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WHERE DO VENTURE CAPITALISTS INVEST? CASE OF LATVIA

Anita MATISONE
Natalja LACE

Faculty of Engineering Economics and Management, Riga Technical University
6 Kalnciema Str., Riga, LV-1007, Latvia

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Abstract. *The paper presents the study of Latvian Venture Capital (VC) funds' investment trends in particular industries. The literature analysis reveals five main factors influencing VC funds' managers preferences towards particular industries: three external factors (existing clusters in the investment region; high growth industries; availability of other funding for companies from specific sectors) and two internal (factors driven by VC funds' limited partners profile; possession of specific industry related knowledge).*

The results of the practical part of the study show that 52% of Latvian VC funds' investments (total amount) went to Services sectors, 45% to Manufacturing and 3% to other industries. From the total amount invested in Services according to the classification of Eurostat, investments in High-tech knowledge-intensive sectors account for 46%, Knowledge-intensive services - for 10% and less knowledge-intensive sectors – for 44%. Breakdown of investments in Manufacturing is as follows: 26% in High-technology firms, 24% in Medium-high technology; 15% in Medium-low technology and 35% in Low technology.

Investment patterns of different Latvian VC funds' managers vary substantially. For example, investments in High-technology and High-tech knowledge-intensive sectors were made only by three of five Latvian fund managers. Other two invested heavily in Low Technology and Less knowledge-intensive sectors. Industry-related knowledge and experience accumulated in particular fund management team presumably is an explanation of the variances in the patterns.

Keywords*: Venture Capital, Public Policy, New Technology-Based Firms, Finance Escalator, Industries and Latvia*
JEL codes*: G11, G24, M13, O38*

Introduction

There are several aims of the European Union (EU) support for VC development. The first one is chasing for the level of the US innovation system [12]. The second - to overcome the uneven distribution of VC in the EU and support the regions where there is no private VC [17]. The third is to broaden access to finances for small and medium enterprises (SME). The last one became crucial after the Financial crisis.

Notwithstanding to the existence of three aims appropriate public VC schemes usually provide support for SMEs in general (3rd reason), in particular regions (2nd reason), but very often there are no special requirements for innovation level of the company receiving a support (1st reason) [11; 17].

Public perception of the VC is usually associated with assistance to highly innovative firms. Also, research shows that such companies do have benefitted from EU equity programmes even not being expressed target of them [11; 24]. Still, there are VC capitalists (VCists) who choose portfolio companies on criteria where innovativeness is not a priority at all [20]. As concerning to Central and Eastern Europe (CEE) VCists are experiencing the shortage of companies potentially suitable for VC financing [30] and as a result of lack of knowledge about such type of funding [22] could be that eligible firms even don't approach VCists.

So, where do VCists invest? Previous research points to the lack of in-depth analysis of public equity schemes in CEE [17]. In response to that, the paper examines industries' preferences of Latvian VC funds established in the frame of the European Unions' 2007–2013 programming period.

This article is organised as follows: the next section introduces with the conceptual framework of the research. Section 3 describes the research design. Section 4 discusses the research results. Section 5 presents the main conclusions.

Literature Overview

Only a small fraction of companies seeking for VC can attract it [28]. On the other hand, there is a doubt do companies potentially suitable for VC financing even approach VCists as it could be in CEE because of lack of knowledge about such type of funding [22].

So, the question is which companies are or could be lucky enough to attract VC and which should not even bother themselves with approaching VCists? There are plenty of studies explaining how VCists chose their investment objects. The observations are pretty the same: VCists formulate investment strategy and follow it [4; 34]. They make selection of potential investment targets between companies fitting their investment strategy scope, do due diligence on those who have been selected as most promising. They make valuation of selected companies and negotiate about it with founders. Those companies which have luckily passed all stages receive investments from VCists.

So, the first test companies searching for VC should pass is matching with the investment strategy of the particular VC fund. Investment strategy stipulates such criteria as geographical scope of investments, stage of the company and preferable industries for investments [6].

