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Entrepreneurs' and Venture Capitalists' openness for cooperation: barriers and drivers

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ABSTRACT

The paper presents a content analysis of factors influencing whether Venture Capitalists and entrepreneurs seek out and begin cooperating.

A considerable amount of public funding in the form of Venture Capital (VC) has been made available in Europe, especially in its least developed parts, to boost economic growth. Studies show that this support for small and medium enterprises only partly attains its goals. Instead of financing the earliest stages of the development Venture Capitalists (VCs) predominantly invest in later stages and instead of equity investment provide mezzanine loans. VCs state that deal flow and quality could be higher, while entrepreneurs complain about problems attracting capital necessary for growth.

The analysis suggests that a complex system of interdependent factors influences the willingness and readiness of entrepreneurs to partner with VCs, and the VCs valuation of such partnerships' potential. It also appears that most important factors affecting the issue under study in Central and Eastern Europe (CEE) are different from those in the countries with a more mature VC industry. The lack of awareness about VC, both in general and in detail, is the main factor preventing entrepreneurs from approaching VCs in CEE. This has not been found to be a factor outside the region.

Keywords: Entrepreneurial finance, Influencing factors, Venture Capital, Willingness to partner

1. INTRODUCTION

To respond to the challenges posed by the global financial crisis, the European Commission back in 2013 recognized the need to boost small and medium enterprises (SMEs). By approving the Entrepreneurship 2020 Action Plan it was acknowledged that SMEs lack financing, and that banks are not in a position to lend given their need to see a potential borrower's track record of profitability. Venture capital was mentioned as an essential component in efforts to help entrepreneurship flourish in the EU. In line with the literature [1; 2] the EU acknowledged VC accelerated impact on the underlying portfolio firms performance.

Even before the crisis, as part of the European Commission's Regional Policy, the European Regional Development fund provided and still provides public funding for VC programs in less developed countries of the EU to support the development of SMEs.

Also through the European Investment Fund (EIF) the EU is stimulating VC activity across Europe in an attempt to match the US innovation ecosystem's [14] capability to nurture several times more high-growth companies each year. Over the 1996-2014 period the EIF made commitments of more than 2 bn EUR and attracted private investors, who together made 10,94 bn EUR in VC investments [49].

In total, 29% of investments in European VC funds in 2017 came from governmental agencies [17]. Other types of Private Equity (PE) funds had a lower but still substantial share of public resources: 20% for growth funds and 1% for buyout funds. The total amount of public money invested in all PE funds in 2017 was 4,8 bn EUR. Over the 2007-2017 period 38,2 bn EUR public funding was streamed into European Private Equity funds [16; calculations by authors].

Such a high share of public support in one industry should have a reasonable justification. Public Finance theory states that government interventions are exceptional measures but can be used if they generate positive externalities [24] to society as a whole. A higher degree of investments into R&D and the development of sustainable technologies may have positive spillovers to the community [30]. Also, the ability of VC-backed firms to react faster to changing industry conditions [1] and higher rate of internationalization of operations [31] leads to higher levels of income, taxes paid and employment. That also could be a reasonable justification for public support for VC.

But as VCs constantly state that deal flow [40] and quality [37] could be higher, and entrepreneurs complain about problems in attracting capital [42], is VC (and particularly public support for it) employed optimally to reach its goals? Does it mean that amount of firms/ideas qualifying for VC is low or are VCs not seeing the potential of entrepreneurs and/or not finding them?

There are four major topics in the literature, each answering a particular part of these questions. The first one is how VCs value entrepreneurs and their businesses/ideas [35; 5]. The second one is deal flow or demand for VC funding [37]. The third is entrepreneur's decisions regarding which type of external capital to seek [1; 6]. The fourth – the success factors in attracting capital [42].

All these topics are important to understand the process how VCs and entrepreneurs find or could find each other and start cooperation but separately they don't provide sufficient understanding of the whole process and is there a possibility for a match with those who currently stay outside from VCs interest zone. To fill this, void the aim of this study is to make a content analysis of the literature regarding factors influencing whether Venture Capitalists and entrepreneurs seek out and begin cooperating.

