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PUBLIC VENTURE CAPITAL FUND IN LITHUANIA: MISSION IMPOSSIBLE?

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Abstract: The goal of the research is to establish whether (and how) public venture capital fund could reveal any strategic opportunities of new and innovative companies and of the whole national economy. Imperfect market situations in which public venture capital fund would possibly operate better than private ones are analyzed and compared with practical experience in different countries.

Keywords: venture capital, public venture capital fund, innovation.

1. Introduction

The importance of venture capital in economy is related to its role in financing new innovative enterprises, as the bank-specific financing for the latter ones is mostly inaccessible due to the insufficiency or the absence of the pledges (Stiglitz, Weiss, 1981); the capital markets are, in turn, accessible only to the major public limited liability companies.

Moreover, while assessing the risk, banks have become even more careful after the financial crisis of 2009. The same reason – financial crisis of 2009 – is at the origin of private investors' reluctance to finance innovative companies (Lerner, 2010); therefore, the question is what could become a new catalyst of venture capital market, and we think that public venture capital fund could act that role.

The goal of the research is to establish whether (and how) public venture capital fund could reveal any strategic opportunities of new and innovative companies and of the whole national economy. The methods of the research cover a comparative analysis of scientific literature and practical experience. The article starts from the imperfect market situations in which public venture capital fund would possibly operate better than private ones. Then we continue with practical experience in different countries and conclude with some proposals for public venture capital development.

2. Venture capital: selection between private and public

In the entrepreneurial society, venture capitalists make venture decisions by using collective experience and knowledge (Cyert, March, 1963; Nelson, Winter, 1982), whereas in the society where traditionally no entrepreneurial spirit exists (e. g. in Lithuania like in many other Eastern European countries) investors' knowledge is based only on their previous experience. In case of venture capital it means that venture capital investments are based on the longevity of venture capital firm (Dimov, Murray, 2007) and the number of ventures in which the firm have invested previously (Gompers et al., 2006). Therefore, in such society small and newly established funds can finance less beginning and high-technology enterprises, selecting larger or longer operating instead – it is especially relevant to the countries where venture capital market is still in the stage of creation and no large or longer operating private venture capital funds exist. On the other hand, public venture capital fund, being able to accept higher risk, would not experience above-mentioned problems of selection.

Another main reason why it can be worth selecting public venture capital is the fact that development of private venture capital market in itself not always takes place smoothly. Its development is affected by different factors, one of which is culture (culture is defined as a set of values, behavioral models, beliefs and underlying assumptions which are followed by individuals in a certain society). Two cultural dimensions are important to the development of venture capital (Li, Zahra, 2012): avoidance of uncertainty and collectivism. Avoidance of uncertainty indicates low toleration of activities considered being risky, such as venture capital investments, and it raises

alternative costs of risky activities. Collectivism shows the tendency to count on informal relationships of the groups in solving problems of transactions (Fukuyama, 1995). In collectivistic society, conformism and harmony are considered being a norm, and the behavior which can be understood as opportunistic can bring shame (Steenma et al, 2000). Collectivistic orientation can restrict venture capitalists' transactions by their "circle of acquaintance" (Zacharakis et al., 2007) and prevent potential external investors (venture capitalists) from joining already mentioned circle, by thus restricting their investment opportunities.

Lithuania is characteristic of both the avoidance of risk (according to the EU-wide research, Lithuanians have the lead across the EU countries in the terms of the fear of bankruptcy when starting business (European Commission, 2010)) and the collectivism (as well as the other Eastern European countries); therefore, the development of venture capital in itself takes place (and will take place) heavily. Moreover, as risk premium required from venture capital investments in risk-avoiding society is higher than in non risk-avoiding societies, it should be thought that venture capitalists will also more heavily react to indirect efforts of the Government intended to encourage the development of venture capital. One of the ways to solve it is to establish a public venture capital fund.