Industries for investing are important feature for VC funds specialization. It is widely accepted that specialization instead of diversification lets VC funds perform better [13]. It is true either to ability to pick best portfolio companies, either to risk reduction and the level of value adding assistance provided to portfolio companies [8; 10; 18; 23]. Studies suggest that because of these abilities those funds who specialise on investments in certain industries are more likely to perform better than those without a specialised portfolio. They also have a competitive advantage against generalists as best potential portfolio companies prefer to choose fund managers with industry-specific knowledge and networks [3; 24].

The beneficial effect of industry's specialization is not only scientifically finding, but common knowledge of VC practitioners. The study of Conti & al. [10] shows that VCists belief in benefits from industry-specific knowledge and appropriate specialization leads to a higher share of investments in VCists core sectors during financial crises. Still, there are contradicting studies pointing that thin specialization could be changed to broader one allowing investments across a wider number of sectors because of certain events as the financial crisis for example [3].

Nevertheless, most of the funds in mature VC markets have specialisation [23]. Literature suggests that there are several factors influencing the decisions of VCists to prefer investments in particular industries.

Industry-specific knowledge

Specific industry experience VC funds managers possess influences the funds' focus [18]. Also, experience accumulated during past VC fund investments is a reason for future preference of some particular sectors [10].

Clusters

VC firms tend to be concentrated in highly economically developed regions, and their investments are located around these regions [14; 21]. Such tendency is the consequence of mature innovation ecosystems and better growth prospects in these regions [14]. As a result of the high density of VC in particular regions substantial amount of companies from high growth industries are established there [14]. On the other hand, data from European countries suggest that industries dominating in these regions attract a lot of locally available VC causing local VC funds to specialize in investments in these industries [31]. For example, 35% of all VC investments in Norway during 2007-2017 went to energy sector companies, but in neighbouring countries investments in this industry account for less than 10%.

High growth industries

As a result of necessity to ensure high returns [16] and probability that some investments will be written off [25] VCists invest in companies with high growth potential. Growth in the VC industry is perceived as an increase in sales and employment [15].

There are certain types of companies and industries which are perceived to be able to ensure the possibility for high growth better. In 1977 Arthur D. Little defined criteria for New Technology-Based Firms (NTBF) [19] which as data from the US showed exhibited faster growth in employment, sales and assets. The criteria for NTBFs are: (1) age of the company is less than 25 years; (2) the business is based on a potential invention or one having substantial technological risks; (3) the company is not a subsidiary of an established company; (4) the company is established to exploit an invention or technological innovation.

Studies in EU provided similar results as in US suggesting that NTBFs compared with start-ups, in general, have faster average employment and sales growth rate [30] and they yielded the greater returns for VCists [3].

Not all industries are a suitable workplace for NTBFs. Butchart [7] defined that NTBFs are working in High technology industries. His definition proposed to identify High technology industries as those that have significantly higher than average expenditure on R&D as a proportion of sales or percentage of employers who are qualified scientists and engineers. The list of sectors per his classification are:

High Technology Manufacturing: Synthetic Rubber & Plastics; Pharmaceutical Products; Office Machinery; Electronic Data Processing Equipment; Basic Electrical Equipment; Telegraph and Telephone Equipment; Electrical Instruments and Control Systems; Radio and Electronic Capital Goods; Components other than Active Components; Active Components and Electronic Sub-Assemblies; Aerospace Equipment; Measuring Checking and Precision Instruments; Medical and Surgical Equipment and Orthopedic Appliances; Optical Precision Instruments; Photographic and Cinematographic Equipment.

High Technology Services: Telecommunications; Architectural and Engineering Activities and related Technical Activities; Technical Testing and Analysis; Professional and Technical Services not elsewhere specified; Computer Services; Research and Development in Natural Sciences and Engineering.

European Union for statistical reasons developed a very similar classification of industries by their technological intensity and share of tertiary-educated persons employed.

Still, literature point that not all NTBFs are fast growing [11] or at least they can show another growth trajectory. For example, investments in life sciences industry usually are connected with more extended testing periods [4] and higher development costs. Therefore, the growth takes comparatively longer to materialize [24].