The article is organized as follows: the next section introduces with the main principles of the functioning of VC. The third section describes the research design. The results of the content analysis are presented in the fourth section. Section 5 outlines the main conclusions.

2. VENTURE CAPITAL

To determine what kind of ideas/projects could qualify for VC and whether there is room for more, it is necessary to understand the main features of VC.

What is venture capital? Invest Europe, the association representing VC on the European level defines it as "a type of private equity focused on companies... with innovative ideas for a product or service." The British Private Equity & Venture Capital Association's definition emphasizes the critical feature of VC target companies [5] – their high growth potential.

Some sources use the term private equity to refer to both private equity (PE) and VC, while others use venture capital to refer to both: VC and PE. The difference between VC and PE is

in the stages of companies they finance. VC funds (VCFs) invest in companies in the first stages of their development. In turn, PE funds focus on later stages when companies have stabilised their operations and are looking for a way to develop further.

Between VC industry players it is widely accepted to use (authors' observations and interviews) the Invest Europe definitions and delineation of the investment stages presented here:

1. Stages which belong to VC:

Seed: Funding provided before the investee company has started mass production/distribution with the aim to complete research, product definition or product design, also including market tests and creating prototypes. This funding will not be used to start mass production/distribution.

Start-up: Funding provided to companies, once the product or service is fully developed, to start mass production/distribution and to cover initial marketing. Companies may be in the process of being set up or may have been in business for a shorter time, but have not sold their product commercially yet. The destination of the capital would be mostly to cover capital expenditures and initial working capital.

Later-stage financing: Financing provided for an operating company, which may or may not be profitable. Late stage venture tends to be financing into companies already backed by VCs.

2. Stages which belong to PE:

Growth: A type of private equity investment (often a minority investment) in relatively mature companies that are looking for primary capital to expand and improve operations or enter new markets to accelerate the growth of the business.

Buyout: Financing provided to acquire a company. It may use a significant amount of borrowed capital to meet the cost of acquisition. Typically, by purchasing majority or controlling stakes.

Rescue/Turnaround: Financing made available to an existing business, which has experienced financial distress, with a view to re-establishing prosperity.

Replacement capital: Minority stake purchase from another private equity investment organisation or from another shareholder or shareholders.

Even though there is a lot in common between PE and VC, decision and control mechanisms in young companies and developed ones are different [53]. Therefore, the study conducted will concern only VC which receives substantially larger public support than PE.

The main features differentiating VC from other external sources of capital are:

1. VCs provide equity or quasi-equity investments [53]. Such types of external capital is very convenient for companies without stable income sufficient for credit repayments and no tangible assets as collaterals for loans. Offsetting this is partial loss of ownership [48] and sole control over the company;
2. VCs are active investors [2]. In addition to their investments, they bring knowledge, expertise, a network and other benefits often called added value to their portfolio companies [7].
3. VCs invest in companies with high risk (where they can lose their entire investment) but at the same time have high growth potential. In return for taking high risks VCs expect to have high returns from their investments [9; 19; 33;].
4. VCs are limited term equity investors [2]. The typical holding period for their investments is 5-8 years [9]. The return from investments is usually received by selling a stake to strategic or next stage financiers, an IPO or management buyout [9; 12].

The literature [9; 12] and data available show that a substantial part of VCs investments is written off or sold below cost. From the EIF 2065 investments 70% were written off or sold below cost, 8% were sold at cost, and only 20% were profitable [49]. Knowing these statistics, VCs invest in companies which, if successful, could bring not only a good return on investment but also cover losses from investments into other companies that have been written off. Some 4% of EIF investments have returned more than 5 times the investment, and some of them were sold for amounts higher than the VC fund itself. Latvian VCFs managers expect that their portfolio companies, if lucky, could return them 10 times the investment (authors interviews).

This section highlighted the mandatory features of companies to be eligible for VC. They are the high growth potential of the company and the owner's capability to share their ownership and control with VCs. High growth potential of the company is subjective evaluation by each venture capitalist, and entrepreneurs also subjectively evaluate ownership loss against potential benefits from VC. The content analysis of these and other factors influencing whether Venture Capitalists and entrepreneurs seek and reach a deal will be discussed in the fourth section. The following section outlines the design of the research.

