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THE IMPACT OF GOVERNMENT SPONSORED VENTURE CAPITAL FUNDS' ON INNOVATION IN LITHUANIA

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Abstract. Governments wide world have implemented various instruments seeking to enhance the development of innovative small and medium sized Enterprises (SMEs). Previously, the venture capital market was scrutinized in various aspects mainly in the context of developed countries (United States, Canada, Australia, France, UK, Japan and etc.). Recently JEREMIE (Joint European Resources for Micro to Medium Enterprises) initiative took place in Lithuania and other European countries. It is a possibility for local governments through the EU structural funds to finance SMEs in cooperation with financial intermediaries. The paper aims to reveal the impact of government sponsored venture capital funds' on innovation in small country, focusing on Lithuania's case.

Keywords: Government sponsored venture capital fund, innovative Small and Medium Sized Enterprises, European Investment Fund, JEREMIE initiative.

Jel classification: G28, G24, O32

1. Introduction

The scientific discourse covers various aspects of researches in venture capital scope, especially its role in financing SMEs in its early stage of development. Particularly venture capital sector is considered as having significant impact on the innovation and usually linked with job creation and economical growth (Kortum, Lerner 2000).

Various governments' programmes with intension to flourish SMEs environment through the intermediation of venture capitalists mainly were scrutinised since the late 90s (Cumming 2007; Cumming, Johan 2009; Lerner 1999; Murray 1999). Recently, development of active venture capital markets is one of main priorities in many States' policies, at the European level particularly. To become an "Innovation Union" till 2020 is the main goal for European Union and among the key instruments is improving access to finance for SMEs (COM (2010) 2020 final) as it is considered of having huge impact on innovation.

Scientific literature covers many researches focusing in peculiarities of financing SMEs (Adamoniene, Trifonova 2007; Adekola *et al.* 2008; Tamosiunas, Lukosius 2009) and depicts venture capital as important participant in innovation creation (Ferrary, Granovetter 2009; Snieska, Venckuviene 2009, 2010, 2011).

The venture capital impact on innovation in literature is mainly linked to patents (Caselli *et al.* 2009; Kortum, Lerner 2000; Ughetto 2010) or using the productivity measure (Huang et al. n.d.; Hirukawa, Ueda 2011).Obviously innovation is much more than patents, thus it is purposeful to investigate the impact of venture capital on the other innovation aspects like implementing organisational and marketing innovations. Specifically how the venture capitalist impacts the mentioned innovation aspects through the participation in firms' board.

The paper aims to explore the government sponsored venture capital funds and its role and impact on innovation in small country particularly focusing in Lithuanian case. The problem of the paper covers the research question, what is the role of government sponsored venture capital funds on enhancing innovation performance in Portfolio Company?

The objectives of the article are as follows:

1. To reveal the theoretical aspects of venture capital impact on the innovation in portfolio companies.

2. To explore government sponsored venture capital as a tool for enhancing innovation in SMEs.

3. To explore the prerequisites for venture capital market development in Lithuania in terms of implementation JEREMIE initiative.

The methods employed in the article cover the literature review and synthesis, and analysis of statistics data as well.

2. Venture capital for innovation: theoretical background

Venture capital is widely considered as a subset of private equity investments and it is characterized as equity (or equity-linked) investments in private prominent companies, which has a breakthrough to innovate and accelerate high growth.

Despite of extent research in the venture capital field, still there is difference of opinion in few aspects of "venture capital" definition. One disagreement is about the development stage of investee. According Cowling et al. (2008), 'venture capital" encompasses the investment in companies' start-up and early stage of development, whereas later stage investment is other type of private equity investment in the United States (US) perspective. Meanwhile in European context "venture capital" and "private equity" capital is considered as synonyms (Burgel 2000).

