investment returns venture capital investors have moved their focus from early stage financing to later stage investments especially in Europe. Thus, public sector devotes considerable attention ensuring that young SMEs would get optimal equity financing by creating of public sector schemes at the regional, country, and community (e.g. EU) level (OECD 2006; Policy Department Economic and Scientific Policy 2012).

Public sector intervene the market, by investing in private venture capital funds as limited partners or co-investors creating hybrid venture capital funds for early stage financing moreover public incentives increase size of fund towards optimal operating scale. Once government (other public agency) together with private fund manager decides what will the purpose of the hybrid fund, private manager becomes responsible for investment decisions and monitoring and controlling over the backed companies. In some countries especially with bank-based financial system, hybrid venture capital funds introduce and promote equity funding as an alternative external financing measure (Lerner, Moore and Shepherd 2005; Policy Department Economic and Scientific Policy 2012; OECD 2006)

## 4. Empirical section of the thesis

### 4.1 Overview of Lithuanian economy

Lithuania is one of the soviet bloc countries that became independent in early 1990<sup>th</sup>, which brought major changes in public and private life. Country experienced a difficult period of reforms and crisis in a transition between a planned to a market economy, with free competition, open international markets and legal private business. Consequently financial system with private capital emerged in market economy and commercial banks become the main channel of direct private investment. Nowadays banks are established source for financing SMEs in Lithuania, while equity financing is still in an early stage of development.

In recent years, the economy of Lithuania has been recovering after a financial crisis. It started in 2008 after several years of rapid economic growth, which was mainly driven by domestic demand and the real-estate price boom. However, since 2010 the Lithuanian economy has started to grow again, real GDP growth rate increased by 5,9 per cent in 2011, and in 2012, Lithuania's real GDP grew by 3.7 per cent it was second highest in EU27 (the highest real GDP growth of 5,6 per cent was recorded in Latvia) while average real GDP growth of EU27 was negative (-0,4 per cent)<sup>15</sup>. According to data provided by Statistics Lithuania the faster growth of goods and services exports comparing to imports, was one of the key factors that contributed to the positive GDP growth in Lithuania.

**Table 3 Gross domestic product at market prices (comparing to previous period)**

<b>Country/Year</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
European Union (27 countries)	0,4	-4,5	2,1	1,6	-0,4
Lithuania	2,9	-14,8	1,5	5,9	3,7

Source: Eurostat

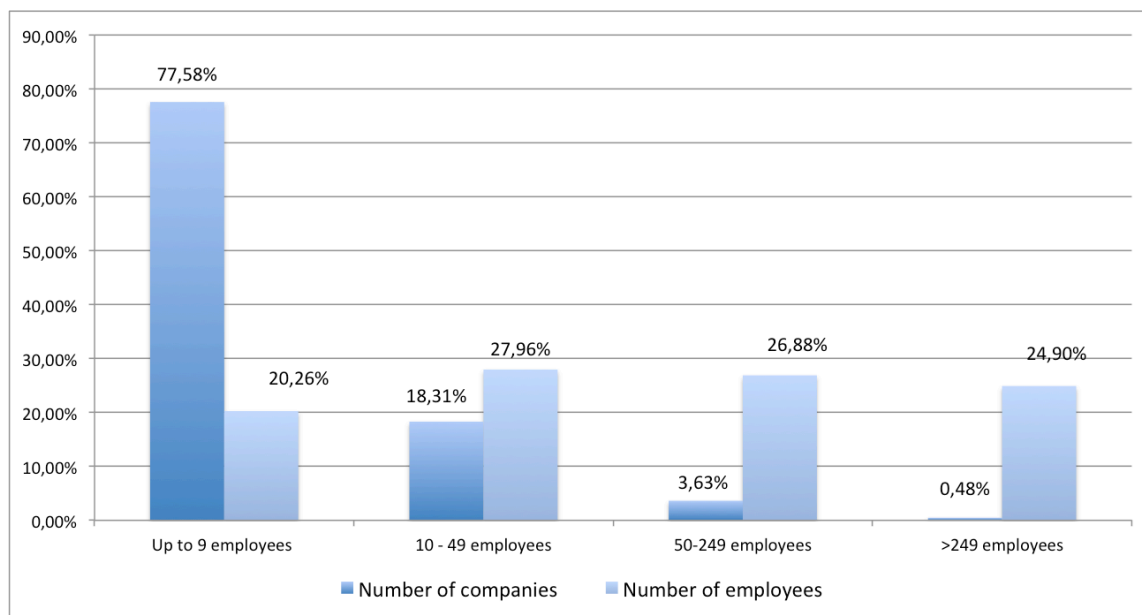
SMEs in Lithuania, as in other EU countries, account for more than 99 per cent all companies carrying out economic activity. In the beginning of 2013 there were 65.461 SME companies excluding 48.673 natural persons engaged in individual activities in Lithuania. 77,96 per cent of the SMEs were micro-enterprises (up to 9 employees) and

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<sup>15</sup> <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do?dvsc=2>

another 18,39 per cent small companies (10 and 49 employees). Furthermore 75,1 per cent of employment worked in SMEs.

Figure 4 Distribution of employees and companies



Source: Statistics Lithuania

The table below shows the importance of different industry sectors for the structure of Lithuania's GDP. Wholesale and retail trade, transport, accommodation, food service activities and manufacturing creates 52,2 per cent of all GDP. According to Statistics Lithuania in the beginning of 2013, 25 per cent of enterprises carried out economic activity in wholesale and retail trade, 7,8 per cent in manufacturing and 7,5 per cent in transport sectors.

Table 4 The structure of Lithuania's GDP

Year	Relative share of GDP (pct.)					Annual growth rate at constant prices (pct.)				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
<b>Gross Domestic Product</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>2,9</b>	<b>-14,8</b>	<b>1,5</b>	<b>5,9</b>	<b>3,6</b>
Agriculture, forestry and fishing	3,7	2,8	3,3	3,5	3,5	2,5	1,4	-6,8	7,2	8,6
Extracting industries and Energy	3,9	4,6	4,6	4,1	4	-1,3	-6	-3,4	-11,7	-6,7
Manufacturing	17,5	16,8	19	20,6	21,1	2,2	-16	8,9	10,7	6
Construction	11,2	6,6	5,9	6,5	6,2	1,9	-45,6	-6,2	19,1	-5
Wholesale and retail trade, transport, accommodation and food service activities	28,2	29,7	31,2	31,6	33	3,6	-17	4,2	7,8	6,3
Information and communication	3,4	3,9	3,7	3,2	3,2	1,8	0,1	1,9	-3	7
Financial and insurance activities	3,3	2,2	2,4	2,5	2,1	3,7	-8,6	8,4	9,7	-0,8
Real estate activities	6,9	7,3	6,6	5,9	5,8	13	-3,8	-1,2	-0,5	2,6

Year	Relative share of GDP (pct.)					Annual growth rate at constant prices (pct.)				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
<b>Gross Domestic Product</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>2,9</b>	<b>-14,8</b>	<b>1,5</b>	<b>5,9</b>	<b>3,6</b>
Professional, scientific and technical activities; administrative and support service activities	5,7	6,4	5,8	5,7	5,7	2,7	-15,6	-2,5	3,2	2,4
Public administration, defence, education, human health and social work activities	14,6	17,5	15,7	14,5	13,8	1,3	-2	-2,4	0,6	0,6
Arts, entertainment and recreation, repair of value added household goods and other services	1,7	2,1	1,9	1,8	1,8	-6,8	-12,8	-6,1	3,2	2

Source: Statistics Lithuania

#### 4.1.1 Innovation activities of enterprises in Lithuania

The results of the European Commission Innovation Union Scoreboard 2013<sup>16</sup> have shown that the most innovative countries (Sweden, Germany, Denmark and Finland) have notably improved their performance. The overall ranking within the EU-27 remains stable, with a result of 0,544 of Summary Innovation Index. Although all three Baltic countries Estonia, Lithuania and Latvia have noticeably improved in research and innovation performance since 2012, all of them still lag behind EU-27 average.