3. RESEARCH DESIGN

To determine the factors influencing whether Venture Capitalists and entrepreneurs seek and reach a deal a content analysis of the literature was conducted.

Web of Science was used to find appropriate studies. The search terms were: entrepreneur opinion and VC; entrepreneur openness and VC and willingness to partner. Additionally, studies cited in the selected articles were inspected. After preliminary acquaintance with studies selected by Web of Science search tools 38 articles were recognised as covering the topic of the research and they were used for content analysis.

During content analysis, 52 codes were identified. From the codes, 11 categories were developed. As during the analysis, a difference in the intensity of codes identified in studies from countries with mature VC industries and others was revealed, so an analysis of codes and categories by region was also done. Theoretical studies were counted as studies from countries with mature VC industries because of the proportion of VC located in these countries [17]. The results of the content analysis will be described in the next section.

4. RESEARCH RESULTS

Eleven factors influencing whether Venture Capitalists and entrepreneurs seek out and begin cooperating were developed after analysis. Table 1 shows the frequency of the categories. The leader of the categories "VCs characteristics" is followed by "Communication between VCs and entrepreneurs". It should be noted that there are two separate categories regarding potential VC target companies: Firms and Entrepreneur's characteristics, but only one related to VCs' side. The distinction between VC firm and the manager of it was not done because the papers under the study didn't provide sufficient data for it.

Table 1

The factors influencing cooperation between Venture Capitalists and entrepreneurs.

No	Categories	Frequency
1	VCs characteristics	25
2	Communication	19
3	Trade-off	13
4	Firm characteristics	12
5	General awareness and perception of VC	10
6	Entrepreneur's characteristics	9

7	Availability of other funding	8
8	Cultural obstacles	7
9	Business environment	6
10	Economic factors	5
11	Resources to attract VC	4

The analysis also revealed that there is a difference between the significance of factors in countries with mature VC industries and Central and Eastern Europe (CEE).

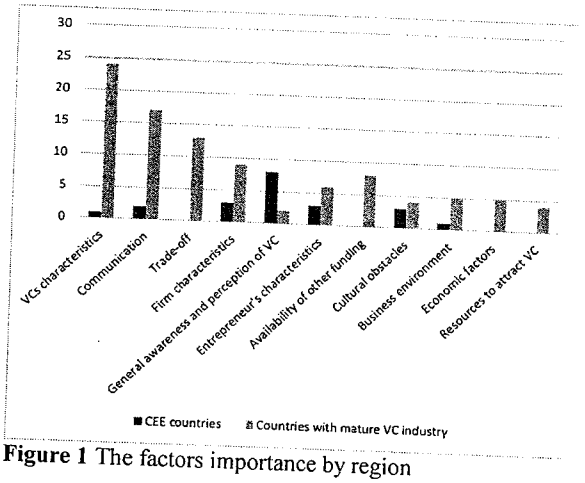

Figure 1 The factors importance by region

The results of the analysis by region presented in Figure 1 suggest that the lack of awareness about VC, both in general and in detail, is the main factor in CEE preventing entrepreneurs from approaching VCs. This has not been found to be the case outside the region. In countries with mature VC industry the leading factors discouraging cooperation are the same as in the total factor analysis: "VCs characteristics" followed by "Communication between VCs and entrepreneurs".

The components of categories in order of total significance and whether they are drivers or barriers cooperation is explained in subsection 4.1:

4.1. Factors' definitions and their direction of influence

4.1.1. The category "VCs characteristics" includes such subcategories as:

- Attractiveness of particular VCs for an entrepreneur which is dependent on:
  - Reputation of the particular VCist [23], including possible negative elements such as unethical behavior [7; 11; 13] and perceived abuse of power [7; 11];
  - Level of value added services provided [2; 13; 18];
  - Prior investment success [13];
  - Level of empathy, moral support [2; 7; 18].

Better reputation, increased level of support for portfolio companies, empathy towards entrepreneurs, and success rate of prior investments work as drivers attracting potential target companies to VCs having these qualities. Conversely – low levels of these qualities and unethical behaviour is a barrier. These features influence attractiveness of particular VCs in the eyes of an entrepreneur:

- Possession of specific knowledge:
  - Industry-specific knowledge [11; 12; 34; 45; 52; 53];
  - Knowledge necessary to invest in particular stage of companies' growth [15].

