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GOVERNMENT VENTURE FUNDS

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List of Abbreviations

AISCF – The Alternative Investments Specialized Common Fund

BIRD - The Binational Industrial Research and Development Foundation

CEO – Chief Executive Officer

CVC – Corporate Venture Capital

DM – Deutsche Mark

EU – The European Union

EVCA - European Private Equity and Venture Capital Association

FII – Finnish Industry Investment

FVCA – Finnish Venture Capital Association

GDP- Growth Domestic Product

GP – General Partner

GVFs - The Government Venture Funds

IFF- Innovation Investment Fund

IPO- Initial Public Offering

LP – Limited Partner

LSVCC- Labour Sponsored Venture Capital Corporation

MSA – Metropolitan Statistical Area

NADSME - National Agency for Development of Small and Medium Enterprises

NASDAQ- National Association of Securities Dealers Automated Quotations

NIS - New Israeli Shekel

NTBFs – New Technology Based Firms

NVCA - National Venture Capital Association

OCS – The Office of the Chief Scientist

PE – Private Equity

PEF – Private Equity Fund

PHARE - Poland and Hungary: Assistance for Restructuring their Economies

PVC – Private Venture Capital

R&D – Research and Development

SAEF – The Slovak American Fund

SARIO – Slovenská agentúra pre rozvoj investícií a obchodu (Slovak Investment and Trade Development Agency)

SBAN – The Slovak Business Angels Network

SBIR – Small Business Innovation Research

SCFPI- The Specialized Common Fund of Professional Investors

SGCF – The Slovak Growth Capital Fund

SLOVCA – Slovak Venture Capital Association

SMEs – Small and Medium Enterprises

SU – Start up

TFP- Total Factor Productivity

TLE – Tax and Legal Environment

UCITS – Undertaking for Collective Investment in Transferable Securities

VC – Venture Capital

VCM - Venture Capital Market

VCs – Venture Capitalists

WFG – Wagnisfinanzierungsgesellschaft

Introduction

There is no doubt that each government tries to create a favorable environment for entrepreneurs. Moreover, the governments compete amongst themselves in establishing more competitive entrepreneurial environments than others from other countries.[1] The reasons are simple - to boost economic growth and generate more jobs. One way how the governments face these challenges is through kick-starting of the Venture Capital Market (hereinafter referred to as VCM). Apart from setting up the attractive environment public representatives also intervene directly in the form of increasing the supply of Venture Capital[2].

The main objective of this paper is to explore in depth the role of governments within the VCM as direct investors and subsequently assess their performance in comparison with Private Venture Funds. In the first chapter, we will introduce the Venture Capital itself, factors affecting its intensity on capital market and its positive effects on economy. Afterwards, in the second chapter we will work with three hypotheses, which are as follows:

a) The Government Venture Funds (hereinafter referred to as GVFs) are presented in countries where Venture Capital has not spawned enough or Venture capital investments have slowed down.

b) The GVFs tend to incentivize the Venture Capital Market.

c) The Governments are right subjects for penetrating into the VCM as direct investors.

To analyze and evaluate the above hypotheses, we review academic literature and available empirical data. Afterwards, we plan to design a suitable structure for the GVFs resulting

[1] At 'doing business' website we can see how economies are ranked in regard of their ease of doing business, from 1 – 183. Ranking at <http://www.doingbusiness.org/rankings>; 17-02-2011.
[2] Lerner, J.: Boulevard of BROKEN DREAMS. Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed - and What to Do about it. Princeton University Press, 2009, p. 87.

from current studies about GVFs. In the third part, we will present two case studies of Government Supported Venture Funds from Israel and Finland and picture policies, which are applied in the countries and analyze their negative and positive performance features. The purpose of the fourth part is twofold, as we firstly shed light on government venture funds in Slovakia and we investigate, in comparison with other GVFs, the reasons which stand behind the poor performance of the government fund and secondly, the overall low venture capital activity in this country. Finally, we will discuss the outcomes and their potential implications in conclusion.

I. Chapter: Venture Capital as a part of wealthy economy

2.1 Introduction of Venture Capital (VC)

The term "venture capital" is not clearly defined in the literature, in particular in different parts of the world (Bader 1996; Schefczyk, 2000), because it has emerged by practice and not as a result of a theoretical construction (Bader, 1996). In Europe, venture capital and private equity are usually terms used interchangeably. In contrast to this, in the USA venture capital typically refers to the provision of funds for young, entrepreneurial businesses and private equity is mainly associated with the financing of leveraged management buy-outs and buy-ins.[3]We prefer to use them differently as they both target businesses in different development stages. Therefrom we classify venture capital as a subset of private equity investment, distinguished by the fact that funds are contributed to businesses that are starting up or are at an early stage in their development process before any profit has been earned.[4]

Further characteristics of a VC, which represent its role, are:

- The VC is a *financial intermediary* as it takes investors' capital and then funds it to businesses with risky product introduction strategies. VC helps young entrepreneurial firms which encounter difficulties while raising funding because of two imperfections in capital markets.[5] The first one is an agency problem[6] between investors and entrepreneurs resulting in limited ability of young firms to raise equity funding. The investors cannot usually ignore entrepreneurs' excessive incentives to spend the firm's money since they do not bear the full cost of the expenditure. Furthermore, the banks are not willing to provide debt financing to entrepreneurs, who from their perspective,

[3] Burgel, O.: UK Venture Capital and Private Equity as an Asset Class for Institutional Investors. Research Report, January 2000, p. 4.
[4] Armour, J. and Cumming, D.: The legislative road to Silicon Valley. Oxford University Press, 2006, p. 2.
[5] Keuschnigg, Ch. and Nielsen, S. in Tax policy, venture capital, and entrepreneurship listed some reasons of financing difficulties of early stage businesses such as a lack of collateral and the absence of any past track record.
[6] For more information see Theory of the Firm by Jensen and Meckling (1976).

have tendencies to take on excessive risk from their perspective. The banks consider as extremely risky that entrepreneurs benefit if a firm concerned is successful, while the banks are left alone if the firm fails. The second imperfection is called asymmetric information, which causes the equity investors to be suspicious that entrepreneurs would only issue equity when the firm is overvalued (Akerlof 1970; Greenwald, Stiglitz and Weiss, 1984). In addition, banks may conclude that the interest rate of loans available to entrepreneurs would attract only high risk entrepreneurs (Stiglitz and Weiss, 1981).[7] Upon findings above VC is rightly considered as "risky capital" or "alternative financing to traditional bank (debt) financing".

- A VCs invests only in *the equity of private companies*, in which information about them are practically nonexistent, *for a limited time*.[8] The lack of information requires Venture Capitalists to employ detailed screening processes to generate information about the firm and the entrepreneur (Chan 1983).[9] Venture capital investments are long term investments, typically lasting for 2 to 6 years.[10]

- Venture Capitalists (VCs) *play active role in their portfolio companies*. They do not provide just funding, but also value adding services such as guidance in a form of monitoring and assistance that helps the entrepreneurs to turn their efforts into successes.[11] VCs are able to enhance the management of a firm backed by VC, to motivate its employees and give them better incentives to contribute to success of the firm and to provide an access to their network of contacts among suppliers and potential customers.[12] To do so the VCs usually take at least one seat on the board of directors of their portfolio firms (Cornelli and Yosha, 2003; Hellmann, 1998), which

[7] Lerner, J. and Tåg ,J.:Institutions and Venture Capital. IFN Working Paper No. 897, 2012. p. 4.
[8] Metrick, A.,Yasuda, A.: Venture capital and the finance of innovation, 2nd ed, 2011. p. 5.
[9] Lerner, J. and Tåg, J.:Institutions and Venture Capital. IFN Working Paper No. 897, 2012. p. 5.
[10] Cumming, D. and Johan, S.A.: Venture Capital and Private Equity Contracting, Elsevier, 2009. p. 5.
[11] Thomas Hellmann (in his Venture Capitalists: The Coaches of Silicon Valley) sees an analogy between the role of VC and sport coaches as follows: *„The entrepreneurs are like the athletes, who fight the actual game and get the most glory in case of success. The venture capitalists are like the coaches, who choose which athletes get to play, who train and motivate them, and who try to create the most favourable conditions for them to succeed."*
[12] Chemmanur, T. J., Krishan, K., Nandy, D.k.:How Does Venture Capital Financing Improve Efficiency in Private Firms? A Look Beneath the Surface, Oxford University Press, 2011. p. 2.

would allow them to participate in decision making at the highest level. The problem of young companies to attract talented employees could be also mitigated by VCs presence as they can provide such talents a valuable reputation and business contacts.[13]

- The VCs focus is to fund internal growth of companies. Internal growth is perceived as the investments proceeds are used to build new businesses, not to acquire existing businesses. This scenario was typical for more for traditional VC investments, which backed so called garage companies. Nowadays, the VC investments are more dispersed and portfolio companies of Venture funds are divided either to early-stage, mid-stage or late-stage.[14] A VC as a financial intermediary is well suited to support the formation and growth of innovative, entrepreneurial companies (Hellmann and Puri, 2000). Its specialization is in financing and nurturing companies at an early stage of development ('start-ups') that operate in high-tech industries.[15] Venture capital is often referred to as the money of invention (see, e.g., Black and Gilson, 1998).[16]

- The VC's main objective is a profit maximizing either through Initial Public Offering or exiting through a sale. This is a feature, which distinguishes it from a strategic investment by large corporation (corporate venture capital). While corporations purchase equity of other businesses and keep them indefinitely for different reasons such as forming long-term alliances, earning income, providing access to new capabilities or to devour a competitor, the main goal of VC's in taking stakes in new businesses is solely on maximizing of financial return.[17] Financial market development is important because a developed stock market provides good exit opportunities for venture capital firms.[18] It is supported by Black and Gilson (1998), who illustrated the significance of developed stock markets by comparing venture capital markets in the US, Japan, UK and Germany. Jeng and Wells (2000) empirically proved that venture

[13] Metrick, A.;Yasuda, A.: Venture capital and the finance of innovation, 2nd ed, 2011. p. 5.
[14] Metrick, A.;Yasuda, A.: Venture capital and the finance of innovation, 2nd ed, 2011. p. 5.
[15] Keuschnigg, Ch. and Nielsen, S.: Tax policy, venture capital, and entrepreneurship, 2003. p. 1.
[16] Cumming, D. and Johan, S.A.: Venture Capital and Private Equity Contracting, Elsevier, 2009. p. 4.
[17] Metrick, A.,Yasuda, A.: Venture capital and the finance of innovation, 2nd ed, 2011. p. 5.
[18] Lerner, J. and Tåg, J.:Institutions and Venture Capital, IFN Working Paper No. 897, 2012. p. 6.

investing is more active in countries that have more initial public offerings (IPOs). Initial public offerings (IPOs) are named to be one of the primary forms of exit for VC's (Chaplinsky and Mukherjee, 2010).