Some of VCists don't consider innovativeness as a key requirement for investment [24]. Their decision is based on particular industry's perceived growth prospects in the nearest 5 years [33].

Factors driven by LPs profile

Entities providing funding for VC funds are called limited partners (LPs) because they as investors of VC funds can take a decision regarding directions of the funds' operations, but they have limited rights to be involved in other activities of the funds. Depending on the profile of anchor LP all VC are divided into groups: public, corporate and independent VC funds. Each of the LPs group has some specific reasons for providing funding.

LPs of IVC funds believe that the VC industry can provide a higher return on investments as other types of investments [16]. Therefore, investment strategies of these funds are driven by the intention to exploit in the best possible way all capabilities of the fund, it's managers and current economic situation to earn a high return from the investments.

Public VC funds besides return have public policy goals to fulfil. Particularly, EU public initiatives in VC industry are targeted to support the development of SMEs in general, especially in less developed countries, and to close the gap of financing for new, innovative enterprises [26]. As part of public support for VC conditions, there are several industries which are not eligible for financing [17]. Each member country has the right to amend the list of excluded industries as far this is in conformity with EU appropriate legislation. In general, the list of industries where public VC funds were/are allowed to invest was and is very broad, and these public initiatives were not designed to support particularly NTBFs and industries they are working [11;17].
Corporate VC (CVC) funds are set to be a lab for big companies to develop new technologies for their core business [5]. Start-ups can provide the environment necessary for new technologies to emerge. While in-house R&D teams have other priorities making them not the best place for breaking innovations to blossom. Therefore, CVC invest in start-ups developing products applicable in their core business.

Availability of other funding for companies from specific industries

Promising ventures have access to various sources of capital [1]. It gives them the possibility to choose between multiple options. As rule companies, in general, prefer investors who provide capital at the lowest cost and do not require control rights as VCist do [2; 6] or at least benefits from VC funding outweigh its disadvantages [1; 29].

New ventures are not always perceived as obviously promising [9]. As regards to NTBFs, their assets typically are firm-specific human capital and/or intangible, and they cannot be pledged as collateral [15]. Because of that for such companies it is hard to attract typical external capital – bank loans.

The lack of available funding is another reason why VCists prefer investments in NTBFs. The situation when VC is close to only available external financing for NTBFs lets VCists not only have a possibility to invest in NTBFs but also to negotiate a good share of equity they receive in return for the investment. Research shows that price is very important for VCists. To ensure high return from the investment they need to acquire a share relatively cheaply [6].

To conclude, the literature suggests that five main factors are influencing VCists preferences regarding investments in particular industries (Figure 1). Three of them are external: existing clusters, availability of other funding for companies from certain industries in the region of investment and industries with higher growth potential. Two factors are internal: industry-specific knowledge and experience of VC fund management team and factors driven by LPs profile.

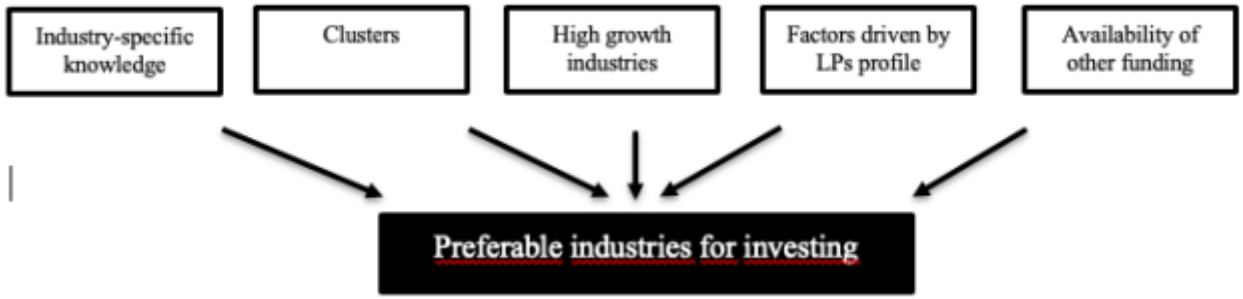

Figure 1 Factors influencing industry's for investments of VC funds choice (Compiled by authors)

Latvian VC funds have the same geographical scope – Latvia, and they are working in the same environment. Therefore, they are exposed to the same external factors influence. All of them have the same main LP – governmental agency and, as a result, are exposed to similar requirements. Only their partners' knowledge and experience are differentiating them. Latvia as part of CEE has unmatured VC market with thin supply of innovative firms and small funds where the ability to specialize is questionable [17]. Because of that, it can be assumed that portfolios of Latvian VC funds are a mix of companies from different industries and with no high-technology firms' dominance.