Public venture capital fund would be also important in the way that, without sufficient private venture capital in a country, it could play the role of a catalyst by attracting foreign venture capital, as the investments of venture capital funds are limited by geographical distance: with the increase in distance, the spread of information about possible investment targets decreases (Green, 1991); moreover, investors wish to physically take part in the management of a target company (Petersen, Rajan, 2002). Therefore, without local venture capital it is also practically impossible to attract further existing foreign venture capital: investors of the Silicon Valley (venture capitalists) limit themselves to the 1-hour trip by car (Zook, 2002), whereas the limit of 150-250 miles is reached to the extent of all USA (Florida, Kenney, 1998). Other authors (Sapienza et al., 1996) have established aforementioned distance in the UK being equal to 1,5-hour trip by car, and more than 2 hours in the USA. This distance is equal to 232 km in Germany (Fritsch, Schilder, 2011).

One of the ways to solve the above-mentioned problems is the syndication of venture capital funds (Sorensen, Stuart, 2001). After interviewing German venture capital providers, it became clear that investors often use syndicates to find themselves closer to their investment targets (Fritsch, Schilder, 2008). One of the members of a syndicate has always been established not far from the investment target and exactly he performed its supervision. The other members of a syndicate play the role of passive co-investors (Wright, Lockett, 2003). Thus, syndicated investments can be located at a larger distance from venture capital funds than the non-syndicated, provided that at least one member of a syndicate will have been established relatively close to the investment target. This is exactly the reason why it can be expected that investors being far from investments will look for a partner of a syndicate, who is closer. Therefore, it is important for a region (or a country) to have a sufficient number of venture capital providers who could act as catalysts, when connecting regional economy to further global supply chains by way of syndication. Thus, public venture capital fund established in a country, could, even not being of high volume, act as a catalyst and, by attracting foreign venture capital, invest in high technology companies. This could also happen in a syndicated manner. Moreover, while being public, it would provide foreign investors with the "guarantee of reliability" (Lerner, 1999).

The level of activity of venture capital in a country also depends on the development of its financial system (Black, Gilson, 1998; Jeng, Wells, 2000). Financial system, in turn, can be oriented to

banks (e. g., Germany, Japan), capital markets (US, UK) and financial markets (Israel) (Mayer et al., 2005). Respectively, key sources of venture capital are banks; pension funds and insurance companies; and the individual investors with large private corporations.

Lithuanian financial system, as for the other countries of the Continental Europe, is attributed to the first type; therefore, banks should mostly invest in venture capital. Nevertheless, without the existence of the other above-mentioned conditions, banks do not rush to invest in venture capital, and with the bank-specific financial system, abilities of other financial market participants to invest in venture capital remain highly limited. Thus, the development of venture capital remains exceptionally within the liability of the Government. It can, in turn, behave in two ways: to promote private investors to invest to venture capital or to invest itself, by establishing a public venture capital fund. If the second option is selected, all advantages of the first method would be retained; however, additional advantages would emerge: firstly, public venture capital could accept higher investment risk than private venture capital could afford, especially in early stages of business financing; and secondly, public venture capital could promote the development of private venture capital, as it occurred in Singapore, Israel and other countries.

In general, importance of public venture capital to a country (or a region) could be shown by a stochastic dependence, which could be a function of respective parameters discussed above. Design of such dependence is the object of our further research.

3. Practical experience in using public venture capital

First venture capital funds were established in 1940s in US and UK¹ (Fritsch, Schilder, 2011); however, venture capital markets became institutionalized only in 1980s (Bruton et al., 2005). Venture capital is best developed in US, and that was determined by few causes: the Small Business Investment Act was adopted in 1958 which permitted newly established small business investment companies to finance and control small entrepreneurial businesses in US. Another not less important factor of the development of venture capital in US was the amendment of the laws on the pension funds in 1970s, which permitted pension funds to invest in the independent investment funds, including venture capital ones (Kenney, 2000).

Venture capital sector in Europe started developing quickly only in 1970s (UK), after liberalizing legal acts in respect of the banks, pension funds and other venture capital funds. Improved legal environment had also influence, i.e. reformation of the tax system, related to the reduction of the profit and capital gain taxes, also the tax exemption for the investors of private capital. In the Continental Europe, venture capital took significance only in 1990s; and in Asia, as in the larger part of remaining world, only in the second half or even at the end of 1990s (Li, Zahra, 2012).