2.2 The impacts of Venture Capital investing on the real economy

We assume that in knowledge-based economies, successful innovation is one of the main sources of economic growth and job creation; therefore we will start reviewing research papers examining the relationship between the Venture Capital and the innovation. Subsequently we will review its effects on job creation; performance of VC-backed companies and economic growth itself. Before we start we need to explain the "selection" and "value-adding" effects while analyzing the impact of VC financing. The literature derives a positive relation between VC financing and funded companies' superior performance from two different reasons. One reason lies in selection effect (screening), thus the VC's pick the high quality companies with perspective future prospects and the second one is the result of monitoring and advice provided by VC's (value-adding effect).[19]

2.2.1 Venture capital and innovation

Despite the widespread opinion that the VC is a stimulus for economic growth and innovation, we decided to review and to brace this outlook by relevant research studies. We start with *Hellmann and Puri* [20], who proved statistically that VC-backed companies are faster in developing and bringing a new product to the market than other companies. The reason of this might be that VC's usually provide staged financing that is dependent on the startup company reaching set milestones. *Kortum and Lerner*[21] investigated a patent

[19] Tykvová, T., Borell, M. And Kroencke, T.A.: Potential of Venture Capital in the European Union, 2012.
[20] Hellmann, T. and Puri, M.:The Interaction between Product Market and Financing Strategy: The Role of Venture Capital, The Review of Financial Studies, 2000.
[21] Kortum, S. and Lerner, J.: Assessing the Contribution of Venture Capital to Innovation, RAND Journal of Economics, 2000.

activity across twenty manufacturing industries in the United States and they found out that VC-back companies outperformed other non-funded companies in industrial innovation. Contrary to Kortum and Lerner's theory, *Engel and Keilbach*[22] reported that although VC-back companies registered more patents than similar companies lacking venture capital before receiving VC funding such tendency vanishes after the investment is made. *Caselli, Gatti and Perrini*[23] concluded the same outcomes by studying firms that went public on the Italian Stock Exchange between 1995 and 2004. *Hirukawa and Ueda*[24] also challenged the Kortum and Lerner's research and opposed that patenting firms face significant slowdown of patenting activities once they obtain VC. On the other hand, *Bertoni, Croce and D'Adda*[25] analyzed the impact of Venture Capital financing on the innovation activity of European New Technology-Based Firms (NTBFs) and clearly showed that VC financing fuels firm's total factor productivity (TFP). The difference in TFP levels in comparison to the similar non VC-backed firms was statistically substantial. In addition, *Popov and Roosenboom*[26] found that better access to private equity and venture capital have a positive impact on the number of patents. Upon the results of research papers above we can say that there is an evidence for both reasons explaining a positive relationship between VC financing and innovations. However, the studies have not reported any significant differences in the technological quality of patents obtained by the non-VC-backed and the VC- back companies.[27]

2.2.2 Venture Capital impact on economic growth, performance of portfolio companies and job creation

[22] Engel, D. and Keilbach, M.: Firm Level Implications of Early Stage Venture Capital Investment – An Empirical Investigation, Journal of Empirical Finance, 2007.
[23] Caselli, S., Gatti, S., Perrini,F.: Are Venture Capitalists a Catalyst for Innovation? 2009.
[24] Hirukawa, M. and Ueda, M.: Venture Capital and Innovation: Which is First?, 2008.
[25] Bertoni, F., Croce, A. and D' Adda, D.: Venture Capital Investments and Patenting Activity of High-tech Start-ups: A Micro-econometric Firm-level Analysis, 2009.
[26] Popov, A. A. and Roosenboom, P.: Does Private Equity Investment Spur Innovation? Evidence from Europe, 2009. In Venture Capital and Industrial Innovation: Evidence from Europe (2011) the authors reported that European risk capital markets are substantially less efficient than US in spurring innovation and that VC had a comparably weak effect on innovation in the US over the 1991-2005 period.
[27] Tykvová, T., Borell, M. And Kroencke, T.A.: Potential of Venture Capital in the European Union. 2012.

In 2011 Samila and Sorenson[28] published their study revealing the positive effects of VC on the economic growth. They explored both cross- sectional and longitudinal variation in the supply of venture capital across and within Metropolitan Statistical Areas (MSAs). They validated that increase in the supply of venture capital in MSA stimulates the production of new firms in the region.[29] It is also supported by the mechanisms that entrepreneurs may incorporate the availability of venture capital into their calculations when seeking finance to start their firms. The inspiration effect of VC-back companies on future entrepreneurs is also not negligible. In addition, the local supply of venture capital appears to enhance both employment and aggregate income in the region.[30]

While the outcomes of research studies about correlation of venture capital and innovation are inconsistent, we do not face this problem in assessing performance of portfolio companies. *Engel and Keilbach*[31] delivered the evidence that venture-funded firms achieve significantly higher growth rates compared to their non-venture-funded counterparts; hence venture capital firms make a significant contribution in this respect. The entrepreneurial finance papers have pointed out two ways through which VC investments positively affect the growth of portfolio firms.[32] VC's are able to identify new innovative firms with great prospect and to sponsor them with adequate financing; thereof act as a "scout", but they may also act as a "coach" and help them to extend their set of resources and capabilities and allow them to achieve growth performances that would be impossible without this support. Portfolio companies may use the network of social contacts of VC investors and to get access to external resources and competencies that are not available for non-VC-backed firms (Colombo et al., 2006; Hsu, 2006; Bottazzi et al., 2008).[33] The

[28] Samila, S. and Sorensen, O.: Venture Capital, Entrepreneurship, and Economic Growth, The Review of Economics and Statistics, 2011.

[29] The reasoning that VC stimulates start-up activity was demonstrated on results that the number of firms funded by VC's in a region contributed to an establishment of 0.48% to 3.78% more new establishments on average.

[30] Samila, S. and Sorensen, O.: Venture Capital, Entrepreneurship, and Economic Growth, The Review of Economics and Statistics, 2011.

[31] Engel, D. and Keilbach, M.: Firm Level Implications of Early Stage Venture Capital Investment – An Empirical Investigation, Journal of Empirical Finance, 2007

[32] Baum, J. A. C. and Silverman, B.S.: Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology start-ups. 2003.

[33] G. Colombo, M. and Grilli, L.: On growth drivers of high-tech start-ups: Exploring the role of founders' human capital and venture capital, Elsevier, 2009.

coach approach was more significant than scout approach in Bertoni, D'Adda, Grilli's analysis.[34] They explored a sample of 202 New Technology-Based Firms (NTBFs) operating in Italy through survey based data (RITA directory) collected in 2004 and importance of the "frog kissing".[35] Even Hellmann and Puri (2002) underlined the impact of venture capital on the development of new firms and claimed that VC's through their value-added services are able to "professionalize" the firm (hiring the best possible management team, replacement of the founder by an outsider in the position of CEO). However, Caselli, Gatti and Perrini concluded that the role of venture capital in Italy does not seem to promote innovation, but it is mainly concerned with the growth of sales.[36] Such conclusion does not concern the venture capital as a whole, but only those that used an IPO as an exit strategy as they were using data from Italian venture backed and non-venture backed companies traded on the Italian Stock Exchange between 1995 and 2004.

The VC impact on employment has been conducted by Davila, Foster and Gupta[37], who found that VC-backed firms enjoy more rapid growth in employment before the first VC round with acceleration in the months afterwards, thus the presence of a venture capitalist helps to attract employees and, thus, to speed company growth.[38] In 2002 Engel[39] demonstrated that VC's are more capable to drive the firms to a higher and faster employment growth than other investors and that surviving venture-backed firms achieve higher growth rates than surviving non-venture-backed firms in Germany. The study conducted by Bertoni, Colombo and Grilli[40] analyzed the causality relationship between VC

[34]Bertoni, F.,D'Adda, D. and Grilli, L.: Cherry picking or frog kissing? The matching process between venture capital and high-tech entrepreneurial ventures. 2011.

[35] The ventures, which were not necessarily best-performers ("cherries to pick"), were throughout the text called "frogs" which can be turned into "princes" by the "kiss" of the VC.

[36] Caselli, S.,Gatti, S. and Perrini, F.:Are Venture Capitalists a Catalyst for Innovation? European Financial Management, Vol. 15, No. 1, 2009.