Research Design

To achieve the aim of the study investments of all Latvian VC funds established in the frame of the European Union's 2007–2013 programming period were examined. The first step was obtaining list of their investments from the governmental agency responsible for the appropriate equity program in Latvia - Financial Institution Altum. The information about industries where portfolio companies of funds are working was collected from Latvian Enterprises databases Firmas.lv and Lursoft.lv. The data from these databases were verified with information from appropriate companies' websites, available articles about them and if there were no website and other reliable information in articles, then annual reports of companies were searched.

For industries classification, standard classification system in EU NACE 2nd revision 3-digit level was used. To understand in what extent the faster growth potential of firms working in High-technology sectors is exploited in Latvia investments were divided by Eurostat classification of industries by their technological intensity and share of tertiary-educated persons employed.
The data about VC funds managers industry experience were obtained from interviews with fund managers in March 2018 and verified with publicly available information. The data about the fundraising process of the fund managers were received from public resources.

Research Results

In the frame of the European Union's 2007–2013 programming period, five VC funds were established in Latvia. During their investment period, they made 199 investments in total amount of 67,9 MEUR. Size of particular investments differs a lot starting from 50 000 EUR up to 2,75 MEUR. Therefore, analysis of investments was done not only by amounts invested in particular sectors but also by number of investments.

51,55% of investments (total amount in EUR) went to Services sectors, 44,58% to Manufacturing, 1,5% to Waste collection, 1,47% to Agriculture and 0,9% to Construction. The proportion of number of investments in these sectors is very similar: 55,78% from investments total number went to Services sectors, 41,71% to Manufacturing, 0,5% to Waste collection, 0,5% to Agriculture and 1,51% to Construction.

The breakdown of investments' total amount in EUR in Manufacturing by Eurostat classification is as follows: biggest amount went to Low technology (34,93%), High-technology firms received 26,09%, Medium-high technology companies - 23,95% and Medium-low technology - 15,02%. The leader from number of investments point of view is High-technology (36,14%), followed by Low technology (28,92%), then - Medium-high technology (22,92%) and the smallest number of investments was done in Medium-low technology (12,05%).

The highest share of total invested money in Services was provided to companies with High-tech knowledge-intensive services – 45, 86%. This sector was also a leader and received 67,57% from total number of investments. Less knowledge-intensive market services received 38,38 % from total amount and 21,62 from

number of investments. Other less knowledge-intensive services received 5,91% from total amount and 1,8% from number of investments. Other knowledge-intensive services received 4,4% and 5,41 % respectively. Knowledge-intensive financial services received – 4,29% and 1,8% respectively. Knowledge-intensive market services received 1,16% and 1,80% respectively.

The results show that 35% of total investments went to companies from High-technology and High-tech knowledge-intensive sectors. This share is achieved not because of all Latvian VC funds, but only three from five investing in these sectors. The investment patterns of Latvian VC funds differ substantially. There is the difference between patterns of investments in Manufacturing, Services and other sectors (Figure 2) starting from the highest share in Manufacturing 54,48% in the investments of 5th fund and the highest share of Services in investments of the 1st fund - 64,8%.