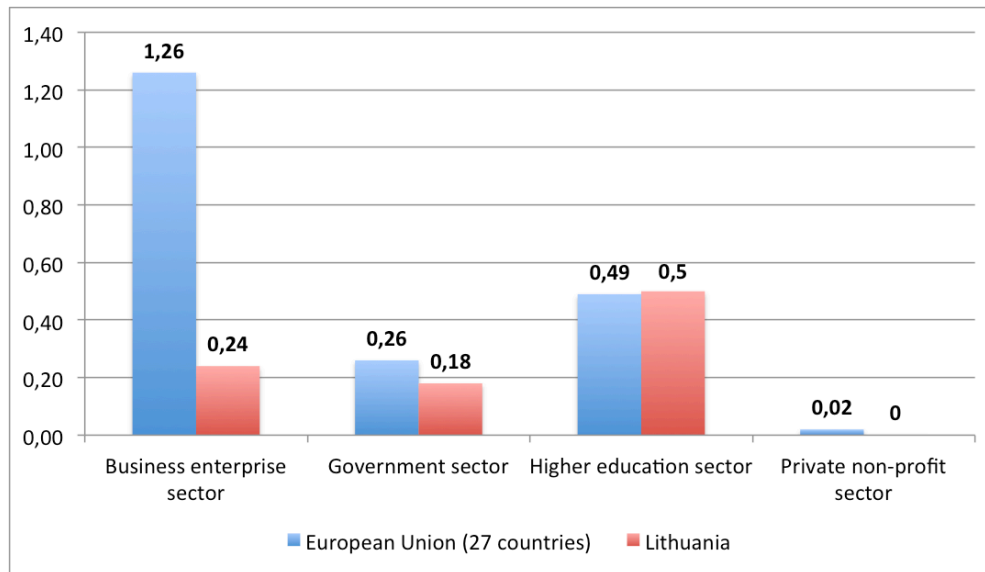
Insufficient private sector expenditure in R&D is one of the main factors determining why the result of Summary Innovation Index in Lithuania is the relatively low (0,28). According to data provided by Eurostat<sup>17</sup>, the Gross domestic expenditure on R&D (GERD) by public and higher education sector is close to the EU-27 average, but private sector expenditure is 5 times lower compared to EU-27 (See Figure 5).

According to 2008-2010 innovative activity results published in 2012 by Statistics Lithuania in 2010 innovative activities were carried out by 32.5 per cent of manufacturing and service companies that had 10 or more employees. Most of them had been working in information and communication technology as well as in financial and insurance sectors. 77,4 per cent of all innovative expenditure was spent on equipment, machinery, software leaving just 13,7 per cent for R&D and 7,3 per cent for licenses and know-how acquisition.

<sup>16</sup> [http://ec.europa.eu/enterprise/policies/innovation/files/ius-2013\\_en.pdf](http://ec.europa.eu/enterprise/policies/innovation/files/ius-2013_en.pdf).

<sup>17</sup> [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/R\\_%26\\_D\\_expenditure](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/R_%26_D_expenditure)

Figure 5 The share of GERD to GDP (%) in EU-27 and Lithuania in 2011



Source: Eurostat

The study also revealed, that 30 per cent of the companies indicate a relatively high innovation price compared to its added value to the company within a certain period of time as the main factor limiting innovative activities. The second most important factor is the lack of funds held by the company (29 per cent of the companies) and third - the dominance of well-known companies in the market (22 per cent of the companies).

## 4.2 Lithuanian financial system

Currently banks are a rather established source for financing in Lithuania. Commercial banks account for most of the financial system having 22,87 billion EUR as their assets and this accounted for almost 65,6 per cent of countries GDP and more that 80 per cent of total financial system assets (Table 5). It should be noted that Scandinavian banking groups, which control 86 per cent of all banking sector assets, dominate that Lithuanian banking sector<sup>18</sup>.

<sup>18</sup> [http://www.lb.lt/financial\\_stability\\_review\\_2013](http://www.lb.lt/financial_stability_review_2013)

Table 5 Lithuania's financial system

	2012				
	Number	Assets			
		LTL millions	Share %	Annual change %	Compared to GDP %
<b>Banks</b>	<b>20</b>	<b>74 259</b>	<b>80,5</b>	<b>-6,0</b>	<b>65,6</b>
Banks. excluding foreign bank branches	8	58 280	63,2	-8,3	51,5
Foreign bank branches	12	15 979	17,3	3,6	14,1
<b>Credit unions</b>	<b>77</b>	<b>2 058</b>	<b>2,2</b>	<b>26,4</b>	<b>1,8</b>
<b>Central credit union</b>	<b>1</b>	<b>370</b>	<b>0,4</b>	<b>4,4</b>	<b>0,3</b>
<b>Leasing companies</b>	<b>10</b>	<b>5 814</b>	<b>6,3</b>	<b>-3,7</b>	<b>5,1</b>
<b>Insurance market</b>	<b>11</b>	<b>2 987</b>	<b>3,2</b>	<b>6,0</b>	<b>2,6</b>
Life insurance companies	5	1 778	1,9	13,8	1,6
Non-life insurance companies	6	1 209	1,3	-3,8	1,1
<b>Capital market participants</b>	<b>122</b>	<b>1 842</b>	<b>2,0</b>	<b>13,6</b>	<b>1,6</b>
Financial brokerage companies	10	25	0,0	-14,0	0,0
Management companies	14	78	0,1	3,3	0,1
Open-ended investment companies	33	641	0,7	25,2	0,6
Foreign collective investment undertakings	65	1 098	1,2	9,3	1,0
<b>Pension funds</b>	<b>39</b>	<b>4 917</b>	<b>5,3</b>	<b>17,8</b>	<b>4,3</b>
2nd pillar pension funds	30	4 808	5,2	17,8	4,3
3rd pillar pension funds	9	109	0,1	15,7	0,1
<b>FINANCIAL SYSTEM</b>	<b>280</b>	<b>92 247</b>	<b>100,0</b>	<b>-3,5</b>	<b>81,5</b>
<b>Securities capitalisation</b>	<b>-</b>	<b>16 195</b>	<b>-</b>	<b>4,7</b>	<b>14,3</b>
<i>Listed shares</i>	-	10 329	-	-4,7	9,1
<i>Listed debt securities</i>	-	5 865	-	26,9	5,2

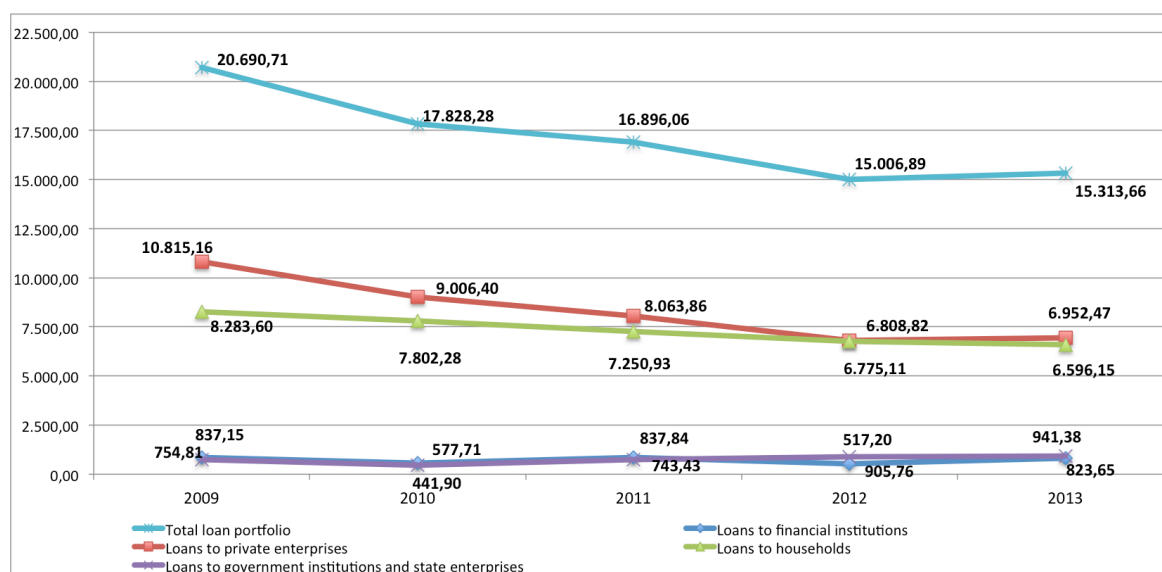
Sources: ISC, LSC, Association of Lithuanian Banks. AB NASDAQ OMX Vilnius. Statistics Lithuania, and Bank of Lithuania calculations.