[37] Davila, A., Foster, G., and Gupta, M.: Venture capital financing and the growth of start-up firms, Journal of Business Venturing, 2003.

[38] Balboa, M., Martí, J., and Zieling, N.: Does venture capital really improve portfolio companies' growth?, Evidence from growth companies in Continental Europe, 2006.

[39] Engel, D.: The Impact of Venture Capital on Firm Growth: An Empirical Investigation. ZEW Discussion Paper No. 02-02, 2002.

[40] Bertoni, F., Colombo, M., and Grilli, C.: Venture capital financing and the growth of new technology-based firms: A Longitudinal Analysis, 2005.

financing and the growth of NTBFs. It resulted in the strong evidence of a considerably higher employment growth of VC-backed companies when compared to the non-VC backed companies. Balboa, Martí, and Zieling testing the 250 Spanish VC-backed companies at extension stage between 1993 and 1999 discovered that the sales and employment growth of VC-backed companies at the expansion stage is not significantly different from that of comparable non-VC-backed companies prior to the investment, while it is different from that moment on.[41] The different conclusion was originated by Manigart and van Hyfte[42], who did not find any difference in employment growths between the sample of Belgian VC-backed companies compared to non-venture backed firms of the same industries, with similar size and age. The European Venture Capital Association issued the Research Paper on the Economic and Social Impact of Venture Capital in Europe in 2002. Questionnaires were sent to a sample of companies across the Europe, which received venture capital funding between 1995 and 2001. This report considered the 364 replies that were received. The results showed that around 90% of responding investee companies declared an increase in the total number of employees following the venture capital investment, a total of 16,143 additional new jobs were created after the investment by the 351 companies who responded to this part of the survey and on average, 46 new jobs were created per company.[43]

Finally, we need to say that the Venture capital operates at a small scale and even in the regions with the largest supplies it funds no more than roughly 4 out of every 100 start-ups.[44] This might be a reason why many skeptics underestimate its role in the economy. Even though, that VC's provide funding to small amount of companies (precisely selected by VCs), we cannot forget its significant contribution to the state of art we can enjoy today.

[41] Balboa, M., Martí, J., and Zieling, N.:Does venture capital really improve portfolio companies' growth? Evidence from growth companies in Continental Europe, 2006.

[42] Manigart, S., van Hyfte, W.: Post-investment Evolution of Belgian Venture Capital Backed Companies: an Empirical Study, Babson Entrepreneurship Conference Working Paper, 1999.

[43] http://www.evca.eu/uploadedFiles/Home/Knowledge_Center/EVCA_Research/Economical_Impact/EconomicImpactofVentureCapital.pdf. <17th March 2012>

[44] Samila, S. and Sorensen, O.: Venture Capital, Entrepreneurship, and Economic Growth, The Review of Economics and Statistics, 2011.

Companies Founded With Venture Capital:

Source: www.nvca.org

II. Government as a player in venture capital market

While we were reviewing literature on venture capital and found its positive effects on a real economy in the first chapter, we will analyze the relationship between governments and their activities towards venture capital and venture capital market here. It is generally accepted that each government has an objective to create an active venture capital market and thus reduce the funding constrains to young entrepreneurial companies. The governments could enhance the Venture Capital market by creating viable environment for private venture capitalists or directly through government equity investment programmes in high-tech innovative startups. In the first part of this chapter we will briefly express suggestions for what approach the governments should ideally opt for in establishing the attractive environment for venture capitalists. The main focus will be on the direct involvements of the governments, which are more problematic. We will analyze whether the governments are the right players with relation to the Venture Capital Market and what their reasons to enter into this industry are. How do they perform in comparison to private venture investors? What are the consequences of their presence on the market? If we theoretically and empirically prove that their general contribution to the venture capital is positive, we plan to establish the most suitable structure of the fund and its governance from legal perspective, which might be used as a tool to design a successful public policy toward Venture Capital in the future.

2.1 Energizing legal and fiscal determinants for Venture Capital

The primary objective of each government should be to implement a legislation, which would be attractive and would induce venture capitalists itself. Armour and Cumming call such an approach metaphorically "The legislative road to Silicon Valley"[45] as the Silicon

[45] Armour, J. and Cumming, D.: The Legislative Road to Silicon Valley, Oxford Economic Papers, Vol. 58, pp. 596-635, 2006.

Valley case study serves as the best inspiration to many public policy makers. The major proposition presented in the literature is that venture capital flourishes in countries with deep and liquid stock markets.[46] Not just a theory, but also research papers reflect a strong connection between the liquidity of national's stock markets and the venture capital activity (Black and Gilson [1998], Gompers and Lerner [2000]). IPOs are considered as the strongest driving force of VC investing by Jeng and Wells (2000). However, they found that IPOs are a significant determinant for later stage venture capital investments, but have no impact on early stage investments across countries. It correlates perfectly with the theory, because the IPOs are the best exit strategy of profit maximizing by VCs. However, even if the governments succeed to settle the vibrant IPO market it does not guarantee a definite success in establishing the well-functioning VC market. For instance Japan, despite the promising IPO market activity still tends to lag behind Silicon Valley, when it comes to boosting entrepreneurship and Innovative companies.[47] Thereof we can conclude that the active stock market needs to be supplemented by other measures introduced by the governments. Groh, Liechtenstein, Canela[48] (2008) state that the maturity of VC markets itself could attract investors. Sapienza[49] (1996) also confirms this view as he points out that the historical development of the market determines the investors 'confidence. From the legal and fiscal determinants the governments are strongly recommended to focus on cutting capital tax gains. Keuschnigg and Nielsen[50] (2004) explain that a reduction in the capital tax gains is able to positively stimulate VC market. On the other hand they claim that the public subsidies to capital investment are welfare-reducing. We will analyze this outcome later on in the second part of this chapter. The governments should also review

[46] Armour, J. and Cumming, D.: The Legislative Road to Silicon Valley, Oxford Economic Papers, Vol. 58, pp. 596-635, 2006.

[47] McCahery, J. A. and Vermeulen, E. P. M.: Venture Capital Beyond the Financial Crisis: How Corporate Venturing Boosts New Entrepreneurial Clusters (and Assists Governments in Their Innovation Efforts), Tilburg University Legal Studies Working Paper Series No. 011/2010, 2010. The authors see as a reason of this low performance the risk diversification approach by Venture firms, which do not engage in managerial support with funded start-up companies.

[48] Groh, A. P., Liechtenstein, H. and Canela, M.A.: INTERNATIONAL ALLOCATION DETERMINANTS OF INSTITUTIONAL INVESTMENTS IN VENTURE CAPITAL AND PRIVATE EQUITY LIMITED PARTNERSHIPS, 2008.

[49] Sapienza, H., S. Manigart, and W. Vermeir (1996): Venture capitalist governance and value added in four countries, Journal of Business Venturing, Vol. 11.

[50] Keuschnigg, C. and Nielsen, S.B. (2004): Start-ups, venture capitalists and the capital gains tax, Journal of Public Economics, 88.

the regulatory policy of a scope of pension investments. Lerner and Gompers[51] (1998) attribute the change to legislation in the US in 1979 upon which the pension funds were allowed to invest into VC funds as a significant determinant of the active US Venture Capital Market. The importance of the above was promulgated by the European Commission in its Report in 2003[52]. The European Commission encouraged the Member States to improve the institutional environment, thus secondarily support the VC industry. Specifically the a) tax law reviews, b) allowance of pension funds and insurance companies to invest a part of their assets into the VC of PE industry, c) government – backed guarantee schemes and d) the creation of liquid and integrated pan- European trading platforms for high potential companies were advised to be implemented in purpose to reach this goal.[53] Another major concern of the governments must be a bankruptcy law, which should be favorable to entrepreneurs and provides little or no time to discharge for entrepreneurs. Such law is a significant determinant for successful VC market (Armour and Cumming [2006]). It was proved and revealed on the changes to the bankruptcy laws in Germany with the effect of increase of the size of its early stage venture capital markets by 3.0% relative to the average size of German venture capital markets.[54] The development of healthy stock market is also linked with other legal variables, which have less impact on VC investment activity than the already mentioned determinants, such as minority shareholder protection, anti-director rights and effective disclosure laws. Finally we bring into the attention of the governments that labor market restrictions correlate with VC/PE activity and therefore rigid labor market policies could negatively affect the attractiveness of a VC market.[55] Moreover, it is worth to remark that the governments should support universities' research and development (R&D) activities. For instance the success of Silicon Valley is closely connected to the growth and commercialization of research and development (R&D)

[51] Gompers, P.A., Lerner, J., 1998. What drives venture fundraising? Brookings Proceedings on Economic Activity—Microeconomics, pp. 149–192.

[52] European Commission Report (2003): Access to Finance for Small and Medium-Sized Enterprises, Com (2003) 713 final.

[53] Beuselinck, Ch. and Manigart, S.: Public venture capital across Europe: A 15- year perspective.

[54] Armour*, J. and* Cumming*, D.:* The Legislative Road to *Silicon* Valley, Oxford Economic Papers, Vol. 58, pp. 596-635, 2006.

[55] See Lazear (1990), Blanchard (1997) or Black and Gilson (1998).

activities by Stanford University.[56] There are also obstacles in establishing the liquid VC market, which cannot be overcome by the governments. According to Peterson (2000) and Baughn and Neupert (2003) national culture shape both individual orientation and environmental conditions, which result in different stage of entrepreneurial activity in particular countries, and which might affect the level of acceptance of a risk capital culture.[57] This is the reason why in Japan, despite a good IPO market, there are not really high levels of innovation and entrepreneurship happening at the private, independent sector. Rather, innovation is mostly carried by corporate venturing activities of large Japanese multinationals.