The earlier researches in venture capital field implicate that venture capitalists through the monitoring and other value added services have a significant management power in the investee (Lockett *et al.* 2008). Many researchers underpin the monitor venture capitalists role in Portfolio Company. Fitza et al. (2009) contend that "In addition to capital, VCs can bring legitimacy, prestige, governance expertise, social networks, management ability, and knowledge related to a start-up's technological or market foundations"(Fitza *et al.*, 2009).

The impact of venture capital on innovation in terms of registered patents was scrutinized by Kortum and Lerner (2000) in the 20 industries based study. Their results do confirm the importance of venture capital in enhancing innovation in US (Kortum, Lerner 2000).

The firm level investigation of impact of venture capital on firms' innovation performance is provided by Engel and Keilbach (2007), Caselli *et al.* (2009) and others (see Table 1).

Still the effect of venture capital on innovation is not clarified. Table 1 summarises researches on this field so far. The literature research in the measuring innovation performance of venture capital financed firms, implicates that "registered patents" is the main indicator in measuring innovation (Table 1).

For instance, *Probit* research by Engel and Keilbach (2007) show that "(...) the higher innovativeness of venture-funded firms is due to the selection process of the venture capitalist prior to the funding rather than to the venture funding itself." (Engel, Keilbach 2007). Engel and Keilbach (2007) firm level data do not show the significant effect of venture capital on portfolio companies' innovation, measured in terms of registered patents. According Engel and Keilbach (2007), venture capitalists tend to contribute to the commercialization process of existing innovations and firms' growth rather than in promoting innovation process.

Table 1. Summary of recent researches in the field of venture capital (VC) impact on firms' innovation performance

Source	Research findings	Innovation measure
Da Rin, Penas (2007)	"(…) venture capitalists selectively push portfolio companies towards choosing innovation activities which result in the accumulation of absorptive capacity, and towards more permanent in-house R&D efforts".	1) engaged in intramural R&D; 2) purchased extramural R&D or know-how Control variable: patent-citation and others.
Engel, Keilbach (2007)	Innovation performance did not change significantly, after receipt of VC financing comparing to control group.	Number of registered patents
Caselli et al. (2009)	VC financed Venture capital effects firms' sales growth, rather than innovation performance.	Number of registered patents
D'adda (2009)	VC financing is associated with patenting activities in portfolio companies.	Number of patent applications of the firm which are later granted by the patent office
Hirukawa, Ueda (2011)	Weak support for the VC-first hypothesis if TFP growth is used as the measure of innovation.	total factor productivity growth and patent counts

Caselli et al. (2009) findings contribute to Engel and Keilbach (2007). Caselli et al. (2009) research based on 37 Italian firms financed by venture capital show that venture backed companies registered more patents than control group (non venture capital financed). Although the authors states that the innovative aspect of firms is important in pre investment stage in investee selection process, while the economic results is very important in post investment process (Caselli *et al.* 2009). Caselli *et al.* (2009) finalise that "the role of venture capital in Italy does not seem to promote innovation". Thus, the effect of venture finance in Italian firms appeared in sales growth rather than innovation performance *(Caselli et al. 2009).*

D'adda (2009) findings highlight the importance of venture capital (VC) financing in patenting activities in portfolio companies. He argues that venture capital financing is positively related to subsequent patenting activity and moreover VC-backed firms "do not exhibit such a high patenting propensity before receiving VC" (D'adda 2009).

Total factor of productivity is a measure for innovation proposed by Hirukawa and Ueda (2011). They hypothesise that (Hirukawa, Ueda, 2011):

1) Venture capital investments stimulate innovation (VC-first hypothesis).

2) Emergence of new technology increases demand for VC (innovation-first hypothesis).

The results by Hirukawa and Ueda (2011) show that innovation measured in terms of patents did not provide enough evidences to support both hypotheses. Whereas using total factor of productivity as a measure of innovation findings suggest that "total factor productivity growth is often positively and significantly related with future VC investment"(Hirukawa, Ueda 2011). While weak support for VC-first hypothesis was found.

Studies presented above are based on quantitative research methodology. Further we will present some research papers, which are based on qualitative research methods and examine the venture capital impact on portfolio companies' innovation strategy.