### Bank credit market:

After the global crisis that occurred in the end of 2008, banking sector's loan portfolio, which was annually increasing till 2009 began to decline. Due to impairment losses and gradually increasing credit risk of the borrowers banks started to limit their lending activities and operate strict landing conditions. Since 2012, the size of loan portfolio of legal entities and individuals has started to recover gradually and in the beginning of 2013 amounted to 15.313 million EUR (LTL 52.875 m)



Figure 6 Bank loan market



Sources: Bank of Lithuania calculations

### Leasing market:

Leasing companies account 6,3 per cent or 1.452 million EUR (LTL 5.014 m) of the total Lithuanian financial system assets. There are two major players that controlled 60 per cent of Lithuanian leasing market in 2012. Both of these companies are daughter companies of the largest banks in Lithuania. For historical reasons of leasing market formation, vehicle leasing services dominates in Lithuania services (heavy transportation – 28 per cent of total leasing asset portfolio, car leasing – 21 per cent of total leasing asset portfolio). Machinery and equipment accounts for 22 per cent, real estate for 20 per cent of other total leasing assets.

### Equity financing market:

Although equity market has been established before fifteen years it is still in its development stage. After financial crisis in 2008 banks became risk-averse providing loans for SMEs in Lithuania, therefore the venture capital funds have a possibility to capture bigger market share in overall external financing system. According to the data provided by EVCA<sup>19</sup> and LTVCA<sup>20</sup>, private equity<sup>21</sup> investors were most active in 2011 and 2012 in last five-year period (Table 6). Venture capital investments were not significant till 2012,

<sup>19</sup> Europe Venture Capital Association

<sup>20</sup> Lithuanian Private Equity and Venture Capital Association

<sup>21</sup> Statistics on venture capital alone was not provided

as buyouts and later stage business investments have been the leading ones. However, the overall weight of capital market in the Lithuanian financial system is still marginal.

**Table 6 Type of annual private equity investment**

Type of investment thousands EUR	2008	2009	2010	2011	2012
Seed	0	0	0	0	200
Start-up	0	145	104	546	4080
Later-stage venture	0	0	0	2185	0
Growth	0	1038	0	10294	3371
Rescue/Turnaround	0	0	1500	0	0
Replacement capital	0	0	0	0	0
Buyout	0	0	0	13646	0
<b>Total:</b>	<b>0</b>	<b>1183</b>	<b>1604</b>	<b>26671</b>	<b>7651</b>

Source: Europe Venture Capital Association & Lithuanian Private Equity and Venture Capital Association

The percentage of private capital investments from GDP in Lithuania was highest in 2011 (0,087 pct.), but it was still smaller than Central and East Europe average (0,105 pct.) and 3,7 times smaller than all Europe's average (0,326 pct.)

**Table 7 Annual private equity investment compared to Lithuania's GDP**

Private equity investment	2008	2009	2010	2011	2012
Investment thousands EUR	0	1183	1604	26671	7651
Percentage of GDP	0	0,004	0,006	0,087	0,023
Number of companies have received financing	0	2	3	21	34

Source: Lithuanian Private Equity and Venture Capital Association

### **State support:**

#### *Loan guarantees:*

In Lithuania there are three state guarantee institutions that provide loan and leasing guarantees, such guarantees are a form of insurance that covers up to 80 per cent portfolios of loans or lease agreements. During 2001 - 2012 period, 3987 guarantees were issued for SMEs, a total of 451,8 million EUR (LTL 1560 m). Most guarantees were granted for the manufacturing companies (37,68 per cent), trade companies got 35,1 per cent and service companies 27,21 per cent of loan and leasing guarantees.

*Partial compensation of interest:*

The Lithuanian government also provides grants in a form of partial compensation of interest for loan and leasing agreements signed by SMEs. By compensating 50 per cent of interest rate it provides a better access to debt finance and eases the burdens of financial obligations. However, only the loans and lease agreements with state guarantee qualify for compensation of interest. According to the Ministry of Economy of Republic of Lithuania, during 2009 - 2012 period, 3046 enterprises have received the support and compensating 11,34 million EUR (LTL 39,19m).

*Hybrid venture capital:*

In 2007, European Commission in cooperation with the European Investment Bank and the European Investment Fund (EIF) have started the JEREMIE initiative. Since then five venture capital funds have been formed under the JEREMIE initiative in Lithuania. The initial amount of the funds was 69,92 million EUR (LTL 241,42 m), and portfolio consists of 36 companies at the end of first quarter of 2013. It is no doubt that with the help of JEREMIE initiative the supply of venture capital for SMEs was increased significantly in Lithuania.

## 4.2 Research Results

### 4.2.1 Demand side results

As mentioned before the survey focused on the demand-side of external finance was sent to more than 5000 SMEs registered in Lithuania out of which 506 SMEs had responded.

#### 4.2.1.1 General descriptive analyses of the data

These SMEs were classified into four categories depending on their legal status: natural person engaged in individual activities, private company, public institution and non-governmental organization. The total sample of this research is 506 SMEs out of which 29 are natural persons engaged in individual activities, 464 private companies, 6 public institutions and 7 non-governmental organizations (see Table 8)

Table 8 Categories of SMEs in the survey

Category	Number of SMEs	Percentage
Natural person engaged in individual activities	29	5,73%
Private company	464	91,70%
Public institution	6	1,19%
Non-governmental organizations.	7	1,38%
<b>Total:</b>	<b>506</b>	<b>100%</b>

Furthermore in order to get a more complete description of the sample characteristics results were classified according to other criteria; SMEs were classified in size, age, and the main area of activity. Table 9 presents the full characteristics of the samples.

Table 9 Characteristics of SMEs in the survey

Characteristics	Number of SMEs	Percentage
<i>Size (number of employees):</i>		
1-9 employees	277	54,74%
10-49	176	34,78%
50-249	53	10,47%
<i>Age (of SMEs since establishment):</i>		
< 1 year	39	7,71%
1 - 3 years	120	23,72%
3 - 5 years	54	10,67%
> 5 years	293	57,91%

Characteristics	Number of SMEs	Percentage
<i>Main area of activity</i>		
Manufacturer	148	29,25%
Service provider	199	39,33%
Retailer	159	31,42%

Results show that vast majority of the SMEs, which participated in the survey were privately held enterprises employing 1-9 workers. 57,91 per cent of the SMEs were established more than 5 years ago and 39,33 per cent the SMEs indicated themselves as service providers.

#### 4.2.1.2 Main section of the survey:

The survey result showed that 84,8 per cent of the SMEs in the sample stated a current need for external financing and the largest part of these companies have applied for it. Only 15,2 per cent of all respondents indicated that they do not need any external financing and 8,5 per cent of them have never applied for it.