Industry-specific knowledge allows VCs to assess growth opportunities with a particular type of technology and later manage such projects. This may not be so important in increasing the attractiveness of VCs, but it expands their circle of target companies with very specific business ideas.

- Ability to invest in ventures in seed and startup phases [29; 38].

The literature suggests that VCs, due to pressure to maintain predictable risk levels and economies of scale, have limited ability to invest in these stages. As a result, projects at these stages frequently remain outside VCs' target circle.

From VCs characteristics categories only "Industry-specific knowledge" was found in the studies of CEE.

4.1.2. The category "Communication" includes such components as:

- Misaligned perceptions about the other party's intentions [38; 42; 54];
- Problems in attracting interest of VCs to the project [44];
- Incompatible channels of communication [7];
- Available channels to meet potential investors/entrepreneurs [8; 28; 44; 47];
- Good match between the investors and entrepreneurs [54];
- Disagreements in valuation of the target companies [31; 38].

Misaligned perceptions are partly the root for a few other factors: problems of attracting VCs interest and incompatible channels of communication. They lead to choosing wrong places/means to meet VCs and the wrong way of presenting the projects for VCs and from VCs side – trying to look for potential target companies through channels with low response rates. Therefore, increased awareness about other party and its intentions is a driver.

The available network resources to meet VCs in person or to be introduced to them by someone familiar with them is also a driver. The literature suggests that difficulties in finding the right partner leads to lower rate of deals between entrepreneurs and VCs. As a result, opportunities to identify and meet investors with characteristics matching the entrepreneurs' wishes is a driver.

Unsolved disagreements over distribution of equity between VCs and entrepreneurs is a reason why deals could fail. Studies identify two barriers regarding this factor: unrealistic expectations of young entrepreneurs regarding the value of their enterprise and a too high share of equity having been granted to investors in previous stages [54].

4.1.3. The category "Trade-off" includes codes related to the balance, or lack thereof, between the interests of entrepreneurs and VCs:

- Differences in business goals and strategies between the company and VCs [4; 7; 36; 38];
- Awareness of benefits versus disadvantages of VC [2; 9; 20; 46; 48].

There is no doubt that the goals and strategies of VCs and entrepreneurs differ. This influences the "Communication" factor. The opposite can also be true, if communication helps align their interests. A high degree of differences in interests and low amount of flexibility is a barrier for cooperation.

Awareness of VC benefits also increases the possibility of aligning interests as it allows an entrepreneur to reasonably measure the pros and cons of equity financing. Therefore, awareness is a driver.

4.1.4. The category "Firm characteristics" consists of:

- Quality/innovativeness/technical complexity of the business idea [7; 28; 43];
- The level of research and commercialization of development results [43; 54];
- The risk level (technology, price) [34; 45];
- The growth stage of the company [46];
- The financial characteristics of the company [8; 10];
- Consequences of rejecting the funding [13];
- Share distribution between founders and previous stages investors at the moment of approaching VCs [53].

The innovativeness and technical complexity of the business idea is either a driver if VCs can assess the value of the idea or barrier if VCs don't have necessary industry-specific knowledge. Because of that, this code is interrelated with VCs characteristics. A higher level of commercialization always works as a driver and helps to increase the chances of a technically complex idea being chosen by VCs.

A higher level of risk, whether inherent in the technology or the products' price fluctuations, is a barrier. Possibilities for lowering risk (for example co-financing) or getting a risk premium are a driver.

The growth stage of companies influences their eligibility for VC funding, and is dependent upon the focus of active VC funds on particular stages. Still, the literature suggests that because of risk management, even funds that focus on the earliest stage companies frequently choose to finance firms in later stages. Thus, later growth stage is a driver. The other financial characteristics of companies besides their growth stage (growth prospects, size, tangible assets) also influence their chances of receiving VC funding. Better financial indicators, especially growth prospects, are drivers for the willingness of VCs to conclude a deal. But at the same time, better financial indicators increase available funding options for entrepreneurs, thus allowing them to choose between different kinds of investors. Meanwhile, if the consequences of rejecting the funding are severe for the entrepreneur, it is a strong driver to make a deal with any available investor, even to the point of ignoring a VCs negative ratings.