For instance Da Rin and Penas (2007) underpin the role of venture capitalists in designing portfolio companies' innovation strategies. The main finding of their study is that "(…) venture capitalists push portfolio companies towards building absorptive capacity and towards more permanent in-house R&D efforts".

Recent research by Peneder (2010) discerns the main changes in firms' activities after receipt of VC financing. The results implicate that financial management was named as the most important area of change, which influenced the development of three growth-oriented strategies: (1) 'diversification', (2) internationalisation of existing products and (3) introducing new goods and services ('product innovation').

Peneder (2010) results confirm Locket et al (2008) evidences of VC financing on firms internationalisation.

Many of researchers find the positive relation of VC financing and firms' growth and weak evidence of VC financing effect on innovation (Engel, Keilbach 2007; Peneder 2010). Obviously it is a matter of defining "innovation". In this paper we suggest to take a broader view on the concept of innovation. We consider innovation more than just product innovation or patents, in such a way that new activities at firm level, which generates any benefits (yield profit, minimizing costs, hiring new professionals, new internationalisation activities and etc.) for venture. It is "firm level innovation", even VC financing could be the new activity and treated like innovation for the particular firm. Internationalisation could be a determinant for innovation performance too.

3. Rationality for governments' intervention in development venture capital market

The public initiatives for the development of venture capital markets were analyzed by many scientists (D. Cumming, 2007; D. Cumming & Johan, 2009; del-Palacio *et al.* 2010; Jääskeläinen *et al.* 2007; Leleux, Surlemont 2003).

Huge attention was paid at the very first public initiative for the venture capital market creation in the United State, so called SBIR program (Lerner 1999; Wallsten 2000; Gans, Stern 2000) and efforts to replicate its success in other regions (Huang *et al.* n.d.).

Brander *et al*. (2008) distinct four main goals for public policy instruments when establishing government sponsored venture capital funds:

- To create favourable conditions for entrepreneurial business development.
- To enhance innovation.
- To improve competition.
- New job creation.

Among the first studies of government intervention in venture capital market is research prepared by OECD (1997). As defined in this study – hybrid (mixed) venture capital funds is based on private and public sector participation in venture capital funds with the aim to diminish equity gap for SMEs.

The OECD study depicts three main governments' participation in venture capital market: "1) direct supply of capital to venture capital firms or small firms; 2) financial incentives for investing in venture capital funds or small firms; and 3) regulations controlling types of venture capital investors" (OECD 1997).

Recent research by Brander et al. (2010a) assesses the government participation in venture capital market and they depict three types of government-supported venture capitalists (GVCs):

- "full GVCs" – government–owned venture capital funds;
- "partial GVCs" – government investment in venture capital funds with other private investors;
- "Indirect GVCs" – providing subsidies or tax relief for venture capitalists.

In this paper we refer to government sponsored venture capital as synonyms to "hybrid" venture capital funds. And it is government participation in venture capital funds along with private investors in order to create favourable environment for business development.

Few arguments for government intervention in developing venture capital market can be discerned.

For instance Lerner (1999) shows that firms financed through the US SBIR program experienced a higher growth rate compared to control group (Lerner 1999).

Jeng and Wells (2000) argue that government can induce the venture capital market in the place, where it did not emerge otherwise (Jeng, Wells 2000).

Research by del-Palacio et al. (2010) shows the rapid venture capital market development which was coincident with the start of public policy towards entrepreneurship.

Alongside to arguments, there can be discerned contra-arguments for Governments participation in the development of venture capital industry too. For instance, the hypothesis, that public venture capital seed the industry was not approved (Leleux, Surlemont 2003). According to Leleux and Surlemont (2003) investments by public venture capital emerges due to venture capital market development itself.