Figure 7 The need for external financing

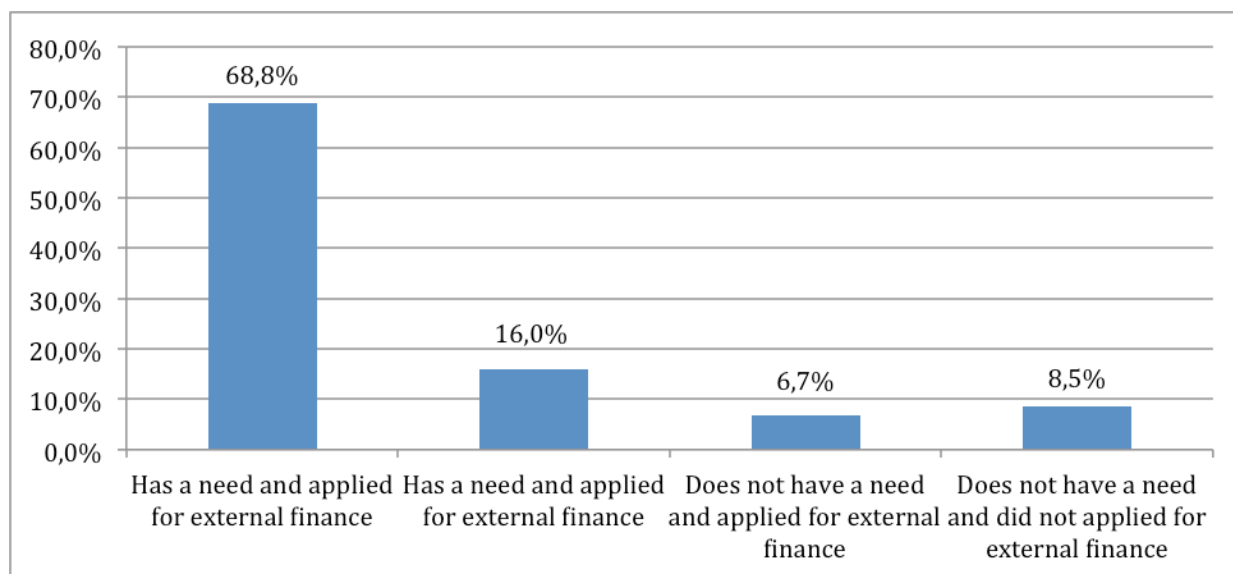
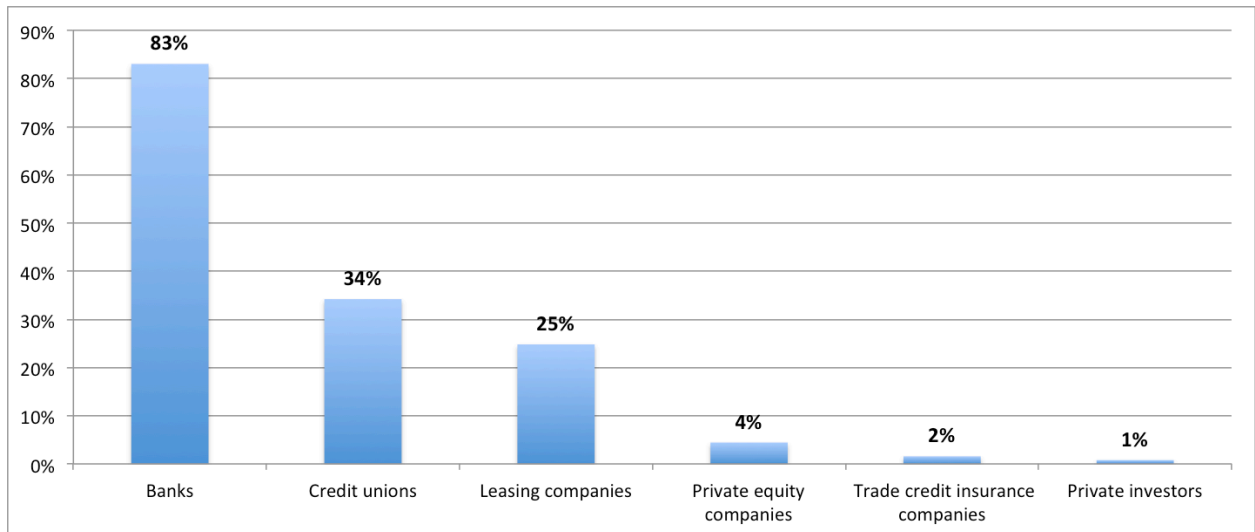


Figure 8 indicates that more than 83 per cent of SMEs applied to banks for external funding, this figure illustrates how Lithuanian financial system is dominated by commercial banks and debt financing.

Figure 8 Financial intermediaries applied by SMEs for external financing

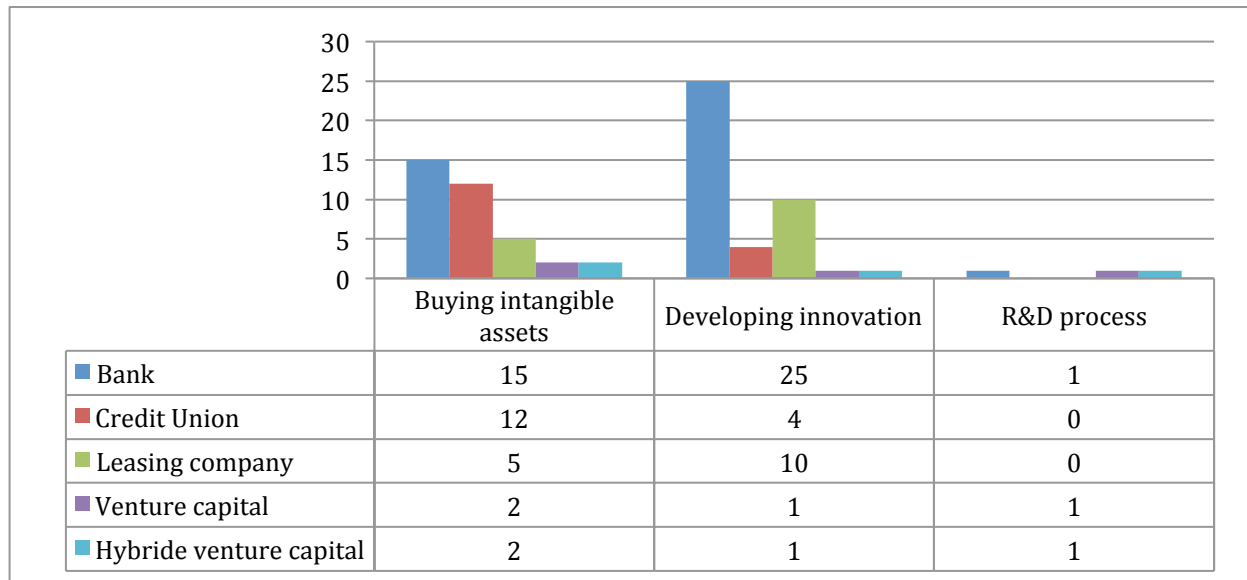


As mentioned before banks, credit unions and leasing companies were the most popular financial intermediaries applied by SMEs searching for external funding, naturally debt-financing products were also most used by SMEs in Lithuania. 67 per cent of all SMEs that had applied for external financing received middle or long term loan with a fixed repayment schedule, 10 per cent received a credit line (short-term loan for working capital) and 5 per cent received an overdraft.

Regarding to the awareness and availability of venture capital investments in Lithuania, results indicate that from all those SMEs that had applied for external financing ( $n = 382$ ), only 17 SMEs applied to private venture capital companies, but none of them got it. Interestingly Hybrid venture capital investment programmes (state support) were applied only by 7 same SMEs that were looking for equity financing in the private market and 1 of these SME has received this type of state support. Another 16 SMEs that applied for hybrid Venture capital investment programmes have not searched for equity investment in private market at all; 5 of these companies have received the state support.

The results of the survey also indicated that only 4 (out of 17) companies have applied for equity financing, which most possibly were searching of external finance in private venture capital market for implementation and development of innovative ideas. Banks were the most popular among SMEs that declared a need of external investment for development of an innovation, R&D process or buying intangible assets (see Figure 9).

Figure 9 Distribution of financial institutions applied by innovative SMEs



Thus we have to **reject our hypothesis (H2)** that SMEs developing innovative ideas and investing R&D apply for equity financing relatively more compared to debt financing.

Comparing the results of the survey that show the amount of external financing required by SMEs and the type of capital they prefer we see that majority of SMEs applied to debt providers (Table 10). Venture capital funds and Hybrid venture capital funds were less applied by SMEs even when the amount of external financing exceeded 1,448 million EUR.

Table 10 Amount of financing and the type of capital required by SMEs

The amount of external financing required by SMEs	Number of SMEs applied to debt providers	Number of SMEs applied to private venture capital providers	Number of SMEs applied to hybrid venture capital
<24.906 EUR (86.000 Lt)	127	7	6
>24.906 EUR (86.000 Lt) <57.922 EUR (200.000 Lt)	99	4	7
>57.922 EUR (200.000 Lt) <144.807 EUR (500.000 Lt)	79	0	2
>144.807 EUR (500.000 Lt) <289.614 EUR (1 mln. Lt)	44	2	4
>289.614 EUR (1 mln. Lt) <1.448.070 EUR (5 mln. Lt)	24	1	1
>1.448.070 EUR (5 mln. Lt)	9	3	3
<b>Total</b>	<b>382</b>	<b>17</b>	<b>23</b>

Such results reject the **third hypothesis (H3)** that average level of funding required by SMEs from private equity investors is usually larger compared to debt investors. It also confirms that Lithuanian venture capital market is just in its infant stage. So currently hybrid Venture capital investment programmes are have very important role in fostering venture capital market.