Europe lags behind US by volume of venture capital investments for several reasons: the unfavorable regulation of labor market and tax environment not promoting venture capitalists to invest, the lack of enterprising and proactive people wishing and not being afraid to implement new ideas, the absence of experienced venture specialists, and the absence of the liquid market for the exit of venture capital (Gompers, Lerner, 1998).

This is why the European Commission recognized in the Communication on the renewed Lisbon strategy that there is a gap of venture capital in Europe. This gap is mostly felt by hi-tech companies which are recently established and having a high growth potential. In the opinion of the Commission, key source of the market insufficiency is insufficient or asymmetric information increasing the transaction and agency costs (i. e., the costs of collecting the information and assessing the

investments), as well as the fear of the risk; therefore, the promotion of venture capital investments is one of the goals of the Community, and the gap of equity capital in certain circumstances can justify the measures of the state aid. Thus, the state aid promoting the supply of venture capital can be an effective measure to reduce market insufficiencies. On the basis of this fact, the European Commission adopted the Guidelines on state aid to promote venture capital investments into SMEs where the terms and conditions of the provision of state aid in the form of venture capital are established. The logic of the support is based on the fact that there are no alternative financing measures in financial markets (i. e., market insufficiency exists). It shows that the EU countries can be and are promoted to support the development of venture capital at the national level. The selection of the form of the aid measures belongs to the Member States.

In the opinion of the Commission, the discussed effect can be exercised by the following measures:

1. Constitution of investment funds (venture capital funds) in which the State is a partner, investor or participant, even if on less advantageous terms than other investors.
2. Guarantees to venture capital investors or to venture capital funds against investment losses, or guarantees given in respect of loans to investors/funds for investment in venture capital, provided the public cover for the potential underlying losses does not exceed 50 % of the nominal amount of the investment guaranteed.
3. Other financial instruments in favor of venture capital investors or venture capital funds to provide extra capital for investment.
4. Fiscal incentives to investment funds and/or their managers or to investors to undertake venture capital investments.

In 2010, the Commission stated that "market data suggest that venture capital markets have still not recovered to pre-crisis levels. The number of equity investors has decreased compared to 2008." It also maintained that "the likely explanation is that risk aversion has augmented." Therefore, in 2010, the Commission amended the Community guidelines by doubling the amount of the aid to one entity (up to EUR 2.5 million).

The European Commission also took other initiatives, such as *Joint European Resources for Micro to Medium Enterprises* (JEREMIE) which is the joint initiative of the European Commission and the European Investment Fund (EIF) to solve the problem of the lack of venture capital for micro to medium enterprises in certain regions.

Besides the JEREMIE initiative, the aid is also provided according to the following programs: EU Competitiveness and Innovation Framework Program (CIP); G2G intended for the innovative entrepreneurs of the EU; and venture capital measures of the European Investment Fund (European Commission, 2009). Thus, the European Union speaks for the usage of public venture capital, especially in those sectors and regions where private venture capital is not enough (i. e., where market insufficiency exists).

Beyond the limits of the EU, public venture capital funds (or respective program) have been established in Canada (Labor Sponsored Venture Capital Corporation) (Cumming, Macintosh, 2006), Australia (Innovation Investment Fund) (Cumming, 2007), Singapore, Israel, etc.

In the very EU, such funds operate in the United Kingdom (Enterprise Investment scheme; Venture Capital Trust) (Cowling et al., 2008), also in Finland (SITRA) and even in Estonia (Estonian Development Fund).

The idea to set up the Estonian Development Fund dates back to 2000 when the President of Estonia Lennart Meri called to look for Estonia's own Nokia. In the memorable speech given on the occasion of the 82nd anniversary of the declaration of

¹ Apart from the historical examples, such as Genoa in 14th century.

independence of Estonia, L. Meri reminded that "Finland built itself up at a rapid pace through a union between money and mind, and the Finns call that union SITRA (Finnish Innovation Fund)". By completing the speech, L. Meri invited the Estonians to create their own SITRA, the goal of which would be to accelerate the restructuring of the production and the development of the technological enterprises. The Estonian Development Fund was launched in April 2007. The mission of the fund is to contribute to creating a future for Estonia by developing its venture capital market. For that purpose, the Fund performs venture capital investments in the development-oriented technical enterprises together with the private sector. The Fund is accountable to the Parliament; its Supervisory Board consists of the representatives from the Parliament, the Bank of Estonia, the Ministers of Economy and Finance, the Rectors of technological universities of Tartu and Tallinn.