Inappropriate share distribution between founders and previous-stage investors at the moment of approaching VCs is a barrier for reaching a deal – as new investors want to receive a reasonable share of the company, but at the same time to preserve the entrepreneur's interest to develop a company by still having a motivating part of ownership in it.

4.1.5. The category "General awareness and perception of VC" consists of:

- General awareness. In the CEE region companies are not well informed about available financial support [27; 28; 32];
- Awareness about peculiarities of VC. CEE entrepreneurs are aware of VC availability in general, but don't understand VC financing mechanisms and non-financial benefits [11; 27];
- Availability of statistics and analytical data about VC [28];
- Existence or nonexistence of PR system for VC industry [28];
- General opinion about VC:
  - Opinion about effectiveness of financial support of VC firms. Studies from CEE reveal that the general opinion of entrepreneurs is that non-financial support from VC firms is ineffective [27];
  - Information about unethical and dishonest behaviour of VCs [7; 11; 13]. This code is the only one from this category found in studies outside CEE.

Awareness about VC and its benefits, along with PR support to improve the image of VC, are drivers towards cooperation. Conversely, the lack of them is a barrier. Availability of data regarding the VC industry could work either as a driver if the data find VC to be beneficial for companies, or as a barrier if the data reveal adverse facts. This category is related with the category "VCs characteristics".

4.1.6. The category "Entrepreneur's characteristics" consists of:

- The entrepreneur's characteristics, such as net worth, experience, education, gender and ethnicity [10; 42; 51];
- The business skills of the entrepreneur [43; 54];
- The professional capability of the entrepreneur [36; 42];
- The effect of the entrepreneur's experience on decision bias [6].
- The degree of the alignment of the entrepreneur's interests with that of the company [11].

These features influence how an entrepreneur chooses a type of capital and forms the basis for VCs appraisal of a potential portfolio company's management team (business skills, industry-specific knowledge, reliability).

4.1.7. The category "Availability of other funding".

Promising ventures have access to various sources of capital [2]. It gives them the possibility to choose between multiple options and VC will be chosen if benefits outweigh disadvantages of such funding [2; 47]. The category "Available funding" is related with the category "Trade-off".

But new ventures are not always perceived as obviously promising, and often not eligible for typical funding such as bank loans [8]. This could suggest that a lack of substitute financing for new ventures would increase demand for VC. But there are contradicting studies [19] which show that, for example, in the United States in the 1980s and 1990s when bank credit to young, small firms declined substantially, the same happened to venture capital commitments. It could point to the existence of a correlation between this factor and "Economic factors".

4.1.8. Cultural obstacles related to a particular country:

Difference between cultures [47; 52] influences:

- The level of activity or inertia among entrepreneurs [28];
- Trust or suspicion level.

Cultural obstacles explain the dominance of certain forms of investors in a country and the willingness of small business owners to share their control with VCs.

4.1.9. The category "Business environment" consists of:

- Individual tax burden [19; 39];
- State R&D expenses [19];
- Level of investment and fundraising in the seed and early-stage [15; 52];
- Environment for innovation [26].

4.1.10. The category "Economic factors" consists of:

- Economic factors in particular country [19; 41];
- Level of expected return [9; 19], which depends on other economic factors;
- Demand for the product [26]. This is also related to other economic factors and business environment, as long as the product is not regarded as disruptive.

4.1.11. Resources to attract VC

Studies [11; 20; 22; 44] reveal that long negotiations and the high expenses of due-diligence affect VC deals.

4.2. Mega categories

The categories can be divided into 3 mega categories:

- External factors;
- Internal factors;
- Process-related factors.

To external factors authors attribute all factors where parties to the process (VCs and entrepreneurs) can't make any changes. Those are Business environment; Economic factors in a particular country; Availability of alternative funding and Country-specific cultural obstacles.

Internal factors are those to which the parties can make changes. The characteristics of the Firm, Entrepreneur and VCs belong to this mega category.

Process-related factors are General awareness and perception of VC; Communication, Trade-off and Resources necessary. The parties can make partial changes in the impact of these factors.