Moreover results in Table 10 ones again indicate that debt providers are the most popular source among SMEs. Analysis of the data have shown that third of the companies in the survey have required for less than 24.906 EUR. However small sums required by SMEs do not increase the success rate of getting a full amount of required funds without any additional conditions (see Table 11). We can see that those SMEs that have not received any external financing at all, most often have applied for less than 24.906 EUR (86.000 Lt). We can make a presumption the start-up SMEs without trade history and possible collateral are the ones, which apply for the smallest amounts of external funding. As a result financial institutions face the information asymmetry problems, making them to pose additional conditions, which could lower the risk of the investment or even reject the application.

**Table 11 Success rate of receiving the financing by SMEs**

The amount of external financing required/	Success rate of receiving the financing			
	Fully received, without additional conditions	Received, with additional conditions	Received less than applied	Have not received
<24.906 EUR (86.000 Lt)	39,3 %	26,8%	8,7%	25,2%
>24.906 EUR (86.000 Lt)	49,5%	20,2%	12,1%	18,2%
<57.922 EUR (200.000 Lt)				
>57.922 EUR (200.000 Lt)	39,5%	43%	7,6%	10,1%
<144.807 EUR (500.000 Lt)				
>144.807 EUR (500.000 Lt)	38,6%	31,8%	18,2%	11,4%
<289.614 EUR (1 mln. Lt)				
>289.614 EUR (1 mln. Lt)	41,7%	25%	12,5%	20,8%
<1.448.070 EUR (5 mln. Lt)				
>1.448.070 EUR (5 mln. Lt)	22,2%	44,4%	0%	33,3%
<b>Total/average</b>	<b>41,6%</b>	<b>29,3%</b>	<b>10,5%</b>	<b>18,6%</b>

The analysis of the reasons why SMEs have not received external funding identified various explanations. Results in Table 12 illustrates that a lack of own funds or insufficient



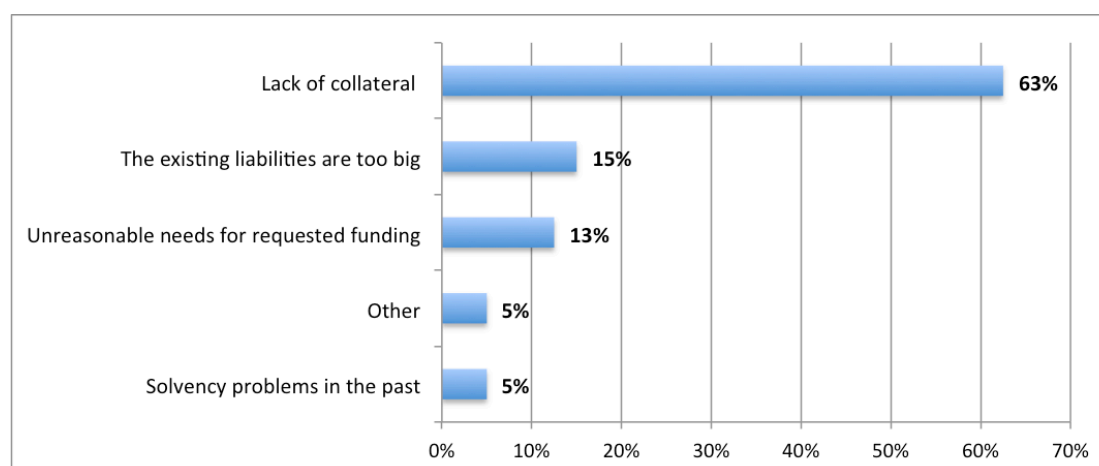
security and riskiness of the business were reported as more important reasons for difficulties in obtaining external financing by SMEs compared to an inadequate business plan or poor financial projections. In addition to issues identified in Table 12, several respondents complained that decision-making process was too long and complicated, also the conditions offered by financial intermediary was unacceptable for the company.

**Table 12 Reasons why SMEs have not received external funding**

<b>Reasons why financial intermediary have not provided external funding</b>	<b>No. SMEs</b>	<b>Percentage</b>
Business is to risky	16	23%
Lack of own funds or unreasonable possession of the funds	18	26%
Ineligible businesses	13	19%
Unprofitable business activities	9	13%
Unjustified investment	5	7%
Solvency problems in the past	7	10%
Other	2	3%

10 per cent of SMEs that applied for external financing have received it without additional conditions, however the amount was less than they applied. 63 per cent of these SMEs indicated the lack of collateral as the main reason for receiving lower external financing. Another 15 per cent of the companies had a high level of liabilities, which limited the available external funding (see Figure 10).

**Figure 10 Reason why external financing was less than applied by SMEs**



The remaining 30 per cent of SMEs that applied for external financing have received it, with additional conditions. 85 per cent of SMEs had to pledge more assets; 54 per cent had to provide additional personal sureties or guarantees; 42 per cent had to

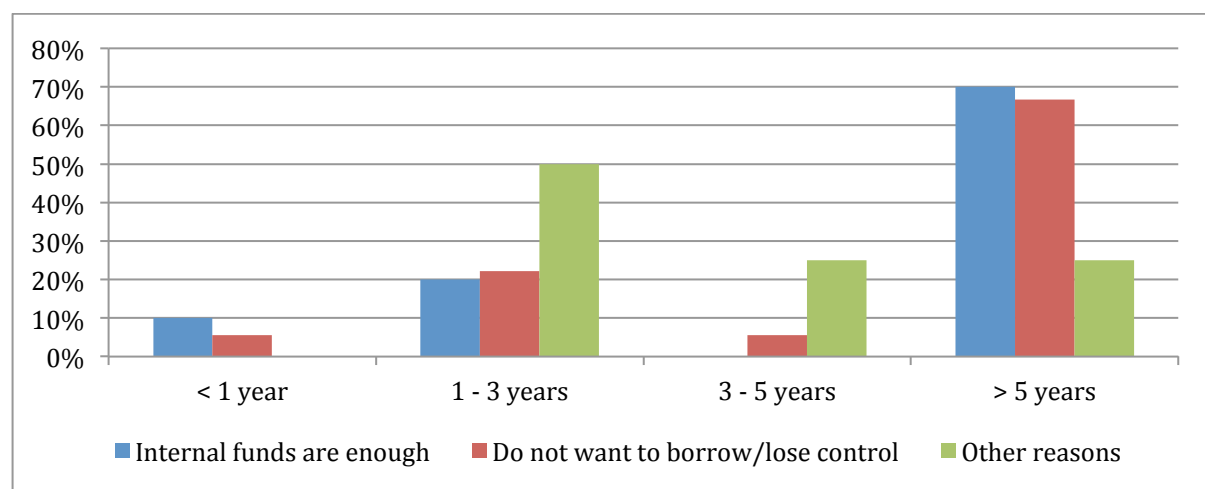
apply for additional state guarantees; and 27 per cent had to increasing the share of own invested funds in the project to receive a requested funding. These results lead us **to accept the hypothesis (H4)** that the use of debt finance by SMEs is positively related with the provision of collateral.

### Access to finance according to the age of SMEs

Financial growth theory introduced by Berger and Udell (1998) proposes that external funding options depend and change based on SME's development phase. We have analysed survey results focusing on issues faced by different age SMEs. Younger firms revealed some important differences to their older, more established, counterparts in the survey.