Study by Wallsten (2000) on the government subsidy effect on the region technological development explored that the government subsidy has the crowding out effect on private investments. The regression analysis depicted that SBIR programme funds had negative correlation with high technological employment, venture capital and patents (Wallsten 2000). Whereas Huang et al. (n.d.) employed the model proposed by Wallsten (2000) and their results of comparative analysis of SBIR program in US and Taiwan are controversial. The analysis and the results are controversial and argue that one dollar of SBIR subsidy increased expenditures of research and development approximately 1.4 dollar.

According to Brander *et al.* (2010a) results, "Partial GVCs and indirect GVCs exhibit stronger performance than full (i.e., government-owned) GVCs" (Brander et al. 2010a). Brander *et al.* (2010a) explores impact of venture capital on the improvement of portfolio companies' value in terms of implemented successful divestment strategy (IPO and acquisition). Their main findings state that companies financed by government sponsored venture capital with modest amount of subsidy in terms of patents creation outperformed those firms backed by private venture capitalists and those with significant share of government sponsored venture capital subsidy.

Moreover Brander *et al*. (2010b) find that "Enterprises that receive funding from both private venture capitalists (PVCs) and GVCs outperform benchmark enterprises financed purely by private venture capitalists if only a moderate fraction of funding comes from GVCs". The authors emphasise that outperformance appears when venture capital firm is subsidized by government, not owned and "a little bit of government support appears to be a good thing but too much government support has the opposite effect" (Brander et al. 2010b). Thereby the evidences above (Brander et al. 2010a, 2010b) imply that Governments intervention in venture capital market is effective when investments are made alongside with private investors.

McCahry and Vermeulen (2010) underpin the importance of corporate venture capital (CVC) alliances where government is participating along with private investor and they argue that "Government should act as facilitators of CVC alliances, thereby triggering entrepreneurship and subsequent growth similar to what we have experienced in Silicon Valley some decades ago".

Recent studies outline the main recommendations for policy programmes which aim to improve SMEs business access to finance. For instance, McCahry and Vermeulen (2010) emphasise the importance of:

- Provision of direct investment through independent venture capital funds,
- Participation of large
- Explicit scope of the fund and purpose.

Moreover governments' role is foreseen as the main partner in venture capital alliances for building trust among the participants (McCahery, Vermeulen 2010).

Research by Dahlstrom (2009) outlays main principles of government's programmes: flexibility, dynamism and adaptive to environment changes. The enhancement of entrepreneurial culture and qualitative administrator of government sponsored venture capital funds should be carefully considered (Dahlstrom 2009). Meanwhile Cumming and Johan (2009) results emphasise the importance of public scheme design and the quality of funds' manager (Cumming, Johan 2009).

To sum, many scientists agree that government can foster the economy by creating efficient frameworks for venture capital financing for innovative SMEs (Cumming 2007; del-Palacio *et al.* 2010), despite that, there are controversial opinions too, due to crowding out effect of private investment (Wallsten 2000). Thereby governments'

intervention in venture capital market should be considered more cautiously in few aspects:

- Venture capital firms should be an instrument for facilitating SMEs;
- The subsidy should be delivered for target SMEs;
- The explicit objectives of the public support should be foreseen.
- Legitimate administration of government sponsored venture capital funds.
- Effective risk management system and clear evaluation methods is needed.

4. Government sponsored venture capital impact on innovation: Lithuanian perspective

The active involvement of government agencies in private equity market, which encompass the venture capital investments as well, is obvious in recent years. According to EVCA Central and Eastern Europe Statistics 2010, the government agencies are the "leading source of capital for CEE funds, accounting for more than half of total fundraising sources in 2010. Despite of that, the CEE fundraising remains only 3 percent of the total funds raised in Europe in 2010 (EVCA Central and Eastern Europe Statistics 2010).

A year of 2009 was a breakthrough of venture capital emergence in Lithuania. The venture capital association has been established and the agreement with EIF (European Investment Fund) signed for implementing JEREMIE initiative in Lithuania. Still the private equity investments in Lithuania represented only 0,006 percent of GDP in 2010 (EVCA Central and Eastern Europe Statistics 2010).