Few days before the speech of L. Meri, the President of Lithuania gave even three speeches (in 2000, in Lithuania, as in Estonia, the 82nd anniversary of the declaration of independence was celebrated), and in only one of them, intended to the heads of the diplomatic missions accredited in Lithuania, he mentioned that "in the new age, we will further work, so that the name of Lithuania would be related to the openness, dynamic development, ability to accept the challenges of globalization," however, he did not tell how we will reach these goals, i. e., he did not call, did not mobilize the nation to any particular goal.

The way how such speeches of the heads of the states can be stimulating, inspirational and mobilizing, is well shown by the speech of the President of the US John F. Kennedy, given on 25 May 1961 at the Congress, when the US tried to recover after the double shock: the launch of the satellite Sputnik and the flight of the Soviet cosmonaut Yuri Gagarin to the space less than two months before the President's speech. "I believe we possess all the resources and talents necessary; but we have never made the national decisions or arranged the national resources required for such leadership. We have never specified long-range goals on an urgent time schedule, or managed our resources and our time so as to insure their fulfillment. <...> let it be clear that I am asking the Congress and the country to accept a firm commitment to a new course of action, a course which will last for many years and carry very heavy costs..." Then, he set out the program how to send the US astronaut to the Moon within 10 years. Actually, there was no need for such a long time – a decade – to reach the goal – it was implemented in just 8 years.

Estonians might not succeed to create their own Nokia but three years after their President's speech, they created Skype, and after another 8 years (in May 2011), Microsoft bought Skype for 8.5 billion US dollars. Market capitalization of Nokia at the same time was less than 4 times higher (and it was before the crisis of Nokia).

Thus, it is evident that the mobilization of the society to reach the important goals is the prerequisite of success, would it be an inspiring speech of the head, or a well prepared national development strategy. Another important aspect is a set of the measures to implement the strategy, such as the Estonian Development Fund. It is true to say that Estonians had both things: the strategy and the measures to implement it; whereas the Lithuanians had none, as there is still practically no venture capital promotion system in Lithuania at the national level even today.

Meanwhile, a research conducted in Lithuania in 2004 (Miliute, 2004) revealed that 25% of surveyed companies emphasized the importance of venture capital in the activities of scientific valleys, so that the usage of venture capital would allow the valleys to achieve better results in their activities. However, no measures were taken to attract venture capitalists to the valleys in Lithuania.

4. Venture capital in Lithuania: prospects for development

There are many agencies, willingly giving advices, but not money necessary for venture capital investments, in Lithuania. The Lithuanian Development Agency was founded in 1997 by merging together Lithuanian Investment Agency and Lithuanian Export Development Agency, and in 2010 it was again divided into public agencies Invest Lithuania and Enterprise Lithuania. Besides those ones, we also have Lithuanian Innovation Centre, 7 business incubators, as well 3 science, studies and business valleys. These are impressive numbers; however, none of these agencies deals with the initial financing of business ideas.

Thus, it is hardly surprising that venture capital is not an important source of financing of innovations in Lithuania: new projects are financed either by own means of companies (67%) or by the aid of the EU (28%) (Adekola et al., 2008). In 2009, according to the investments of private and venture capital, Lithuania, together with the other Baltic States, lagged at the end of all European countries (Fig. 1):

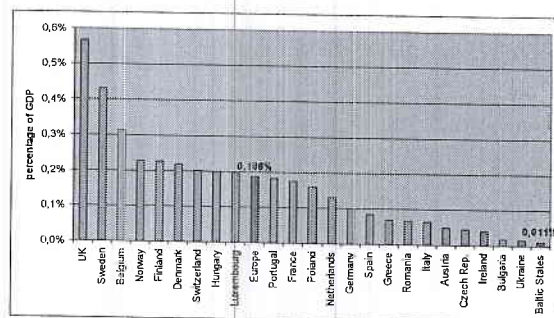


Fig. 1. Private equity and venture capital investments in European countries in 2009 as a percentage of GDP (Source: EVCA and own calculations)

According to the data of the Statistics Lithuania, there are few reasons why venture capital is used insignificantly in Lithuania: Lithuanian entrepreneurs find the availability of bank loans more important than venture capital; Lithuanian entrepreneurs are conservative and do not wish the interference of the third party in their business (venture capitalists receive part of the rights of control of a company in exchange for the invested money); also the lack of information about venture capital exists²; finally, bank loans are better assessed for their lower interest rates (Venckuviene, Snieska, 2010).