The Figure 2 visually describes the correlation between mega factors and factors.

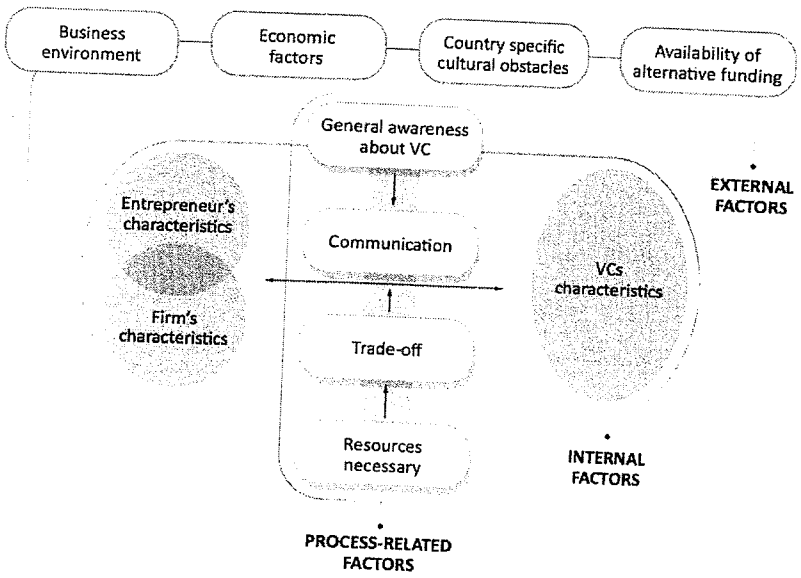

Figure 2 Mega factors and factors correlation

The factors are not only interrelated in their influence, but some of them can work in both directions either as drivers and barriers. For example, the technical complexity of the business idea could be a driver if a particular VCist is capable of assessing the novelty and growth potential of it. But it would serve as a barrier if VCs doesn't have enough industry-specific knowledge and does not understand its problems to manage it further.

5. CONCLUSIONS

The content analysis provides the framework for understanding the factors influencing whether Venture Capitalists and entrepreneurs seek out and reach deals. The results suggest that factors form an interdependent system where changes in a particular factor's weight can lead to changes in another and back. Mega Categories developed by the authors allow greater understanding of who can influence which factors: In the case of external factors, governments are responsible or should take responsibility; internal factors are those upon which the parties can act; and the parties and governments can both have an impact on process-related factors.

The factors are not only interrelated in their influence, but some of them can also work in both directions, either as drivers for or barriers to cooperation between parties.

The results highlight that pressure to improve one factor without assessing its interrelation with others may not have the intended results.

The analysis suggests that the factors affecting cooperation in CEE countries and in countries with mature VC industries are different or at least the weight of importance of the factors differs significantly. In particular, the lack of awareness about VC in general and in detail is the most significant factor in CEE countries. In other countries, however, this factor doesn't have any influence. The top factor outside the CEE is the characteristics of VCs.

The results of the analysis could be biased by the small number of studies from the CEE region. However, given the fact that VC in the CEE region is relatively recent, there is nothing surprise about the lack of awareness about VC and the factor's possible dominance on the level of deals between entrepreneurs and VCs.

6. REFERENCES

[1] Alperovych, Y., & Hübner, G. (2013). Incremental impact of venture capital financing. Small Business Economics, 41(3), 651-666

[2] Andrieu, G., & Groh, A. P. (2012). Entrepreneurs' financing choice between independent and bank-affiliated venture capital firms. Journal of Corporate Finance, 18(5), 1143-1167.

[3] Andrieu, G., & Groh, A. P. (2018). Specialist versus generalist investors: Trading off support quality, investment horizon and control rights. European Economic Review, 101, 459-478.

[4] Badguerahanian, L., & Abetti, P. A. (1995). The rise and fall of the Merlin-Gerin foundry business: a case study in french corporate entrepreneurship. Journal of Business Venturing, 10(6), 477-493.

[5] Boocock, G., & Woods, M. (1997). The evaluation criteria used by venture capitalists: evidence from a UK venture fund. International Small Business Journal, 16(1), 36-57.