The Joint European Resources for Micro- to Medium Enterprises (JEREMIE) was launched by EU Commission and the EIF. This Initiative aims to provide risk capital to innovative SMEs through the venture capital funds (EIF). EIF is leading investor in venture capital market and their "By taking SME risk, EIF promotes entrepreneurship, innovation, job creation and regional development" (EIF annual report 2010).

Table 2 presents the country and the amount of agreements under the JEREMIE initiative. Lithuania is one of the leaders in terms of the JEREMIE holding funds agreement.

JEREMIE holding fund (HG), which is managed by EIF covers the following instruments: venture capita funds, co-investment fund, pre-seed and venture capital fund, credits, portfolio guarantees. In this article we are interested in equity instruments.

Table 2. Signed JEREMIE Funding Agreements

Country	mEUR
Greece	250
Romania	100
Latvia	91.5
Lithuania	210
Languedoc Roussillon (France)	30
Campania (Italy)	90
Slovakia	100
Cyprus	20
Bulgaria	200
Sicily (Italy)	60
Malta	10

Data source: Jeremie - A new way of using EU Structural Funds to promote SME access to finance via holding Funds.

For equity instruments in Lithuania three financial intermediaries were selected in 2010: BaltCAP, LitCapital and the consortium of STRATA and MES invest. The first two intermediaries are for the management of venture capital funds, and the latter is for the management of Business Angels Co-investment Fund.

Moreover, the first steps were made for launching first Seed Fund in Lithuania in 2011. The EIF have selected the team of professional titled "CEE Capital" to manage the "Seed and venture capital Fund". As the newsletter in website of Ministry of Economy of Lithuania Republic reads "The new Seed and Venture Capital Funds will have a target size of EUR 20.7 million in aggregate and will provide pre-seed to expansion financing as well as business support for Lithuanian enterprises with growth potential." (European Investment Fund selects new manager for risk capital funds in Lithuania).

"Evaluation of relevance of Lithuanian legal and financial framework for establishment and implementation of financial engineering measures for SME development funded from the EU Structural Funds" (2010) presented by Maniokas, indentifies the dualism in administration of financial engineering instruments, because the national body INVEGA meets all requirements for holding funds' management. There is "Slower than planned use of JEREMIE HF funds" indentified among the main weaknesses too. Table 3 depicts that this problem is obvious, and it represents performance of those two venture capital funds and on business angels' co-investment funds in Lithuania.

Table 3. The funds raised under JEREMIE initiative in Lithuania

Funds' name (manager)	Fund's size mEUR	Signed agreements, mEUR*	Number of portfolio companies
Lithuania SME Fund (BaltCap)	20	0,87	1
LitCapital fund (LitCapital)	20	2,32	2
Business angels'fund I (STRATA and MES invest)	8	2,8**	7

Data source: www.ukmin.lt

**numbers extracted from the News in www.ukmin.lt website.*

***predicted maximum number, assumed that one agreement cannot exceed approximately 0.4mEUR.*

Maniokas (2011) in his presentation depicts main conclusion of evaluation that "Current FE instruments are suitable for SME promotion during the economic crisis and addressing market gaps", whereas the economic context and time limits influenced that some financial engineering instruments were not optimal.

The other risk occurs due to lack of accounting of FE instruments. "EU SF regulations and Lithuanian legislation do not specifically regulate accounting of the funds" (Maniokas 2011). It threatens about the shortage of data for the evaluation of instruments of public policies.

5. Conclusions

Most researchers are based on quantitative methodology and "patents count" is main indicator in measuring venture capital impact on innovation in investee. New aspects toward measuring innovation in firm level should be discussed. When measuring innovation "patent counts" should be one of indicators but not the main. We consider innovation more than just product innovation or patents, in such a way that new activities at firm level, which generates any benefits (yield profit, minimizing costs, hiring new professionals, new internationalisation activities and etc.) for venture. Moreover qualitative methods could be a valuable instrument for measuring innovation in firm level perspective.