The EU initiatives currently play the most important role in promoting the development of venture capital in Lithuania: according to one of them – the already mentioned JEREMIE – 5 venture capital funds have been established: 3 of them in 2010 and 2 in 2011. We believe that further development of venture capital market could be accelerated by a more active role of the state and establishing of public venture capital fund.

5. Conclusions

1. The importance of venture capital in economy is related to its role in financing new innovative enterprises.
2. Public venture capital could be an alternative to private one in societies where private venture capital market is weak due to its financial system or cultural aspects (no entrepreneurial spirit, avoidance of uncertainty and collectivism).

² A survey on venture capital in Lithuania, conducted at the end of 2010, showed that even 93% of the managers who took part in the survey did not know any venture capital fund operating in Lithuania, and 91,5% of the respondents could not name any Lithuanian company, in which such funds had or have invested. Thus, it is hardly surprising that, on the basis of the data of that research, 78% of the surveyed managers did not include venture capital funds in the list of opportunities for the development of their company.

3. As different researches show, investments of venture capital are limited by distance. Thus, public venture capital fund could, even not being of high volume, act as a catalyst and, by attracting foreign venture capital, invest in local high technology companies. This could also happen in a syndicated manner.

4. European Commission speaks for the public aid for venture capital markets when market insufficiency (equity gaps) exists. State aid consists of different forms of public support to venture capitalists, venture capital funds and/or their managers; one of these forms could be a public venture capital fund.

5. As venture capital market in Lithuania is undeveloped and its development is going slowly, public venture capital fund would probably help to activate national venture capital market. The justification of the existence of such a fund and positive aspects of its activities is the object of our further research.

Literature:

1. ADEKOLA, A., KORSAKIENE, R., TVARONAVICIENE, M. *Approach to Innovative Activities by Lithuanian Companies in the Current Conditions of Development. Technological and Economic Development of Economy*, 2008. Vol. 14(4). 595-611 p.
2. BLACK, B. S., GILSON, R. J. *Venture Capital and the Structure of Capital Markets: Banks Versus Stock Markets*. Journal of Financial Economics, 1998. Vol. 47(3). 243-277 p.
3. BRUTON, G. D., FRIED, V. H., MANIGART, S. *Institutional influences on the worldwide expansion of venture capital*. Entrepreneurship Theory and Practice, 2005. Vol. 29 (6). 737-760 p.
4. COWLING, M., BATES, P., JAGGER, N., MURRAY, G. *Study of the impact of the Enterprise Investment Scheme (EIS) and Venture Capital Trusts (VCTs) on company performance*. HM Revenue & Customs Research Report 44, Institute for Employment Studies, 2008.
5. CUMMING, D., 2007. Government policy towards entrepreneurial finance: innovation investment funds. Journal of Business Venturing 22 (2), 193-235.
6. CUMMING, D. J., MACINTOSH, J. G. *Crowding out private equity: Canadian evidence*. Journal of Business Venturing, 2006. Vol. 21 (5). 569-609 p.
7. CYERT, R. M., MARCH, J. G. *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall, 1963.
8. DIMOV, D., MURRAY, G. *Determinants of the incidence and scale of seed capital investments by venture capital firms*. Small Business Economics, 2007. 30(2). 127-152 p.
9. EUROPEAN COMMISSION. *Entrepreneurship in the EU and beyond. Analytical report*, 2010.
10. EUROPEAN COMMISSION. *European Union Support: Programmes for SMEs, 2009: An overview of the main funding opportunities available to European SMEs*. 2009.
11. FLORIDA, R. L., KENNEY, M. *Venture capital, high technology and regional development*. Regional Studies, 1998. Vol. 22. 33-48 p.
12. FRITSCH, M., SCHILDER, D. *Does venture capital investment really require spatial proximity? An empirical investigation*. Environment and Planning, 2008. Vol. A 40:2114-31.
13. FRITSCH, M., SCHILDER, D. *The Regional Supply of Venture Capital: Can Syndication Overcome Bottlenecks?* Economic Geography, 2011. Vol. 88(1). 59-76 p.
14. FUKUYAMA, F. *Trust: The Social Virtues and the Creation of Prosperity*. New York, NY: Free Press, 1995.
15. GOMPERS, P. A., KOVNER, A., LERNER, J., SCHARFSTEIN, D. S. *Skill vs. luck in entrepreneurship and venture capital: Evidence from serial entrepreneurs*. NBER Working Paper, 2006. No. W12592.
16. GOMPERS, P., LERNER, J. *What Drives Venture Capital Fundraising?* Brookings Papers on Economic Activity (Microeconomics), 1998. 149-192 p.
17. GREEN, M. B. *Preferences for U.S. venture capital investments 1970-1988*. In *Venture capital: International comparisons*, ed. M. Green. London and New York: Routledge, 1991. 18-58 p.
18. JENG, L. A., WELLS, P. C. *The determinants of venture capital funding: evidence across countries*. Journal of Corporate Finance, 2000. Vol. 6. 241-289 p.
19. KENNEY, M. *Note on „Venture Capital“*. BRIE working paper, 2000. Vol. 142.
20. LERNER, J. *Innovation, Entrepreneurship and Financial Market Cycles*. OECD Science, Technology and Industry Working Papers, 2010. 2010/3.
21. LERNER, J. *The government as venture capitalist: The Long-Run Impact of the SBIR Program*. Journal of Business, 1999. Vol. 72(3). 285-318 p.
22. LI, Y., ZAHRA, S. A. *Formal institutions, culture, and venture capital activity: A cross-country analysis*. Journal of Business Venturing, 2012. Vol. 27. 95-111 p.
23. MAYER, C., SCHOORS, K., YAFEH, Y. *Sources of Funds and Investment Activities of Venture Capital Funds: Evidence from Germany, Israel, Japan and the United Kingdom*. Journal of Corporate Finance, 2005. Vol. 11.
24. MILIUTE, A. *Development of science and technology parks: management models: Summary of Doctoral Dissertation Social Sciences, Management and Administration (03S)*. Vilnius: Technika, 2004.
25. NELSON, R. R., WINTER, G. S. *An evolutionary theory of economic change*. Cambridge, MA: The Belknap Press of Harvard University Press, 1982.
26. PETERSEN, M. A., RAJAN, R. G. *Does distance still matter? The information revolution in small business lending*. Journal of Finance, 2002. Vol. 57:2533-70.
27. SAPIENZA, H. J., MANIGART, S., VERMEIR, W. *Venture capitalist governance and value added in four countries*. Journal of Business Venturing, 1996. Vol. 11:439-69.
28. SNIESKA, V., VENCKUVIENE, V. *Peculiarities of venture capital in financing the early stage business in Lithuania*. Business and Management, 2010.
29. SORENSEN, O., STUART, T. E. *Syndication networks and the spatial distribution of venture capital investments*. American Journal of Sociology, 2001. Vol. 106:1546-88.
30. STEENSMA, H. K., MARINO, L., WEAVER, K. M. *The influence of national culture on the formation of technology alliances by entrepreneurial firms*. Academy of Management Journal, 2000. Vol. 43 (5). 951-973 p.
31. STIGLITZ, J. E., WEISS, A. *Credit rationing in markets with incomplete information*. American Economic Review, 1981. Vol. 71. 393-409 p.
32. WRIGHT, M., LOCKETT, A. *The structure and management of alliances: Syndication in the venture capital industry*. Journal of Management Studies, 2003. Vol. 40:2073-102.
33. ZACHARAKIS, A. L., MCMULLEN, J. S., SHEPHERD, D. A. *Venture capitalists' decision policies across three countries: an institutional theory perspective*. Journal of International Business Studies, 2007. Vol. 38 (5). 691-708 p.
34. ZOOK, M. *Grounded capital: Venture financing and the geography of the Internet industry, 1994-2000*. Journal of Economic Geography, 2002. Vol. 2:151-77.

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