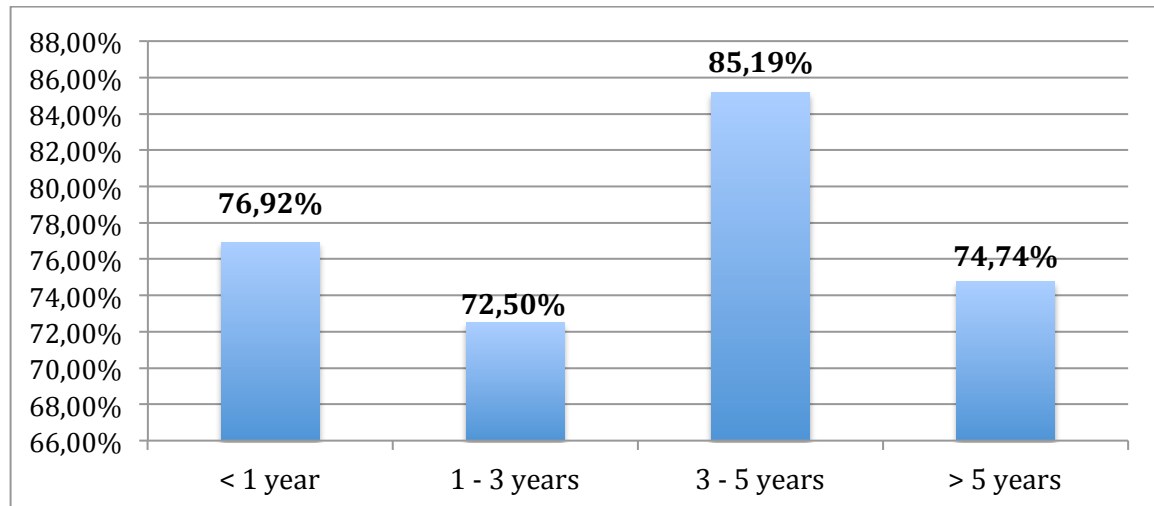
First of all Berger and Udell (1998) explain that young and small companies use initial insider finance more, because it is hard to get external finance without for several of reasons, but as the company grows older these reasons become less important. The results in the survey revealed different situation and there were two main reasons, why respondents avoid external financing. Interestingly oldest companies (>5 years) in our sample pointed out they had a sufficient amount of their internal funds despite the fact that they had an opportunity to get external finance in the market and less than 50 per cent of them have pointed out a reluctance to become depended on financial intermediary or in other words they feared to lose full control of their business.

Figure 11 Reason why SMEs do not want external financing



The Figure 12 also shows that fewer companies older than 5 years apply for external financing compared to younger ones. We can see that 85 per cent (46 out of 54) of the companies between 3 to 5 years were the most active searching for financing.

Figure 12 The percentage of SMEs according to their age, which applied for external financing



These results **rejects our hypothesis H1**, that use of initial insider finance by SME is negatively related with age, because older companies prefer to use internal funds even if they opportunity to get external finance in the market.

Figure 13 below, demonstrates that younger firms appear to be significantly interested in Credit Unions applying for external funding, it could be explained by the fact that credit unions specialize in micro-loan market. However the importance of credit unions noticeably decreases after SMEs reaches 3 years age. After that point banks are considered to be most important source of potential external funding. It is worth to point out that younger firms showed no interest to seek equity finance from either private equity companies or private investors (business angels).

Figure 13 Financial institutions applied by SMEs according to their age



**Thus we prove hypotheses H5.1**, that the use of debt finance by SMEs is positively related with firms' age.

Figure 14 demonstrates that younger firms twice as likely apply for small external funding (less than 24.906 EUR (86.000 Lt), only after three years of establishment companies more often request for a larger external compared to younger SMEs.

Figure 14 Amount of external financing applied by SMEs according to their age

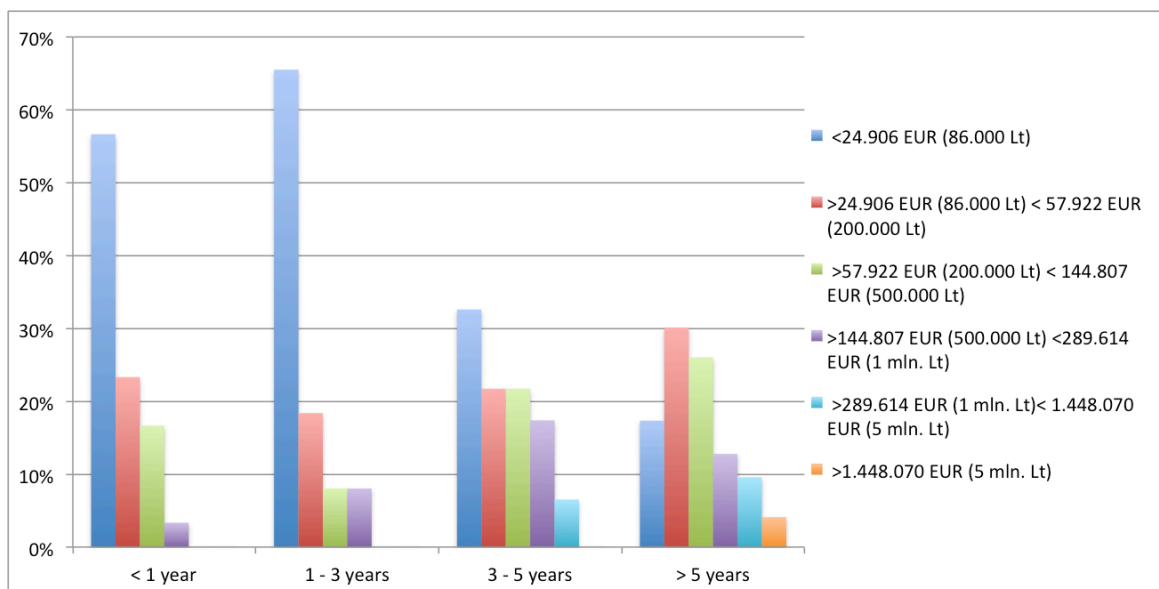
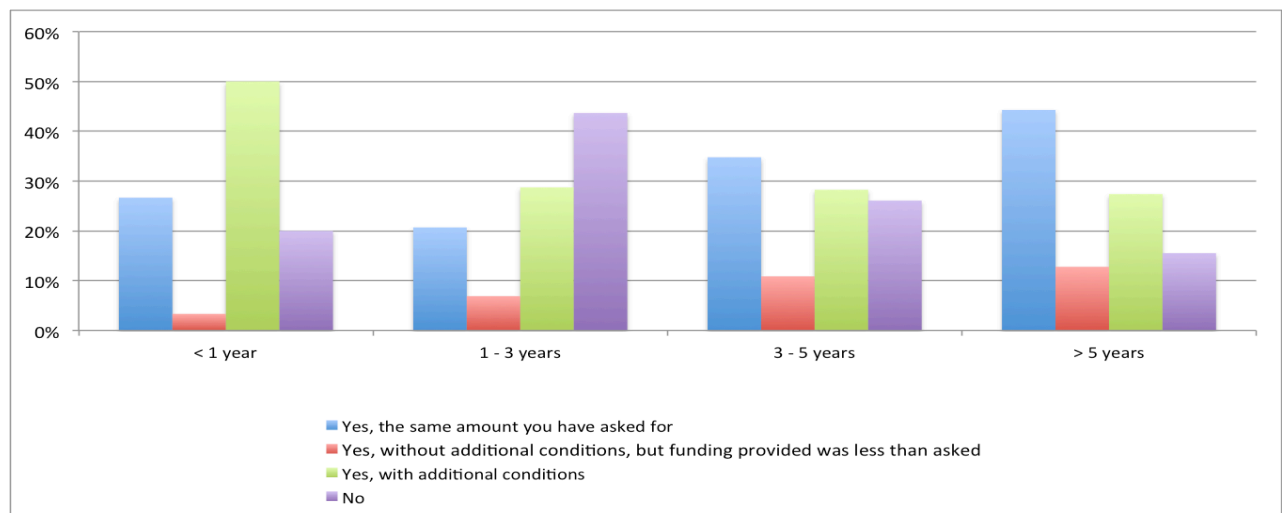


Figure 15 indicates that younger than 1 year firms more often obtained external finance only with additional conditions, like pledging additional assets or providing additional personal sureties or guarantees. Interestingly firms between 1-3 years old were twice as likely to experience problems in not obtaining external finance at all compared to younger companies. These young companies pointed out a lack of collateral, as main reason why financial intermediaries hadn't provided external funding.

**Figure 15 Conditions for obtained external finance by SMEs according to their age**



These results also **prove hypotheses H5.2**, that the average level of funding required by SMEs from debt is positively related with firms' age.

### *State support*

In the survey SMEs were also asked about the usage of the state support programmes. The results of the survey have shown that more than 52 per cent of all respondents have applied for one or more state-funded measures. Partial interest rate compensation, loan guarantees and preferential lending were the most popular state support measures independently of SMEs age or other criteria (see Table 13). It also indicates that youngest SMEs are most active applying and receiving the state support measures and **supports hypothesis (H6)** that the usage of state support by SMEs is positively related with firms' age.