The experience from Japan, where despite relatively well developed IPOs market, venture capital activity is not ideal or the research study by Holtz – Eakin[58] (2000), which shows that even introducing the preferential tax treatment for SMEs (Small and Medium Enterprises) is not able to fill the equity gap in funding the innovative high potential companies, we can conclude that promoting the VC investment requires more complex solutions. It logically leads us into the first hypothesis that if governments' intervention cannot achieve the objective of creating a liquid VC market indirectly by establishing the viable institutional environment, they should directly enter into the VC industry and bridge the funding gaps to prospective start-ups companies.

2.2 Direct government involvement in VC market

As we indicated in the first part indirect measures might not always have the effects planned by the governments' namely a vibrant VC market. We suppose that this could be the main reason of governments' interest to build equity investment schemes. It might also

[56] McCahery, J. A. and Vermeulen, E. P. M.: Venture Capital Beyond the Financial Crisis: How Corporate Venturing Boosts New Entrepreneurial Clusters (and Assists Governments in Their Innovation Efforts), Tilburg University Legal Studies Working Paper Series No. 011/2010, 2010. The authors also cited some other less conventional reasons why Silicon Valley is successful such as a poor public transportation system and a lack of bars in the Valley, which encourage nerdy activities leading to innovation and technological inventions.

[57] Groh, A.P., Liechtenstein, H. and Canela, M.A.: INTERNATIONAL ALLOCATION DETERMINANTS OF INSTITUTIONAL INVESTMENTS IN VENTURE CAPITAL AND PRIVATE EQUITY LIMITED PARTNERSHIPS, 2008.

[58] Holtz-Eakin, D.: Public Policy towards Entrepreneurship, *Small Business Economics*, 2000.

result from the declining funding by private VCs or from an insufficient development of the VC market in general in particular regions or countries. We will try to objectively assess if the governments are able to stimulate the VC market. It will invariably include a comparison of the governments venture funds with the Private Venture Capitalists in terms of their performance. We anticipate that the companies backed by Private Venture Funds outperform the companies supported by the governments. We based this assumption on the simple fact of different objectives, which are pursued by them. While the former's primary interest is profit maximization, the latter focus on more goals such as a local employment level, supporting the development of the venture capital or creating links between universities and the private sector.[59] Even though we assert that the objective of the GVFs is to encourage the Private Venture Capitalist investing into new start-ups, the opposite may be true. The GVFs presence on the market might be counterproductive as the GVFs could pick up the companies, which would be otherwise funded by the Private Venture Funds. However, this can be easily minimized by creating funds with private VC funds that would invest in such innovative SMEs (f.e. Yozma). Another argument against the governments' subsidies is the fact that they drive down the profits in the venture capital industry, thus hindering the VC's ability to provide effective governance for their portfolio companies.[60] Therefore we adopt second hypothesis that the GVFs tend to crowd out the VC market. Further, upon the analysis above we will continue examining how to structure GVFs in order to accomplish their goals. Specifically the governments' possible syndication with private VC funds and the alignment of the interests between these parties need to be examined.

3.2.1 Are Government Venture Funds stimulating the Venture Capital Market?

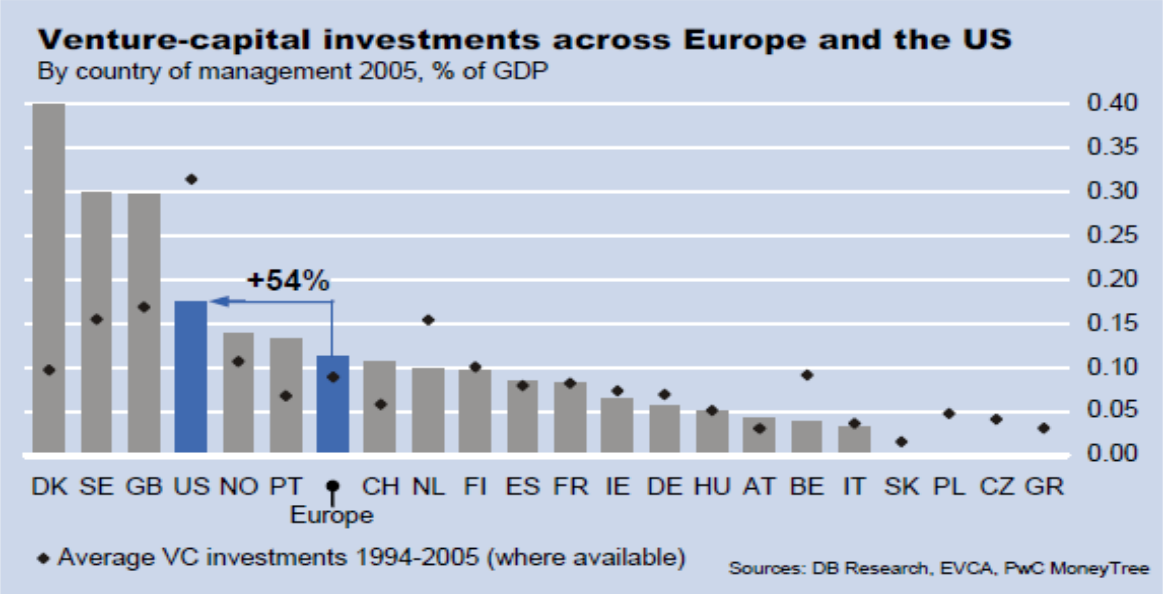
As we mentioned before we expect the governments' intervention in a VC industry either in case of an underdeveloped Venture Capital market or a decreasing activity of the Venture

[59] Bertoni, F. and Tykvova, T.: Which form of venture capital is best-suited for innovation?
[60] Armour, J. and Cumming, D.: The Legislative Road to Silicon Valley, Oxford Economic Papers, Vol. 58, pp. 596-635, 2006.

Capital flow in general. To study these assumptions, we will try to prove that in the countries with well-developed VC industry, the governments VC activity will be lower compared to the governments VC activity in countries with neglected VC market.

To start up, we will shed light on the VC market in the USA and Europe. The average VC investment as a share of GDP is widely higher in the USA than in any European countries during the 1994-2005 period. It generally shows lower VC investments in Europe[61], where the best performed country namely Great Britain (hereinafter referred to as "GB") reached only half the level of the US (see the chart 1 below). If the assumption is correct, we might observe more intensive involvement of the European governments in VC industry that their US counterpart.

Table 1: Venture Capital investment as a share of GDP in 2005, average VC investments 1994-2005[62]

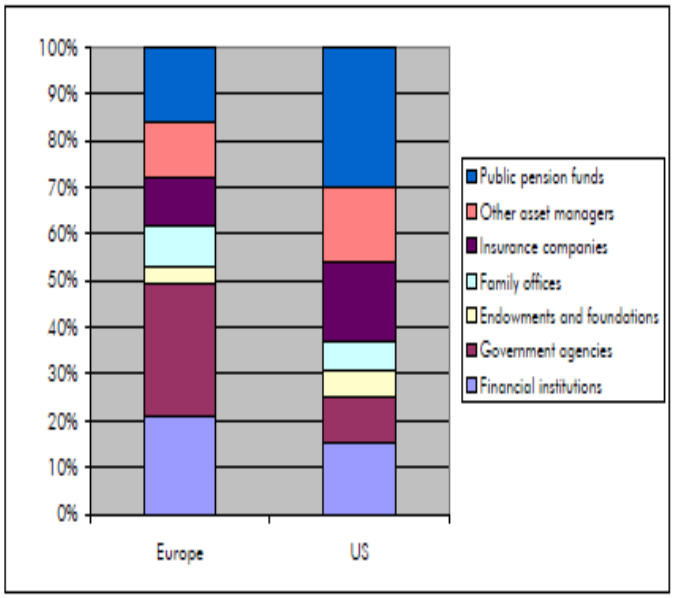


After examining the sources of VC funds in Europe and USA, it is clearly seen that the composition of sources differs markedly. While in the USA the pension funds are the biggest capital suppliers of funds by far than others sources[63], in Europe governments take

[61] Roger Kelly sees, apart from lower fundraising activity in European VC industry, the problem in a market failure in matching funds to suitable projects.
[62] Meyer, T.: Venture Capital in Europe. Spice for European economies, 2006.
[63] See the Pension reform in USA on page 13. Ronald Kelly in The Performance and Prospects of European Venture Capital shows that only UK, the Netherlands and Sweden have adopted the contributory pension schemes similar to US one. We assume that this might be a cause of relatively quite low government involvement in UK and the

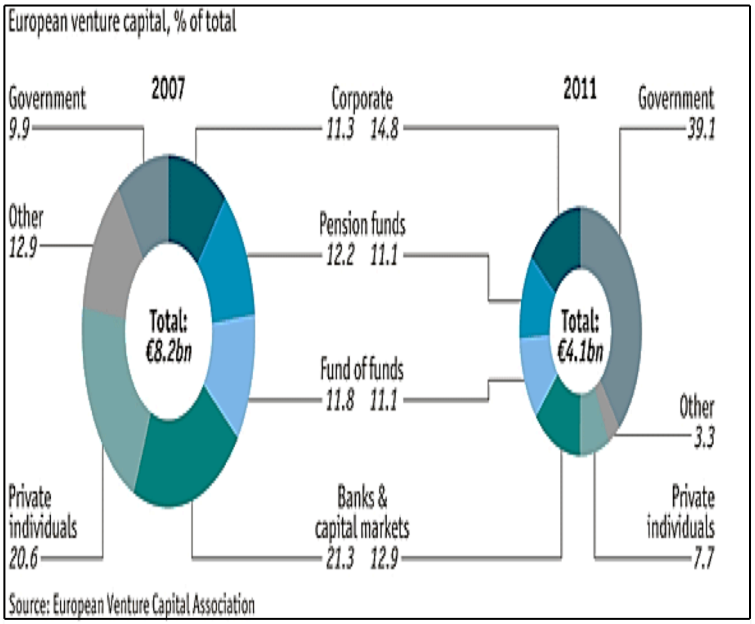
a lead in providing VC. They count for almost 30% of all VC contribution to VC funds[64], which is three times more than the Government agencies in USA (see the table 2). Moreover, the table 3 shows increasing trend of government participation, which rose from 9.9% in 2007 to 39.1% in 2011 in total VC funding, while total amount of VC funding dropped by half in 2011. It supports our first hypothesis that the governments tend to support VC market in times of VC investments slowdown. We might conclude that the governments in Europe fill the funding gap caused by a lack of financing from Institutional Investors such as Public Pension Funds as well as Insurance companies. From a global point of view, we need to assess our first hypothesis positively as the public intervention is higher in a lower VC market in Europe. In addition, we will focus on particular European countries, especially on their VC market development and their public involvement itself, to make sure our hypothesis is valid.