[6] Burmeister, K., & Schade, C. (2007). Are entrepreneurs' decisions more biased? An experimental investigation of the susceptibility to status quo bias. Journal of business Venturing, 22(3), 340-362.

[7] Busenitz, L. W., Fiet, J. O., & Moesel, D. D. (2004). Reconsidering the venture capitalists "'value added" proposition: An

interorganizational learning perspective. Journal of Business Venturing, 19(6), 787-807.
[8] Cassar, G., 2004. The financing of business start-ups. J. Bus. Ventur. 19 (2), 261–283.
[9] Cherif, M., & Gazdar, K. (2011). What drives venture capital investments in Europe? New results from a panel data analysis. Journal of Applied Business and Economics, 12(3), 122-139.
[10] Coleman, S., Cotei, C., & Farhat, J. (2016). The debt-equity financing decisions of US startup firms. Journal of Economics and Finance, 40(1), 105-126.
[11] Collewaert, V., & Fassin, Y. (2013). Conflicts between entrepreneurs and investors: the impact of perceived unethical behavior. Small Business Economics, 40(3), 635-649.
[12] Cumming, D. J., & MacIntosh, J. G. (2003). A cross-country comparison of full and partial venture capital exits. Journal of banking & finance, 27(3), 511-548.
[13] Drover, W., Wood, M. S., & Fassin, Y. (2014). Take the money or run? Investors' ethical reputation and entrepreneurs' willingness to partner. Journal of Business Venturing, 29(6), 723-740.
[14] European Commission - Fact Sheet, Brussels, 10 April 2018 http://europa.eu/rapid/press-release_MEMO-18-2764_en.htm
[15] European Investment Fund (2007), "JEREMIE Report for Latvia"
[16] European Private Equity Activity Data 2017, Invest Europe
[17] European Private Equity Activity Report 2017, Invest Europe
[18] Fairchild, R., An entrepreneur's choice of venture capitalist or angel-financing: A behavioral game-theoretic approach. J. Bus. Vent., 2011, 26, 359–374.
[19] Gompers, P. A., & Lerner, J. (1999). What drives venture capital fundraising? (No. w6906). National bureau of economic research.
[20] Gulati, R. (1995). Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. Academy of management journal, 38(1), 85-112.
[21] Harrison, R. T., & Mason, C. M. (1992). International perspectives on the supply of informal venture capital. Journal of Business Venturing, 7(6), 459-475.
[22] Harvey, M. G., & Lusch, R. F. (1995). Expanding the nature and scope of due diligence. Journal of Business Venturing, 10(1), 5-21.
[23] Hsu, D. H. (2006). Venture capitalists and cooperative start-up commercialization strategy. Management Science, 52(2), 204-219.
[24] Hyman, D. N. (2014). Public finance: A contemporary application of theory to policy. Cengage Learning.
[25] Invest Europe, 2016 European Private Equity Activity. https://www.investeurope.eu/media/651727/invest-europe-2016-european-private-equity-activity-final.pdf
[26] Kalcheva, I., McLemore, P., & Pant, S. (2018). Innovation: The interplay between demand-side shock and supply-side environment. Research Policy, 47(2), 440-461.
[27] Kulikova, N.,Dzhurabaeva, G.,Ignatov, K. (2016) FEATURES OF THE VENTURE FINANCING INNOVATION IN THE RUSSIAN FEDERATION. SGEM 2016, BK 2: POLITICAL SCIENCES, LAW, FINANCE, ECONOMICS AND TOURISM CONFERENCE PROCEEDINGS, VOL III Book Series: International Multidisciplinary Scientific Conferences on Social Sciences and Arts Pages: 245-252
[28] Kuzmina-Merlino, I., & Kublina, S. (2014). Venture capital in Latvia: the peculiarities, contradictions, and accessibility for SMEs. Procedia-Social and Behavioral Sciences, 150, 97-106.
[29] Landier, A. (2003). Start-up financing: From banks to venture capital. Unpublished working paper, University of Chicago, Chicago, IL.
[30] Lerner, J. (2002). When bureaucrats meet entrepreneurs: the design of effective public venture capital programmes. The Economic Journal, 112(477), F73-F84.
[31] Lockett, A., Wright, M., Burrows, A., Scholes, L., & Paton, D. (2008). The export intensity of venture capital backed companies. Small Business Economics, 31(1), 39-58.