Governments' intervention in venture capital market is analyzed more frequent in recent years. Recent research evidences by Brander, Du and Hellmann (2010a, 2010b) underpin the government intervention in venture capital is better in terms of supporting venture capital firms, instead of raising government owned venture capital funds. Therefore the explicit public policy instrument's goals and effective regulator system should be foreseen when designing schemes for developing venture capital market in order to improve SMEs access to finance.

JEREMIE initiative implementation increased the supply of risk capital for SMEs in Lithuania. Still the equity linked instrument's implementation process is too prolonged and only few investments in innovative companies are made. Still there is lack of information about the ongoing investments. Thus Lithuanian government should concern about the dissemination of the results of current activities, it could inspire potential target SMEs to participate.

References

Adamoniene, R.; Trifonova, J. 2007. The State Support for small and Medium Sized Companies: General and Practical Aspects of Lithuania. *Inzinerine Ekonomika-Engineering Economics*(1): 16-21.

Adekola, A.; Korsakiene, R.; Tvaronaviciene, M. 2008. Approach to Innovative Activities by Lithuanian Companies in the Current Conditions of Development. *Technological and Economic Development of Economy*, 14(4): 595-611. http://dx.doi.org/10.3846/1392-8619.2008.14.595-611

Brander J.A.; Egan E. J.; Hellmann F. 2008. Government Sponsored Versus Private Venture Capital: Canadian evidence. Working Paper 14029. [online] [accessed 27 December 2011]. Available from Internet: http://www.nber.org/papers/w14029

Brander, J. A.; Du, Q.; Hellmann, Th.J. 2010b. *The Effects of Government-Sponsored Venture Capital: International Evidence*. NBER Working Paper No. 16521. [online] [accessed 27 December 2011]. Available from Internet: http://www.nber.org/papers/w16521.pdf

Brander, J.; Du, Q.; Hellmann, Th. 2010a. *Governments as Venture Capitalists: Striking the Right Balance in Globalization of Alternative Investments*, Working Papers Volume 3: The Global Economic Impact of Private Equity Report 2010, World Economic Forum: 25-52. [online] [accessed 27 December 2011]. Available from Internet: https://members.weforum.org/pdf/FinancialInstitutions/PrivateEquity_VolIII_WorkingPapers.pdf

Burgel, O. 2000. *UK Venture Capital and Private Equity as an Asset Class for Institutional Investors*. Research Report [online] [accessed 27 December 2011]. Available from Internet: http://admin.bvca.co.uk/library/documents/assetclassfull.pdf

Caselli, S.; Gatti, S.; Perrini, F. 2009. Are Venture Capitalists a Catalyst for Innovation? *European Financial Management*, 15(1): 92-111.

http://dx.doi.org/10.1111/j.1468-036X.2008.00445.x

Communication from the Commission. EUROPE 2020: A strategy for smart, sustainable and inclusive growth COM(2010) 2020 final. [online] [accessed 27 December 2011]. Available from Internet: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF

Cowling, M.; Bates, P.; Jagger, N.; Murray, G. 2008. *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. [online] [accessed 27 December 2011]. Available from Internet: http://www.hmrc.gov.uk/research/report44.pdf

Cumming, D. 2007. Government policy towards entrepreneurial finance: Innovation investment funds. *Journal of Business Venturing*, 22(2):193-235. http://dx.doi.org/10.1016/j.jbusvent.2005.12.002

Cumming, D.; Johan, S. 2009. Pre-seed government venture capital funds. *Journal of International Entrepreneurship*, 7(1): 26-56. http://dx.doi.org/10.1007/s10843-008-0030-x

D'adda, D. 2009. *VC Financing and Patenting in new Technology-Based Firms: An Empirical Study*. [online] [accessed 27 December 2011]. Available from Internet: http://www2.druid.dk/conferences/viewpaper.php?id=4537&cf=33