Table 2: Sources of VC funds Europe vs. US (2009)[65]



Source: EVCA/Boston Consulting Group

Table 3: The changes in proportion of VC sources in Europe[66]



Netherlands (0,006 [UK] and 0,096[NL] respectively as proportion of GDP during 1997-2003). However, this does not apply for Sweden, where the studied percentage 0,236 during 1997-2003 is higher than in other countries which rely on government schemes like France or Italy. See the table 4.

[64] Christof Beuselinck and Sophie Manigart show the trend in ten European countries, in which the total public investments represent in average 9.0% of total investments in the VC industry during 1989-2003. We can see an increasing public contribution in total VC investments in last years.

[65] Kelly, R.: The Performance and Prospect of European Venture Capital, European Working Paper 2011/09.

[66] http://www.economist.com/blogs/schumpeter/2012/04/european-venture-capital. <3rd May 2012>.

The table 1 shows that Denmark, Sweden, the UK, Norway, the Netherlands, Finland and Belgium outperformed the European average (0.09%) in VC investment as a share of GDP and on the other hand the countries like Germany, Austria, France, Portugal, Spain, Greece and Italy underperformed the average level of VC investments in Europe over the selected period. To validate the hypothesis, we expect higher government intervention in the second block of countries and lower in the former. We will use the Table 3[67] to investigate the correlation between the overall VC activity and the public involvement. The first rank in both the absolute average public VC investments and average amount of public VC investment to GDP took Belgium by far ahead of other studied countries. Its government invested more than € 107.000.000 in average every year, what represents approximately 0.47 of its GDP. The other countries, which reached relatively high values in VC investments compared to their GDP, are Finland (0.21 MIL), Norway (0.19 MIL) and Sweden (0.14 MIL) respectively. Contrary to them large EU economies such as Italy, Spain, France and UK invested only little amount in the VC industry (respectively 0.060, 0.055, 0.016 and 0.015 per million). Such results partly confirmed our theory , because the UK and the Netherlands perfectly suit into our hypothesis, because their governments do not need to support relatively well functioning VC markets, but the examples of Belgium and other Scandinavian countries, whose level is higher that EU average, show the opposite.[68] However, high public involvement in the VC in the Scandinavian countries could be easily explained by their social-democratic model of a market economy, whereby the State frequently and directly intervenes in many sectors of the Economy. Hence, the VC industry is not an exception to this well-known paradigm. On the other hand, Belgium still remains out of the scope of the first hypothesis. Our results are not contrary to the study of Leleux and Surlemont (2003), who concluded by descriptive analysis that the countries with large proportions of public venture capital are shown to have relatively smaller markets overall. However, the governments' involvement seems to be a consequence not of a reason of a small VC market. It is because we base our comparison of VC investments to the proportion

[67] Source: Beuselinck, Ch. And Manigart, S.: Public venture capital across Europe: A 15-year perspective, p. 25, 26.

[68] We are aware that we did not discount the governments investments, while we were considering the average VC investments in particular countries (table 1), which partly contribute to the overall VC level, but anyway the average public VC contribution as a percentage of total VC raised in 1990-1996 counted in Belgium just for 4.57%, in Finland 6.61%, in Sweden 1.82% and in Norway 5.79 % (See the attachment 1 for more details).

of GDP, but it is true that the countries with a higher ratio of public investments belong to the group of small VC markets compared to bigger economies such as France, UK or Italy. Contrary, Armour and Cumming (2006) deviated from the previous view and derive a conclusion that the total size of the venture capital and private equity industries, as well as the amounts of fundraising and exits, are smaller where government programs comprise a larger percentage of total industry fundraising.

It looks that the reason of the governments' involvement is more complex. It is more likely that the European governments try to achieve the success of the USA or Israel in the VC industry and provide more financing than the US governments agencies as a consequence of a lack of institutional investors' participation. Besides, the governments of those countries with relatively smaller VC markets (expressed in total investments not as a proportion of GDP) might try to catch up and compete with some bigger VC markets in Europe such as the UK. We can conclude that our first hypothesis is relevant in a global perspective as European countries are pumping more money into their less developed VC industry than the USA. Furthermore, the growing involvement of the European governments as a source of VC in the last years indicates that the governments are trying to substitute low private VC investments. Significant indicator of the government involvement in the VC industry is also the model of a market economy. It is clearly seen in the Scandinavian social market economies with substantial amounts of public money directed into the VC industry. On the level of studied countries we came to the results, which mostly prove our assumption as well; except of Belgium. Further, we will provide you the opinions of the following authors on a correlation between the Public and Private VC investments.

Table 3: Public VC investment in ten EU countries

Panel A: Public VC investments in 10 EU countries expressed in 1000 EUR

Year	Belgium	Finland	France	Ireland	Italy	NL	Norway	Spain	Sweden	U.K.
1989	39886	5158	6083	3919	0	25962	0	31849	4099	24931
1990	44747	6104	11074	6606	41559	23810	0	19778	64000	19053
1991	62646	13817	11801	2853	31192	26282	3011	38497	19359	14489
1992	n/a	9530	9896	0	56385	28740	0	4049	701	15401
1993	44013	15814	6435	0	14356	29897	14440	0	1109	11452
1994	44608	18413	11645	0	53904	2348	36535	0	0	34144
1995	38981	12948	13240	2168	110665	2622	63333	0	0	13111
1996	73670	20477	11267	968	74222	2837	47258	0	133	11507
1997	115694	39255	8318	2053	79352	3668	51077	0	57542	7298
1998	118802	25445	0	2725	74547	5340	19826	24715	0	13825
1999	243931	39516	18064	42002	105726	4680	0	65048	128917	20649
2000	279551	30612	102313	1276	124096	79438	1553	32649	49067	13614
2001	199908	44584	40694	1413	27305	30673	98515	27321	152071	4437
2002	174928	30542	72293	1729	56428	21520	30065	59318	2560	3847
2003	25159	34733	351	1187	51939	87	24814	158253	1321	0
Average	107609	23130	21565	4593	60112	31947	26028	30765	32059	13851
Average 1989–1996	49793	12783	10180	2064	47785	26512	20572	11772	11175	18011
Average 1997–2003	165425	34955	34576	7484	74199	38158	32264	52472	55925	9096

Panel B: Public VC investments across 10 EU countries as proportion of GDP – expressed as per MIL

Year	Belgium	Finland	France	Ireland	Italy	NL	Norway	Spain	Sweden	U.K.
1989	0.252	0.061	0.006	0.115	0.000	0.109	0.000	0.111	0.023	0.032
1990	0.266	0.069	0.011	0.180	0.061	0.094	0.000	0.062	0.338	0.025
1991	0.356	0.163	0.011	0.075	0.042	0.098	0.031	0.110	0.094	0.017
1992	n/a	0.115	0.009	0.000	0.072	0.103	0.000	0.011	0.003	0.019
1993	0.231	0.189	0.006	0.000	0.018	0.105	0.145	0.000	0.007	0.014
1994	0.222	0.207	0.010	0.000	0.063	0.077	0.351	0.000	0.000	0.039
1995	0.187	0.134	0.011	0.041	0.120	0.083	0.560	0.000	0.000	0.015
1996	0.350	0.206	0.009	0.017	0.076	0.085	0.377	0.000	0.001	0.012
1997	0.523	0.364	0.007	0.030	0.077	0.104	0.369	0.000	0.265	0.006
1998	0.517	0.217	0.000	0.035	0.070	0.144	0.147	0.046	0.000	0.011
1999	1.023	0.327	0.013	0.464	0.095	0.118	0.000	0.112	0.553	0.014
2000	1.111	0.234	0.071	0.012	0.106	0.189	0.009	0.052	0.198	0.009
2001	0.772	0.326	0.027	0.012	0.022	0.069	0.515	0.040	0.625	0.003
2002	0.654	0.217	0.047	0.013	0.045	0.046	0.149	0.081	0.010	0.002
2003	0.092	0.241	0.000	0.009	0.040	0.000	0.133	0.203	0.005	0.000
Average	0.468	0.205	0.016	0.067	0.060	0.095	0.186	0.055	0.141	0.015
Average 1989–1996	0.266	0.143	0.009	0.053	0.056	0.094	0.183	0.037	0.058	0.022
Average 1997–2003	0.670	0.275	0.024	0.082	0.065	0.096	0.189	0.076	0.236	0.006