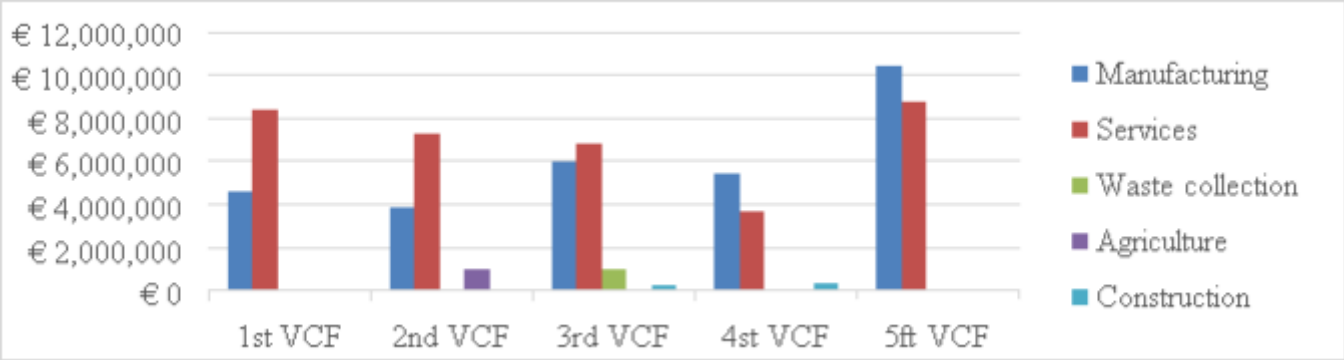

Figure 2 Amount of total investments in particular industry sector by VC funds

However, the difference in investment patterns is much broader when analysis is done by Technological intensity and tertiary educated persons employed in the sector. Breakdown by funds in investments in Manufacturing is captured in Figure 3. The first and 2nd fund invested heavily in High technology – 60,08 % and 52,06 % respectively. 3rd and 4th fund invested only 2,35% and 0,92 % in High technology firms. Their focus was on Low technology where they invested 57,39% and 54,91% respectively. The 5th fund diversification between different Manufacturing sectors was close to even.

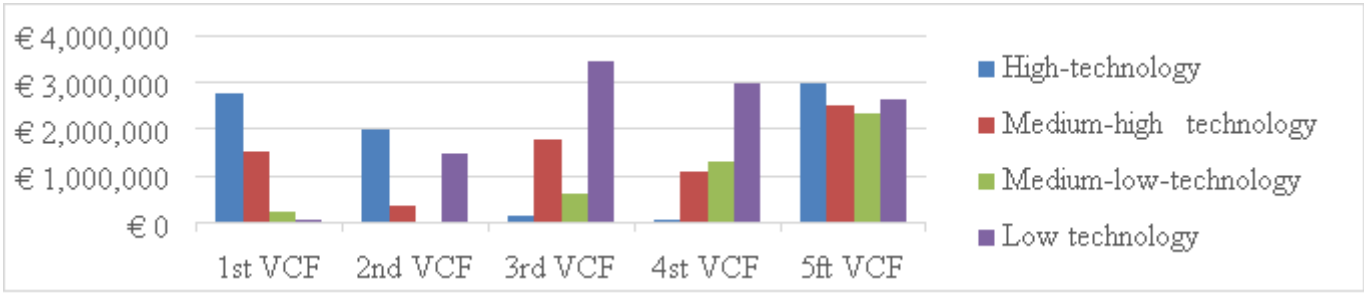

Figure 3 Amount of total investments in Manufacturing sectors by VC funds

The investment patterns of funds in Services sectors are described in Figure 4. The leader in investments in High-tech knowledge-intensive services was the first fund with 89,32% from its total investments in Services. It was followed by the 5th fund with 73,99%. Most of 2nd, 3rd and 4th funds' investments in Services went to Less knowledge-intensive market services (63,17%, 82,76%, 63,96% respectively).