**Table 13 State support programmes that SMEs applied for and received it**

State support programmes	< 1 year		1 - 3 years		3 - 5 years		> 5 years	
	Applied	Received	Applied	Received	Applied	Received	Applied	Received
Compensation of interest rate	83%	60%	72%	60%	70%	54%	68%	53%
Preferential lending	83%	60%	72%	44%	59%	52%	47%	26%
Loan guarantees	80%	60%	63%	41%	59%	43%	51%	34%
Leasing guarantees	7%	3%	17%	6%	13%	7%	14%	5%
Export guarantees	3%	3%	6%	1%	11%	4%	4%	1%
Hybrid Venture capital investment	7%	3%	7%	2%	4%	2%	6%	1%
Subsidies and dotation	23%	10%	23%	14%	20%	17%	22%	11%

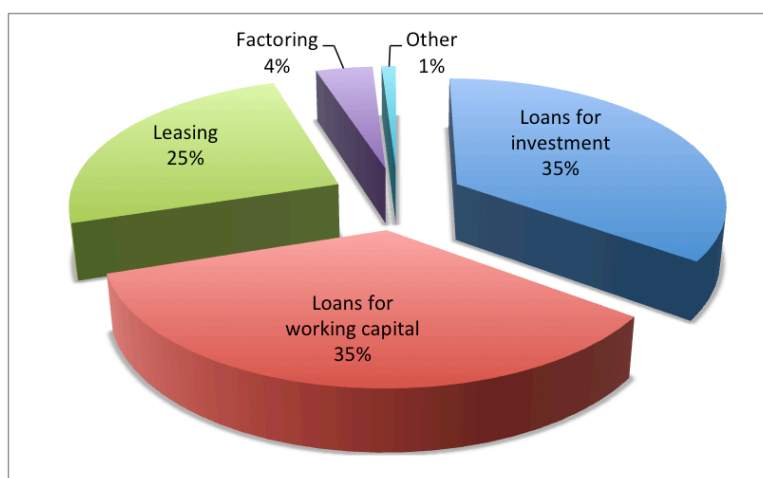
#### 4.2.2 Supply side results:

12 financial institutions (5 commercial banks, 2 leasing companies, 2 credit unions and 3 private equity companies) that are providing external funding for SMEs participated in the supply-side survey. The survey was aimed at clarifying the experience of financial institutions associated with SMEs financing in Lithuania. Also respondents were asked to give their opinion about the state support programmes/measures provided to encourage external financing for SMEs.

##### 4.2.2.1 Supply of debt financing

Respondents indicated mind-term and long-term loans are the most popular business financing products. Both investment loans and loans for working capital are equally accepted among SMEs accounting for 70 per cent of all services provided by financial institutions, leaving 25 per cent of the market share for leasing and 4 per cent for factoring.

Figure 16 Debt products supplied by financial institutions for SMEs



Results from the SMEs demand-side for external financing survey indicated that 59 per cent of the companies apply for less than 57.922 EUR (200.000 Lt) funding, however the results from the supply-side survey showed that financial intermediaries most often provide funding between 57.922 EUR (200.000 Lt) and 289.614 EUR (1 mln. Lt). This also explains the problem, why it is complicated for SMEs to get a smaller than 57.922 EUR (200.000 Lt) credits. Financial institutions especially banks are less interested in small deals, as SMEs owner often has an only option to personally guaranty it without having any collateral to offer. This option of pledge is not attractive for banks, because it is hard to recover all the investment from the debtor in case of a bankruptcy of its SME.

Table 14 Credit size provided by financial institutions for SMEs

The amount of external financing provided	Loans for investment	Loans for working capital	Leasing	Factoring
<24.906 EUR (86.000 Lt)	10,80%	18,44%	56%	5,56%
>24.906 EUR (86.000 Lt) <57.922 EUR (200.000 Lt)	18,92%	24,78%	19,6%	36,87%
>57.922 EUR (200.000 Lt) <144.807 EUR (500.000 Lt)	24,28%	41,21%	13,4%	35,08%
>144.807 EUR (500.000 Lt) <289.614 EUR (1 mln. Lt)	31,50%	10,76%	10%	12,16%
>289.614 EUR (1 mln. Lt) <1.448.070 EUR (5 mln. Lt)	12,49%	4,05%	1%	10,09%
>1.448.070 EUR (5 mln. Lt)	2,00%	0,75%	0%	0,21%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

According to the survey results of all SMEs that applied for external financing, averagely 53,19 per cent were fully approved by financial intermediaries, meaning that applicant was provided by the same amount of funding as requested; 30,19 per cent were partially approved and 16,69 have not received any funding at all.

**Figure 17 Reasons why financial institutions do not provide or provide lower credit size than applied**

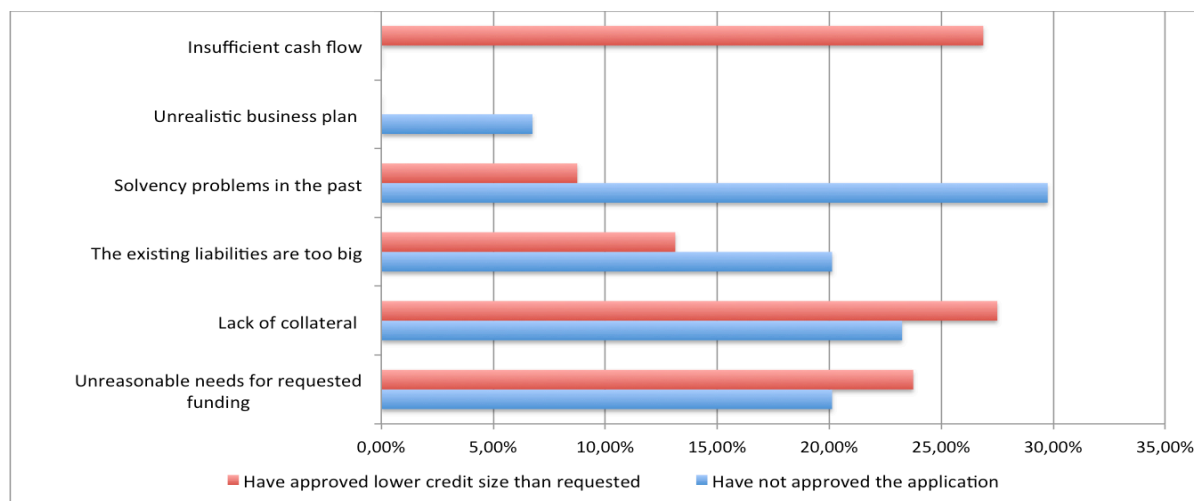


Figure 17 shows the reasons why financial intermediaries have not approved or approved a lower credit size and they are similar to those indicated by SMEs. Companies looking for debt, as a source of external funding first of all should deal with their solvency problems, secondly assure that collateral size would be sufficient as well as future cash flow and thirdly the requested amount of funding should be reasonable and logical.

The survey also revealed that SMEs' current financial position (assets, size of the liabilities and quality of the assets) is the most important criteria deciding the credit terms for financial institutions. Also "maturity" level of SME (credit history, age, etc.) and possibility to apply financial risk mitigation instruments (loan guarantee, compensation of interest rate etc.) are similarly important criteria.

These results also **support hypothesis (H4)** that the use of debt finance by SMEs is positively related with the provision of collateral.

### *State support*

In the survey financial institutions specified the state guarantees as the most effective measure that helps to facilitate access to external financing for SMEs. Also state



guarantees has a considerable influence on the decision to approve credit request, especially, if the client applying for a loan does not have sufficient collateral or lacks of own funds. The higher the guarantee, the lower the required collateral, for example, if the guarantee is sufficiently high, the collateral requested can reach only 10 per cent the amount of all credit requested. Also financial institutions pointed out that time is crucial for SMEs receiving state support, so administration of all measures should be fast and simple as possible.

The majority of financial institutions in the survey noted that that possibility to use partial interest rate compensation affects the final decision of SMEs on applying for external financing. According to the results, partial interest rate compensation lowers the cash flow needed by SMEs also reduces the risk for financial institutions.

#### **4.2.2.2 Supply of private equity financing:**

Managers from three private equity companies questioned in the survey indicated that newly established companies most often turn to private equity companies searching for investors. Nevertheless early-stage SMEs, which need additional funding for the initial implementation of the idea and late-stage companies with new business ideas, are also common applicants for equity financing. Interestingly SMEs that have liquidity problems are the fourth group of companies most often looking for equity funding.