Da Rin, M., Penas, M. F. 2007. *The Effect of Venture Capital on Innovation Strategies*. Working Paper 13636. [online] [accessed 27 December 2011]. Available from Internet: http://www.nber.org/papers/w13636.pdf

Dahlstrom T.R. 2009. *The Rise and Fall of the Participating Securities SBIC Program: Lessons in Public Venture Capital Management*. Perspectives In Public Affairs, School Of Public Affairs, Arizona State University. Available from Internet: http://pipa.asu.edu/wp-content/uploads/2009/09/ppa_6-1.pdf#page=63

Del-Palacio, I.; Zhang, X.; Sole, F. 2010. The capital gap for small technology companies: public venture capital to the rescue? *Small Business Economics*, 1-19. http://dx.doi.org/10.1007/s11187-010-9275-6

EIF annual report 2010. [online] [accessed 6 december 2011]. Available from Internet: http://www.eif.org/news_centre/publications/annual_report_eif_2010.pdf

Engel, D.; Keilbach, M. 2007. Firm-level implications of early stage venture capital investment -- An empirical investigation. *Journal of Empirical Finance*, 14(2): 150-167. http://dx.doi.org/10.1016/j.jempfin.2006.03.004

European Investment Fund (EIF). JEREMIE - Joint European Resources for Micro to Medium Enterprises. [online] [accessed 27 December 2011] Available from Internet: http://www.eif.org/jeremie/

European Investment Fund selects new manager for risk capital funds in Lithuania. [online] [accessed 27 December 2011]. Available from Internet: http://www.ukmin.lt/en/dokumentai/ziniasklaidai/detail.php?ID=31152

EVCA Central and Eastern Europe Statistics 2010. [online] [accessed 27 December 2011]. Available from Internet: http://www.evca.eu/uploadedfiles/PBCEE10.pdf

Ferrary, M.; Granovetter, M. 2009. The role of venture capital firms in Silicon Valley's complex innovation network. *Economy and Society*, 38(2):326-359. http://dx.doi.org/10.1080/03085140902786827

Fitza, M.; Matusik, S. F.; Mosakowski, E. 2009. Do VCS Matter? The Importance of Owners on Performance Variance in Start-up Firms. *Strategic Management Journal*, 30(4), 387-404. http://dx.doi.org/10.1002/smj.748

Gans J.S.; Stern, S. 2000. *When Does Funding Research by Smaller Firms Bear Fruit?: Evidence From the SBIR Program*. NBER Working paper no. 7877. [online] [accessed 27 December 2011]. Available from Internet: http://www.nber.org/papers/w7877.pdf

Hirukawa, M.; Ueda, M. 2011. Venture Capital and Innovation: Which is First? *Pacific Economic Review*, 16(4): 421-465. http://dx.doi.org/10.1111/j.1468-0106.2011.00557.x

Huang Chien-Wen Lee, Fung-Wu, Chu Pin-Yu (n.d.). *Evaluation of government Subsidy R&D Program – The Comparative Study of SBIR between Taiwan and the U.S. Proceeding of the Second Workshop on Knoweledge and electronic Commerce*. Available from Internet: http://moe.ecrc.nsysu.edu.tw/english/workshope/2004/4.pdf

Jääskeläinen, M.; Maula, M.; Murray, G. 2007. Profit distribution and compensation structures in publicly and privately funded hybrid venture capital funds. *Research Policy*, 36(7): 913-929. http://dx.doi.org/10.1016/j.respol.2007.02.021

Jeng, L. A., & Wells, P. C. 2000. The determinants of venture capital funding: evidence across countries. *Journal of Corporate Finance*, 6(3): 241-289. http://dx.doi.org/10.1016/s0929-1199(00)00003-

JEREMIE - A new way of using EU Structural Funds to promote SME access to finance via holding Funds. [online] [accessed 27 December 2011]. Available from Internet: http://www.eib.org/projects/publications/jeremie-a-new-way-for-using-eu-structural-funds-to-promote-sme-access-to-finance-via-holding-funds.htm