Panel C: Average VC (total) as per MIL of GDP, and High-Tech and Seed & Start-up VC investments as a proportion of total VC investments

Variable	Belgium	Finland	France	Ireland	Italy	NL	Norway	Spain	Sweden	U.K.
Average VC investment per million of GDP	0.816	0.766	0.694	0.711	0.445	1.304	0.816	0.574	0.955	1.320
Average percentage high-tech	41.45%	41.40%	26.93%	47.11%	16.06%	27.80%	38.26%	14.54%	30.36%	22.54%
Average percentage seed & start-up	22.70%	30.86%	9.50%	16.67%	9.96%	12.43%	17.69%	14.45%	8.58%	4.74%

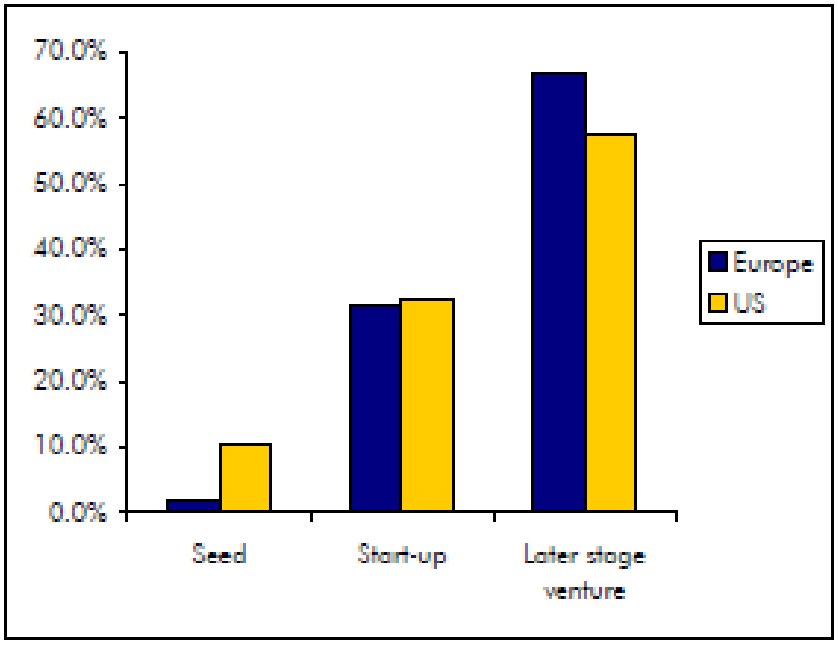
Beuselinck and Manigart (2006)[69] claim that public VC investments are unrelated to private VC investments in their research, but they found significant relation with seed and start-up VC investments, because more public investments in the VC industry lead to proportionally more investment in seed and start-up companies. Interestingly, the public VC investments do not depend on new listing on the stock market and the overall economic climate.[70] Thus, they point out that the governments support VC markets with few exit alternatives. Alike Jeng and Wells (2000) say that government-backed venture capital is less sensitive to IPOs across countries than private venture capital and those governments appear to be willing to finance early stage projects that would not be funded privately. The analysis of Leleux, Surlemont (2003) similarly supports a negative correlation between the level of government participation and the size of the venture capital industry. The study outcomes reveal that public venture capitalists do not seed the industry and are not able to get it off from the poor performance.

Finally, we need to remark that the studies used in this part focused exclusively on European VC markets. This fact makes our assumption that European governments try to catch up with the US or Israeli VC level even stronger and therefore the ambitious governments support their relatively well-developed VC market (Belgium, Sweden, Norway, and Finland). Upon the findings above we strongly appreciate the direct government participation in the VC industry. As the table 4 indicates the European VC capitalists tend to fund later stage companies. The seed stage financing in Europe is incredibly low compared to the US, thus the governments' intervention dedicated to this stage is highly desirable.

[69] Beuselinck, Ch. And Manigart, S.: Public venture capital across Europe: A 15-year perspective.

[70] Surprisingly Manigart and Beuselinck (2001) came in Supply of Venture Capital by European Governments study to completely different results as in their later paper "Public venture capital across Europe", in which they used the same sample of 10 European countries as in the first study extended by four years until 2003. The results were as follows: "*governments supply more funds to the VC industry when GDP growth is low and when long term interest rates are low, both macro-economic indicators of the overall economic climate*. *Governments react appropriately with respect to specific precursors of venture capital activity: returns on stock markets and number of IPOs.*"

Table 4: Investment share at different VC stages, Europe & US (2006)[71]



Source: EVCA, NVCA

The second part will be devoted to the effects of the direct governments' involvements into the VC industry. Mainly, we will review the studies analyzing the consequences of such participation from the governments and give the answer to the second assumption that the governments VC investments tend to crowd out the VC industry.

Firstly, we start with J. Lerner (1999)[72], who does not directly reject the crowding-out effect of public investments, but shows some positive signs related to them. Studying the high-technology firms funded by the SBIR[73] program in long run performance, he shows that SBIR awardees, besides of greater employment and sales growth, enjoy higher possibility to receive subsequent financing from private, independent risk capital

[71] Kelly, R.: The Performance and Prospect of European Venture Capital, European Working Paper 2011/09.
[72] Lerner, J.: The Government As A Venture Capitalist: The Long-Run Impact of the SBIR Program, The Journal of Business, Vol. 72, No. 3, Jul 1999, p. 285-318.
[73] In 1982 the U.S. Congress established the Small Business Innovation Research (SBIR) Program to stimulate technological innovation, utilize small business to meet federal research and development needs, and increase private sector commercialization.

providers. This is mostly due to the "certification" and signaling effects that the awards of the SBIR contracts give to the awarded companies. It is undoubtedly an indication for further development of VC industry in general. Nevertheless, such results were significant only in areas with a major concentration of the VC activity. Jeng and Wells (2000) also derive marginally that the governments are keen to fund early staged companies, which would have not been otherwise financed by private venture capitalists, therefore exclude the crowding-out effects. Wallstein[74] [75](2000; 2001) admits that the public VC investments have little positive attributes on employment level and innovation, but his variables disclose negative correlation between the SBIC financing and VC industry, thus suggesting the crowding-out effect.

Leleux and Surlemont[76] (2003) in previously mentioned study were investigating if a strong public involvement in the VC industry leads to relatively smaller VC industries. Nothing related to such assumption was found. It means that there was no evidence to support any crowding-out effect of private venture capitalists by public investments. However, they exclude any positive relation of public investments of seeding the VC market; they support the proposition that governments' investments may signal or legitimize support for venture capital investments and are not detrimental to the industry as a whole. We view negatively the fact that public venture capitalists tend to be associated with later-stage investments in general, while as we saw in the table 4 that the funding gap is the most acute in a seed and startup stage of financing. The different view on public intervention into VC is presented by Cumming and MacIntosch[77] (2006), who survey a tax-driven venture capital vehicle known as the "Labour Sponsored Venture Capital

[74] Wallsten, S. (2001): The Role of Government in Regional Technology Development: The Effects of Public Venture Capital and Science Parks, Stanford Institute for Economic Policy, Research Discussion Paper No. 00–39.
[75] Wallsten, Scott. (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, v 31, no. 1, p. 82-100.
[76] The sample of this research consists of fifteen European countries namely: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Spain, Switzerland and UK. Macroeconomics information and Venture capital industry data for each of these countries were collected for the years 1990–1996 inclusive.
[77] Cumming, D., MacIntosh, J. (2006): Crowding out private equity: Canadian evidence, Journal of Business Venturing 21, 569-609.

Corporation" (LSVCC)[78] in Canada during 1977-2001. They identify the tax advantage of the LSVCC as a main reason of crowding out the Canadian VC market, because it allows the LSVCC to offer funding in more favorable terms than other types of funds, to lower rates of return and thus depressing the incentives to establish a new non-LSVCC fund. It is a good example that setting up a tax policy favoring the VC financing does not automatically kick off the VC market. It should reflect the needs of the VC market, otherwise it might be counterproductive. In general, if the LSVCC generates higher profit than non-LSVCC we would not consider the crowding out effect as being negative, but the opposite is true. Although, the research does not produce any evidence confirming the lower productivity of the LSVCC, the study refers to Brander et al. (2002)[79], who claim that LSVCC provide significantly lower profitability than that of other Canadian private funds and thus have weakened the Canadian venture capital industry.

In 2006 Armour and Cummning[80] were testing the effect of governments' VC financing on the overall VC performance in 15 Western European, Canada and USA over a period of 14 years (1990–2003). Their research implies that public funds do not boost the overall amount of VC investments in any country, but more probably crowd out private funds as the figures have not shown any overall change in the total amount invested. It means that the occurrence of substantial government programs is associated with a reduced overall level of early stage investment. This conclusion can be numerically expressed in that each dollar of government money invested causes that one dollar of private investor that would be otherwise invested is held back. The governments subsidies are negatively perceived by Keuschnigg and Nielsen[81] (2003; 2004), who consider them together with taxes as

[78] The main purpose of this program is that federal government provide investors 15 % tax credit from the on their investments, in fact providing a 15 % subsidy to such funds. Some subsidies can reach even 30 % as some provincial governments add an additional tax credit, usually equal to 15 %.

[79] Brander, J. A., Amit, R., and Antweiler, W. (2002): Venture Capital Syndication: Improved Venture Selection Versus the Value-Added Hypothesis, Journal of Economics and Management Strategy, forthcoming.

[80] Armour, J. and Cumming, D.: The Legislative Road to Silicon Valley, Oxford Economic Papers, Vol. 58, pp. 596-635, 2006.