[32] Majková, M. (2008). Možnosti financovania malých a stredných podnikov v SR. Librix. eu./Majková, M. M. (2016).
[33] Manigart, S., De Waele, K., Wright, M., Robbie, K., Desbrières, P., Sapienza, H. J., & Beekman, A. (2002). Determinants of required return in venture capital investments: a five-country study. Journal of Business Venturing, 17(4), 291-312.
[34] Mason, C., & Harrison, R. (2004). Does investing in technology-based firms involve higher risk? An exploratory study of the performance of technology and non-technology investments by business angels. Venture capital: An international journal of entrepreneurial finance, 6(4), 313-332.
[35] Muzyka, D., Birley, S., & Leleux, B. (1996). Trade-offs in the investment decisons of European venture capitalists. Journal of Business Venturing, 11(4), 273-287.
[36] Parhankangas, A., & Landström, H. (2006). How venture capitalists respond to unmet expectations: The role of social environment. Journal of Business Venturing, 21(6), 773-801
[37] Petty, J. S., & Gruber, M. (2009). "This deal is dead!" A longitudinal study of vc decision making. Frontiers of Entrepreneurship Research, 29(3), 1.
[38] Polzin, F., Sanders, M., & Stavlöt, U. (2018). Do investors and entrepreneurs match? –Evidence from The Netherlands and Sweden. Technological Forecasting and Social Change, 127, 112-126.
[39] Poterba, J. M. (1989). Venture capital and capital gains taxation. Tax policy and the economy, 3, 47-67.
[40] Prohorovs, A. (2013). The problem of capital attraction into venture capital funds of Latvia.
[41] Prohorovs, A., & Pavlyuk, D. (2013). Analysis of economic factors influencing venture capital investment in European countries.
[42] Prohorovs, A., Bistrova, J., & Ten, D. (2018). Startup Success Factors in the Capital Attraction Stage: Founders' Perspective. Journal of East-West Business, 1-26.
[43] Puķīte, I., & Geipele, I. (2015). Business incubators as a financial instrument for new business development. ECONOMIC SCIENCE FOR RURAL DEVELOPMENT, 124.
[44] Riding, A. L., & Short, D. M. (1987). Some investor and entrepreneur perspectives on the informal market for risk capital. Journal of Small Business & Entrepreneurship, 5(2), 19-30.
[45] Salm, S., & Wüstenhagen, R. (2018). Dream team or strange bedfellows? Complementarities and differences between incumbent energy companies and institutional investors in Swiss hydropower. Energy policy, 121, 476-487.
[46] Schwienbacher, A. (2013). The entrepreneur's investor choice: The impact on later-stage firm development. Journal of Business Venturing, 28(4), 528-545.
[47] Shepherd, D. A., & Zacharakis, A. (2001). The venture capitalist-entrepreneur relationship: control, trust and confidence in co-operative behaviour. Venture Capital: an international journal of entrepreneurial finance, 3(2), 129-149.
[48] Tavares-Gärtner, M., Pereira, P. J., & Brandão, E. (2018). Heterogeneous beliefs and optimal ownership in entrepreneurial financing decisions. Quantitative Finance, 1-12.
[49] The European venture capital landscape: an EIF perspective, Volume III: Liquidity events and returns of EID-backed VC investments, Working Paper 2017/41
[50] The European venture capital landscape: an EIF perspective, Working Paper 2016/34
[51] Tinkler, J. E., Whittington, K. B., Ku, M. C., & Davies, A. R. (2015). Gender and venture capital decision-making: The effects of technical background and social capital on entrepreneurial evaluations. Social Science Research, 51, 1-16.
[52] VANAGS, A., STAŠEVSKA, J., & PAALZOW, A. (2010). Venture CAPITAL inLATVIA Revisited.
[53] Wright Robbie, M. K. (1998). Venture capital and private equity: A review and synthesis. Journal of Business Finance & Accounting, 25(5- 6), 521-570.
[54] Wright, M., Lockett, A., Clarysse, B., & Binks, M. (2006). University spin-out companies and venture capital. Research policy, 35(4), 481-501.

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