Kortum, S.; Lerner, J. 2000. Assessing the contribution of venture capital to innovation. *Rand Journal of Economics*, 31(4): 674-692. http://dx.doi.org/10.2307/2696354

Leleux, B.; Surlemont, B. 2003. Public versus private venture capital: seeding or crowding out? A pan-European analysis. *Journal of Business Venturing*,

18(1): 81-104. http://dx.doi.org/10.1016/S0883-9026(01)00078-7

Lerner, J. 1999. The government as venture capitalist: The long-run impact of the SBIR program. *Journal of Business*, 72(3): 285-318. http://dx.doi.org/10.1086/209616

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. http://dx.doi.org/10.1007/s11187-008-9109-y

Maniokas K. 2011. Application of financial engineering to EU Structural funds in Lithuania: overview of initial experience and evaluation findings. International Evaluation Conference "What's New and What Works in the EU Cohesion Policys 2007-2013: Discoveries and Lessons for 2014-2020". (4 March 2011). [online] [accessed 27 December 2011]. Available at internet: http://www.esparama.lt/es_parama_pletra/failai/fm/failai/Verinimo_konferencija_2011/Konferencijos_pranesimai/2nd_day_B_session_Financial_engineering/2.2.B._Financial_engineering/2.2.B_Maniokas_EN.pdf

McCahery, J. A.; Vermeulen, E. P. M. 2010. Venture capital beyond the financial crisis: how corporate venturing boosts new entrepreneurial clusters (and assists governments in their innovation efforts). *Capital Markets Law Journal*, 5(4):471-500. http://dx.doi.org/10.1093/cmlj/kmq018

Ministry of Economy of the Republic of Lithuania. [online] [accessed 27 December 2011]. Available from Internet: http://www.ukmin.lt/en/

Murray, G. 1999. Early-stage venture capital funds, scale economies and public support. Venture Capital, 1(4), 351-384. http://dx.doi.org/10.1080/136910699295857

Organisation for Economic Co-operation and Development. 1997. Government Venture Capital for Technology-Based Firms. OCDE/GD(97)201. OECD Directorate for Science, Technology and Industry. [online] [accessed 27 December 2011]. Available from Internet: http://www.oecd.org/dataoecd/14/7/2093654.pdf

Peneder, M. 2010. The impact of venture capital on innovation behaviour and firm growth. *Venture Capital*, 12(2): 83-107. http://dx.doi.org/10.1080/13691061003643250

Snieska, V.; Venckuviene, V. 2009. *Venture Capital a Catalyst for Early Stage Business Development, in Changes in Social and Business Environment*, Panevėžys, Lithuania, Kaunas: Kaunas Univ Technology Press:383-386.

Snieska, V.; Venckuviene, V. 2010. Peculiarities of Venture Capital in Financing the Early Stage Business in Lithuania. In R. Ginevicius, A. V. Rutkauskas, R. Pocs & J. Stankeviciene (Eds.), 6th *International Scientific Conference Business and Management 2010*, Vol. I and II: 207-214.

Snieska, V.; Venckuviene, V. 2011. Hybrid Venture Capital Funds in Lithuania: Motives, Factors and Present State of Development. *Inzinerine Ekonomika-Engineering Economics*, 22(2): 157-164.

Tamosiunas, T., Lukosius, S. 2009. Possibilities for Business Enterprise Support. *Inzinerine Ekonomika-Engineering Economics*(1): 58-64.

Ughetto, E. 2010. Assessing the contribution to innovation of private equity investors: A study on European buyouts. *Research Policy*, 39(1):126-140. http://dx.doi.org/10.1016/j.respol.2009.11.009

Wallsten, S.J. 2000. The effects of government-industry R&D programs on private R&D: the case of the Small Business Innovation Research program, *RAND Journal of Economics* 31:82–100. http://dx.doi.org/10.2307/2601030