[81] See Keuschnigg, C. (2004) Taxation of a venture capitalist with a portfolio of firms, Oxford Economic Papers, 56, 285–306; Keuschnigg, C. and Nielsen, S.B. (2001) Public policy for venture capital, International Tax and Public Finance, 8, 557–72;Keuschnigg, C. and Nielsen, S.B. (2003) Tax policy, venture capital and entrepreneurship, Journal of Public Economics, 87, 175–203.

impediments of well-functioning VC market, because they drive down profits in the venture capital industry and are therefore welfare reducing.

Brander, Egan and Hellmann (2010)[82] provide some suggestive and indirect evidence that public VC investments crowding out the VC market. The main focus of their studies lies on assessing the relative performance of private venture capital (PVC) and government-sponsored venture capital (GVC) in Canada; considering three general areas of performance: value creation, competitive effects, and innovation.[83] The poorer performance of GVC is mainly due to the treatment effect, which is in line with the crowding out effect as GVC do not fund many new enterprises below the PVC threshold for investment. Also the presence of left leaning governments, which provide more GVC is associated with less PVC activity. However, the above applies just for high technology enterprises. In addition, the crowding out seems to have no effect on purely privately supported enterprises; just on enterprises with mixed PVC and GVC support. It could be a case from Germany where the High-Tech Gründerfonds investments might be crowding out further investment rounds by PVC investors. Upon further research, Brander et al. (2011)[84] deviate marginally from the previous conclusion and suggest that a modest level of GVC finance seems to improve the performance of entrepreneurial ventures relative to ventures supported purely by PVCs. However, weaker performance is associated with high levels of support from GVCs. Görg and Strobl (2005)[85] come to the similar results by investigating the correlation between government support for R&D and R&D expenditure by private entities on Irish manufacturing plants. Their figures suggest that small or medium amounts of grants for domestic plants do not `crowd out' private spending. The small amounts could

[82] Brander, J., Egan, E., Hellmann, T.: Government sponsored versus private venture capital: Canadian evidence, 2010.

[83] The Brander's outcome of superior performance of PVCs over GVFs is not surprising. We expected a lower performance of GVFs apart from crowding out effect, as they supposed to fund enterprises, which stand in a second line and struggle to attract an attention of PVCs. Therefore, it was expected that enterprises supported by PVCs might have more successful exits and generate higher value conditional on successful exit. Additionally, the enterprises backed by PVCs are less likely to go out business over relevant time horizons and are more likely to attract US investment. The main reason of such poorer performance of the GVC- supported enterprises is seen in treatment rather than selection effect.

[84] Brander, J., Du, Q., Hellmann, T.: The effects of government-sponsored venture capital: international evidence, NBER WORKING PAPER SERIES, 2010.

[85] Görg, H. and Strobl, E.: The Effect of R&D Subsidies on Private R&D, Research Paper 2005/38, 2005.

even create additional effects, but too large grants might finance R&D activities that would have been taking place anyway.

Finally, Cumming and Johan (2009)[86] also present further evidence that Australian public VC funds (Innovation Investment Fund [1997] and Pre seed fund [2002]) tend to crowd out one another. The problem might be in a bad implementation and structure of the later one, because the survey conducted by Humphery-Jenner[87] (2012) suggests that the IFF scheme might have inspired additional VC investment. The reasoning of this is that the Australian VC sector has kept steps with similar trends to those of other countries despite of a relatively low level of innovation by world standards and more importantly it has increased the amount of VC (scaled by GDP or market capitalization) compared with that in other countries.

3.2.2. New trends in structuring Governments Venture Funds

As we could see in the previous part, the views and conclusions on the crowding out effect of GVCs differ not only from academic to academic, but sometimes even in studies of the same author with time. In total, more research papers indicate crowding out effects rather than attracting effect of GVC on the VC market. The reason of this crowding out effect might be in a wrong structure or implementation of the Government Venture Fund such as wrong tax incentives introduced by the governments (see the Canadian experience) or a bare competition of established governments' venture funds (Australia's example). On the other hand, there were several studies associated with a positive impact of GVC on VC market, on which we need to build on our GVF's structure. The goal is not to defend either the hypothesis for or against the crowding out effect, but rather to present a new and perspective structure of Government Venture Funds, which would prevent any squeezing effects of GVC in a future.

[86] Cumming, D., and Johan, S.: Pre-Seed Government Venture Capital Funds, Journal of International Economics (2009) pp. 1573-7349.

[87] Humphery-Jenner, M.: Stimulating Venture Activity through Government Investment in Venture Funds, European Business Organization Law Review 13, 2012.

Before we begin, we need to point out that the governments need to objectively assess the level of VC development in their country as there are different incentives particularly effective either in a developing or existing VC market. It is generally accepted that the governments must first create an attractive environment for VC through favorable tax regimes for VC investments, a liberal and flexible labor law, a healthy and vibrant stock market and/or to enable pension funds to invest part of their assets into VC funds. However, such indirect measures might not be sufficient for already established Venture Capitalists in an existing VC market.[88] Therefore, the governments should have prepared more tools to enhance the existing VC market. The first three recommendations are suitable for both the developing as well as existing VC market.

We start with the unique approach of Brander et al. (2010)[89], who decided to examine the performance of enterprises backed by GVCs with those supported by private venture capitalists (PVCs) by dividing them into three categories: those financed purely by PVCs, those with modest GVC support (less than 50% of their venture capital from GVCs) and those with a substantial GVC support (50% or more of their venture capital funding from GVCs). Such selective method was in good help to indicate whether the Governments intervention within the VC market is counterproductive in general or just in a moderate or extensive level. The answer to this question is critical for policymakers in establishing the active VC market. The outcomes are surprising and deviate from equal treatment of GVC. They confirm that the enterprises with partial GVC support tend to have more likely successful exits than enterprises supported only by PVCs. Contrary; the significant GVC funding is associated with poorer chances of a successful exit than pure PVC support. The same composition of VC is able to enhance a value creation and patent activity of supported enterprises (f. e. Israeli Yozma program)

[88] See Table 2 in Meyer, T.: The Public Sector's Role in the Promotion of Venture Capital Markets, August 2007.
[89] Brander, J., Du, Q., Hellmann, T. (2010 a): Governments as venture capitalists: striking the right balance. In: Globalization of Alternative Investments, Volume 3: The Global Economic Impact of Private Equity Report 2010, World Economic Forum.

"The moderate support from governments appears to be a golden way to successful VC market, thus if the governments decide to intervene into the Venture Capital market, they should syndicate with the Private Venture Capitalists and keep a minority stake in such heterogeneous syndicate."

Apart from a significance to syndicate with PVC, the governments need to understand their strengths and weaknesses. If the governments decide to enter into the VC market, they have a relatively big amount of money to invest available. Further, they are not under pressure to generate returns as soon as PVCs and therefore may focus on long term projects. These advantages are specifically important in biotechnology and pharmaceuticals industry, where R&D requires substantial resources and takes longer than in other sectors of R&D. [90]

Contrary, the effect of GVC on internet-based companies with different characteristics (such as Facebook, Twitter), may be contra productive. Thus, if the governments intend to use the advantage mentioned above, they should focus on the R&D in biotechnology and pharmaceuticals industry. Moreover, we could witness in Brander et al. (2010) that enterprises backed by GVC underperformed enterprises supported by PVC mainly because of the insufficient treatment after providing finance. This is an indication that a heterogeneous syndicate should be led by Private Venture Capitalists. The research by Bertoni and Tykvová (2012)[91] tells us that syndicates between governmental and private venture capital investors are the most effective form in order to increase innovation production that outperforms all other forms in cases when the private investor takes the lead. However, this syndication model is the most beneficial for promoting innovation in biotech and pharmaceuticals industry.

The next question for the governments is to find a suitable partner to syndicate. There are academics and professionals, who are convinced that successful governments' sponsored

[90] Bertoni, F. and Tykvová,T.: Which Form of Venture Capital is Most Supportive of Innovation? Discussion Paper No. 12-018, 2012.
[91] Available at < http://ftp.zew.de/pub/zew-docs/dp/dp12018.pdf>, 10-05-2012.

funds should syndicate at least with one or more corporate partners. McCahery and Vermeulen (2010)[92] name the advantages of corporate participation, whose involvement in the independent fund can provide innovative, market and financial support to the entrepreneurial businesses. They particularly refer to German High-Tech Gründerfonds[93] as a good example of such syndicate. Another positive feature of Corporate Venture Capital (CVC) organizations is that they do not depend on money from third party investors, which makes them less vulnerable in times of financial constraints. However, the CVC still depends on the budget of its holding company and thus its budget could be also cut in times of financial distress. Their stable and reliable cash flows enable them to provide additional financing if required. Also the corporation's interest to provide Venture Capital is not solely return-oriented, but might be explained as a diversification of business interest. The corporations' contribution within the fund could be twofold. They can play an active role in a fund in form of selection process (due diligence) or provide value-added services to portfolio companies in a form of networking, creating alliances, partnering and offering attractive exit options.[94] They also claim that such collaboration between the governments and corporations is vital for the education of start-up companies and for the steady and healthy growth of these businesses. As a consequence of the findings above, we would advise the governments to syndicate with the corporations as it seems that their interests might be mutually aligned in order to achieve their goals. At the end the authors warn that too broad or too vague scope of the funds as well as a participation of competing corporations may work against the development of start-up companies.