Private equity investors themselves invest in companies at all stages (from newly established venture to companies operating for more than 5 years). In most cases SMEs seek equity financing for implementation of innovation, commercialization of IT ideas or in order to increase the working capital. Some SMEs also apply for R&D funding, however this type of investment rarely meets the strategy of private investors.

Figure 18 The size of investment applied by SMEs to equity investors

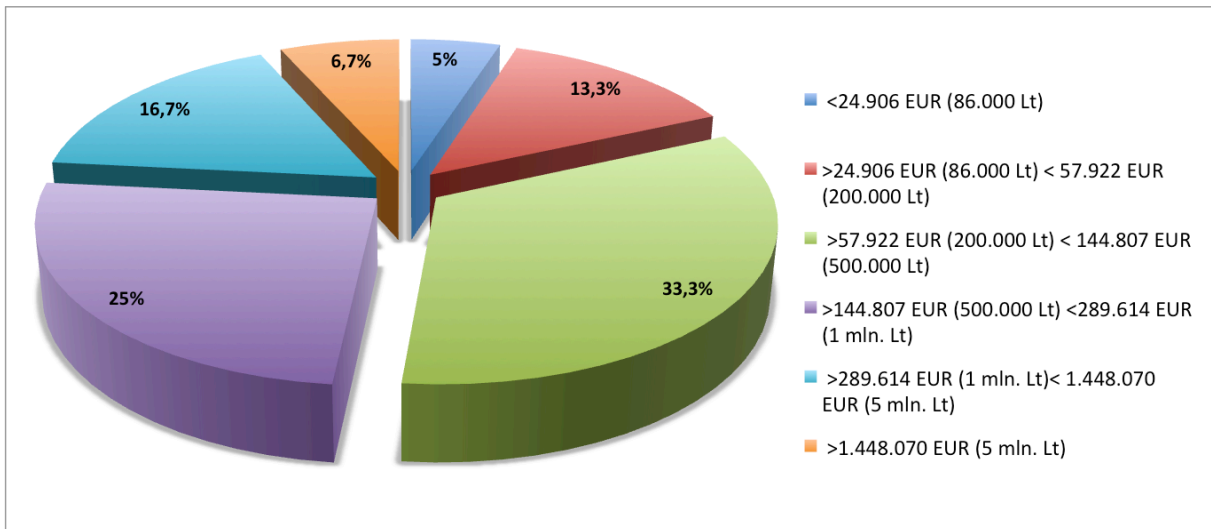


Figure 17 indicates that SMEs usually (75 per cent) require venture capital funding between 57.922 EUR (200.000 Lt) and 1.448.070 EUR (5 mln. Lt).

Interestingly these supply side survey results provided by equity investors indicate that average level of funding required by SMEs from private equity investors is larger compared to debt investors and supply **hypothesis (H3)**. This is opposite to the demand side survey results discussed above (page 39). This may be explained by the fact, that equity investors are more addressed by SMEs who specifically are interested in equity financing and their requirement for external funds are higher compared to the average SME in Lithuania.

Due to limited information disposed by venture capitalists they only provided a list with the following main reasons why they refuse to invest in SMEs explaining that all of them are equally important:

- Business plan is not economically viable;
- The business idea is unrealistic or do not have the potential to grow;
- Entrepreneurs do not invest enough their own funds or do not believe in the business idea;
- Business idea does not meet the investment strategy;
- The expected return is too low;

## 5. Discussion of the results and conclusion

In this thesis we investigate what capital structure is chosen by Lithuania's innovative SMEs and are they effectively funded in the existing financial system comparing it to financial growth theory introduced by Berger and Udell in 1998. The findings of this thesis show that although there are numerous similarities between both of them, there are still some differences regarding firm's age and its capital structure decisions.

We took an insight into more than 500 SMEs and 15 financial institutions of Lithuania, which clearly indicated that there is high demand for external financing by small businesses in the country. Results indicate that respondents are actively interested in business development opportunities and are familiar with the various services offered by the financial intermediaries. Respondents regardless to their age identified banks and credit unions as the most popular financial intermediaries offering middle or long-term loans as the most popular external financing product. We need to point out that SMEs developing innovative ideas and investing R&D also apply for debt financing more often compared to equity financing, which is opposite to the financial growth theory. However this result can be explained by the fact that venture capital market is still in its development stage in Lithuania. Nevertheless that venture capital market is officially active for more than 17 years the real venture capital investments have taken place only recently and most of them were done by state supported hybrid venture capital funds.

Results confirm that information asymmetry and moral hazard problems complicate the access to external financing options. All groups of respondents (SMEs and financial institutions) identified strict funding requirements and lack of collateral as most common difficulties in obtaining external funding. Financial intermediaries are reluctant to finance start-ups limiting access for external finance for the youngest SMEs. However older than 5 years companies that most often have sufficient credit history and assets for collateral pledge showed less interest applying for external financing compared to younger ones indicating that internal funds are enough. This situation is also opposite to financial growth theory.

Future research should continue to look into question on what is the impact of individual country's history and business culture to the capital structure choice of SMEs.

Also there it could be interesting to examine specific industries with unique characteristics for example most innovative sectors in Lithuania: laser, high-tech or IT, to have a clearer situation of financing and capital structure among these type of companies. Finally a question of how hybrid venture capital funds can be more effectively implemented in the countries' where financial systems have been forming only during these several decades is also worth of consideration.

The results of this study also have the following policy implication. The high cost and lack of external equity financing are the main factors limiting the innovative activities and R&D process. Insufficient access of external financial resources for SMEs, especially for innovative start-ups remains one of the main drawbacks of Lithuanian business environment. Lithuanian government have officially announced that during the period 2014 - 2020 it plans to introduce and implement various business models and financing schemes, with a particular focus on the SMEs. In an economic system, which is dominated by banks, state can have a noticeable effect creating and fostering venture capital market. After almost twenty years of being as a passive observer public sector has started actively intervene the market by creating Hybrid Venture capital funds. The main purpose of these funds is to increase the supply of equity financing for innovative SMEs by investing in private venture capital funds as limited partners or co-investors. Currently there are 5 hybrid venture capital funds with 69,92 million EUR (LTL 241,42 m) available for Lithuanian SMEs established under the JEREMIE<sup>22</sup> initiative. It could be considered a good start, but it is important to understand that consistent venture capital market development in the country is vital especially in the current market conditions.

However, the survey results indicate that supply-side measures alone will not create a viable venture capital market in Lithuania. Additionally the culture of the entrepreneurs, which has mostly formed during the transition period, has to change. From conservative and closed it should become more liberal and open to new ideas. The majority of entrepreneurs in our survey has not even consider venture capital finance as suitable source for their needs. This may be explained by the low awareness about venture capital market in Lithuania, or by the tendency to retain full control of the company even if

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<sup>22</sup> Joint European Resources for Micro to Medium Enterprises is the EU initiative aimed at development of micro, small and medium-sized enterprises (SMEs) in the EU using the 2007 – 2013 EU Structural Funds and national resources to finance SMEs in a flexible and innovative way.

it slows it's development. Also entrepreneurs do not have the understanding that an active equity investor can help out with the problems that the entrepreneur is not qualified to deal by himself. In all cases, there is a need for radical changes in the business culture of Lithuania.

Nevertheless we must accept the fact that debt financing is the most important for entrepreneurs. The access to this sort of finance could be increased for SMEs, if entrepreneurs were more active applying for state support programmes (loan and leasing guaranties or compensation of interest rate) as these measures reduces the risk and relevance of information asymmetry for the borrower, while governments should ensure the availability of diverse sources of appropriate funding.

To sum up we must agree with S. C. Myers (2003) saying that there is no universal theory for capital structure. All of the results discussed above indicate that external funding process of SMEs is similar but not identical to Berger and Udell (1998) financial growth theory and there are some objective factors explaining these differences. However we can make assumption that Lithuanian financial system currently does not provide external funds effectively due to the fact that it is very dominated by commercial bank sector. Venture capital funding is limited and unpopular even among those SMEs who specifically search investment to an innovative idea or R&D process. In this situation we could consider a greater Lithuanian government participation making private equity more popular among SMEs as a source of external financing in the near future.

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