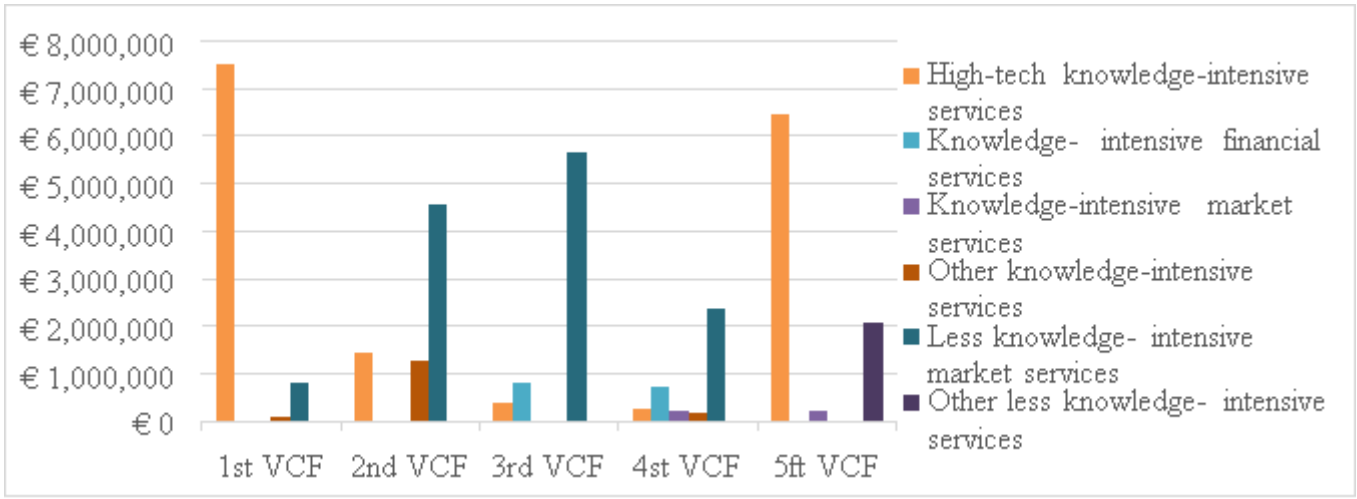

Figure 4 Amount of total investments in Services sectors by VC funds

The only factor differentiating Latvian funds is their manager previous experience and obtained knowledge in some particular sector.

Table 1 Comparison of fund management companies'(FMC) experience and investment patterns

FMC	Partners specific experience in a particular industry	Investment patterns
1st	No	Most of the investments in High-technology

VCF		and High-tech knowledge-intensive services
2nd VCF	No	High share in High technology and Less knowledge-intensive market services
3rd VCF	Few partners have experience in construction and energy	Most of the investments in Low technology and Less knowledge-intensive market services
4st VCF	Main partners have broad consulting experience of enterprises in "old economy" sectors	A substantial part of investments in Low technology and Less knowledge-intensive market services
5ft VCF	One of the investment managers in charge has previous experience in mining and forestry products company. Others – no industry-specific experience	Even distribution between Manufacturing services sectors and high share of High-tech knowledge-intensive services

Data in Table 1 shows that funds were partners have networks/experience in industries with lower R&D intensity invested mainly in these industries. Funds without such partners linkage were more open to investments in NTBFs.

During the study side observation was done: fund managers with the focus to Low technology and Less knowledge-intensive market services where able quicker close their 1st round of fundraising for the next fund. The fund which heavily invested in High-technology and High-tech knowledge-intensive services was not able to finish fundraising. The 2nd fund with high share in High-technology is still in the fundraising process. The 5th fund management company did not compete for next public VC fund management rights in Latvia.

The fundraising ability of funds depends on many other obstacles besides investment riskiness profile [33]. The funds observed in the study have exited only from few of their investments. Therefore, there is no possibility to judge the successfulness of their operations from investment return.

Conclusions

As assumed after the literature review, in general, Latvian VC funds' portfolios are a mix of companies from different industries and with no high technology firms' dominance. Still, particular funds' investment patterns differ substantially which could be explained by different respective funds management team knowledge and previous experience.

The necessity to keep the ability to raise next fund also influences the fund managers operations. The fundraising problems of the fund manager which invested heavily in early tech gives some ground for the assumption that investments in riskier early stage High-technology and High-tech knowledge-intensive sectors even beneficial for country's economy and corresponding to the aim of EU to increase R&D could work against VCists interests. The causality of Latvian VC funds fundraising ability due to the limitations of this study needs further investigation regarding other factors influencing it. If the link between investments in early High-tech and decreasing ability to attract LPs would be confirmed by further analyses the appropriate governmental equity schemes should be redesigned.

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