Further, the governments should target the incentives to both General Partners (GPs) and Limited Partners (LPs) as hybrid funds are mostly structured as Limited Partnerships (LP), in which Investors become LPs and venture capital managers are the GPs of the fund.[95] We

[92] McCahery, J. A. and Vermeulen, E. P. M.: Venture Capital Beyond the Financial Crisis: How Corporate Venturing Boosts New Entrepreneurial Clusters (and Assists Governments in Their Innovation Efforts), Tilburg University Legal Studies Working Paper Series No. 011/2010, 2010.
[93] For more information see <http://www.en.high-tech-gruenderfonds.de/>, 4th May 2012.
[94] See the Figure 12 in above cited study.
[95] Jääskeläinen, M., Maula, M. & Murray, G. (2007) Profit Distribution and Compensation Structures in Publicly and Privately Funded Hybrid Venture Capital Funds, Research Policy.

advise policy makers to follow the market conditions governing the GPs[96] in the Private Venture Funds in order to attract good VC managers. They can even offer slightly more favorable rules for them, such as higher carried interest, but cannot forget that it will simultaneously decrease the profit of LPs. Such decrease of LPs' profit could be mitigated by introducing of further incentives. The purpose of this is to seduce experienced GPs and thus avoid the less experienced GPs to manage Government supported Venture Funds.[97]

Moreover, the governments should base their incentive structure on providing upside leverage to Private Investors and leave the concept of offering downside protection.[98] Theoretically, the latter tool has poor incentive effect on potential Private Investors, which results in lower impact of a good selection process and the value-added services on the performance of the hybrid fund.[99] Downside protection, which is intended to support investments into the risky start-up enterprises, could be easily exchanged for neglected investments by the venture managers. In practice, such method was implemented in German WFG, which recorded total losses over its existence amounted to 38.4 million DM and to –25% of total internal rate of return for the investment.[100] Attracting Private Venture Capitalists by upside leverage has also limited application. Although it is relevant in a period of preparation of the developing VC market, in a stable equity market setting it is not appropriate.[101] In the first case, there are few Venture Capitalists on the market to induce and in the second scenario it is not necessary as a market desirably channels a Venture Capital to start-up enterprises.

[96] The general partner of a fund will be compensated with a management fee; usually equal to 1% to 2 % annually of the total amount of capital that has been committed. The general partner will also earn what is called "carried interest", which is based on the total amount of profits that have been earned by the fund (usually around 20%).
[97] Jääskeläinen, M., Maula, M. & Murray, G. (2006) in Performance of Incentive Structures in Publicly and Privately Funded Hybrid Venture Capital Funds claim that the Government Supported Venture Funds were mostly managed by less experienced GPs.
[98] The governments providing downside protection bear a burden to cover future losses as a result of a negative portfolio company's performance.
[99] See Supra n. 95.
[100] Hellmann, T.: The Genesis of Venture Capital: Lessons from the German Experience, RESEARCH PAPER NO. 1705, July 2000.
[101] See Supra n. 97.

Now a question is how to provide upside leverage to the Private Investors as *pari passu* funding[102] does little to change the unattractive investment returns, which would lead to the increase of private VC flow to start-up companies. Thus, to induce the GPs and any private LPs in the fund will often require the engineering of more attractive profit distribution in order for them to be willing to participate.[103]

We suggest employing the capped return for public investments as a distribution scheme. It means that the public investments will be fully repaid at its interest rates plus risk premium and the rest of profit will be distributed only to Private Investors.[104] We consider this scheme as the most suitable tool for overcoming the risk of investing into the start-ups, because the Private Investors are willing to invest in a vision of high compensation if the portfolio companies performed well (for instance IIF implemented this strategy). The similar results could be achieved by offering Buy-out options for the private investors at certain point of time at agreed price in advance with an advantage of quick exit for the government and possibility to pour the money into another project.[105] The governments can also provide loans to the Venture Capitalists with a fixed interest level and/or preferred payments or subsidies (operating costs), which would cover some of the fund's performance costs.[106] Jääskeläinen at al. (2006) claim that the best incentives for private investors to participate in public supported venture funds, in relation to the highest increase in the returns for the private LPs, are when the public investor invests money first and get them back last.

To sum up, we have seen that the governments are keen to crowd out private VC when providing equity enhancement programmes with few exceptions; therefore it is essential to tailor a suitable scheme and thus avoid unreasonable wasting of public finance. In the last

[102] It is a funding, where the governments provide finance on the same terms as the private investors.
[103] Murray,G.,Cowling,M.,Weixi,L. and Kalinowska-Beszczynska,O.: Government co-financed 'Hybrid' Venture Capital programmes: generalizing developed economy experience and its relevance to emerging nations, Kauffman International Research and Policy Roundtable, Liverpool, March 2012.
[104] Ibid.
[105] Ibid.
[106] Ibid.

part of this chapter we drafted some principles, which could be used by policy makers when planning a next public's intervention into the VC industry.

III. Case studies (Israel and Finland)

The aim of this chapter is to introduce and analyze the government contribution in launching a VC industry in two countries: Israel and Finland. We do not suggest replicating any of the successful public policy toward VC entirely by any governments as we believe that the rule "one size fits all" will not bring desirable effects in structuring the viable VC market. Policy makers should precisely examine the VC environment in their countries in both terms of supply and demand side; identify obstacles in creating of successful VC market and implement effective VC policy, which would ease all the impediments standing against establishing another "start-up nation". The following case studies might inspire them that impossible can be possible and that even small countries are able to succeed in building the VC market with huge volume.

3.1. Israel. The Start-up Nation [107]

3.1.1 Current Venture Capital performance

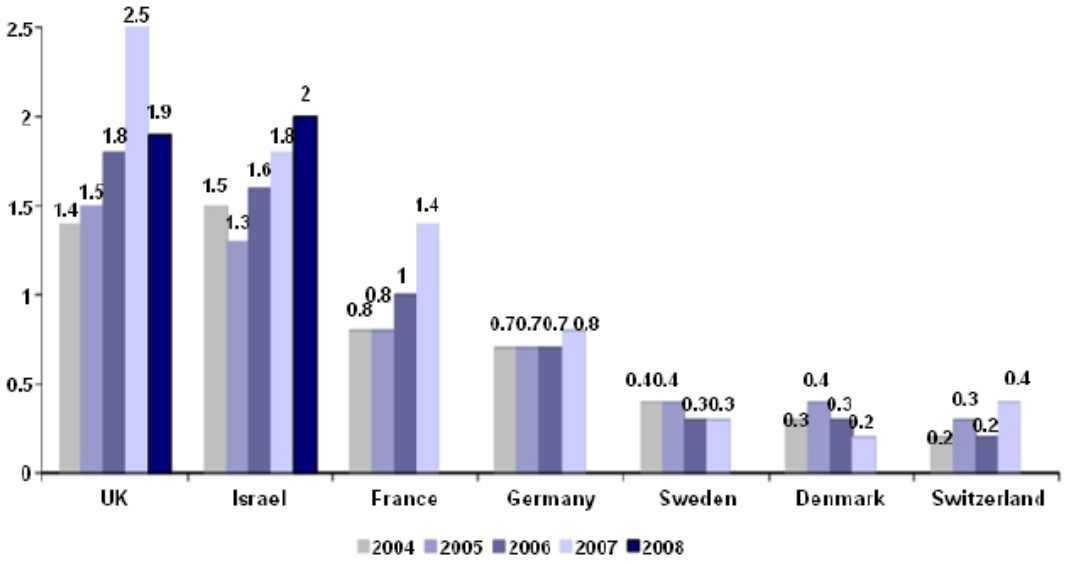
The case of Israel in creating a successful VC market is enviable. Since the 1990's Israel, the state with the total area of 22,145 square km and the population of 7.2 million has been the most vibrant high technology cluster outside the US[108]. Israel has the leadership in the most high-tech start-ups investments per capita in the world ($ 170 VC in 2010).[109] In comparison, the USA took a second place with investment 'only $ 75 per capita'. The Startup Nation has the second biggest number of listed companies (after China) in NASDAQ

[107] We borrowed this name from the book of D. Senor and S. Singer called Start-up Nation- The story of Israel's Economic Miracle (2009).
[108] See The Israeli Success Story at < http://www.iati.co.il/high-tech-in-israel/the-israeli-success-story>, 23rd May 2012.
[109] See The Table 1 in 'What next for the start-up nation?' At < http://www.economist.com/node/21543151>, 23rd May 2012.

(approximately 80) and 30 listed companies in Europe.[110] According to Israel Venture Capital Research Centre, Israel has currently almost 4,000 active technology start-ups - more than any other country outside the United States. To get a better impression of Israeli VC we feel obliged to present the following figures. While the highest VC investment per capita in Israel is inspiring, the absolute volume of total investments is shocking. The small state managed to invest the biggest amount into the VC industry (€ 2 billion) amongst selected countries in 2008 and left behind the European biggest economies such as those of the UK, France and Germany (see the table below). What is more Israeli VC industry is primarily dedicated to early stage financing; thus the most of total VC investments are directed to early- stage ventures. In comparison, the UK maintains a level of early-staged investments at a rate only between 20-30% of total VC investments and invests more in expansion stages.[111]

The biggest challenge for the Israeli VC industry was to attract foreign VCs because of the small economy and the lack of experience in the VC environment. Looking at the table 6 we

Table 5: Israeli VC investments compared to other European countries (Source: The Israeli Venture Capital Investment Environment, March 2010)



[110] See High- Tech Industry Association: The Israeli Venture Capital Investment Environment, May 2010 at <http://www.iati.co.il/images/stories/Pdf/htiacontext_semantics%20_march_2010.pdf>, 31st May 2012.

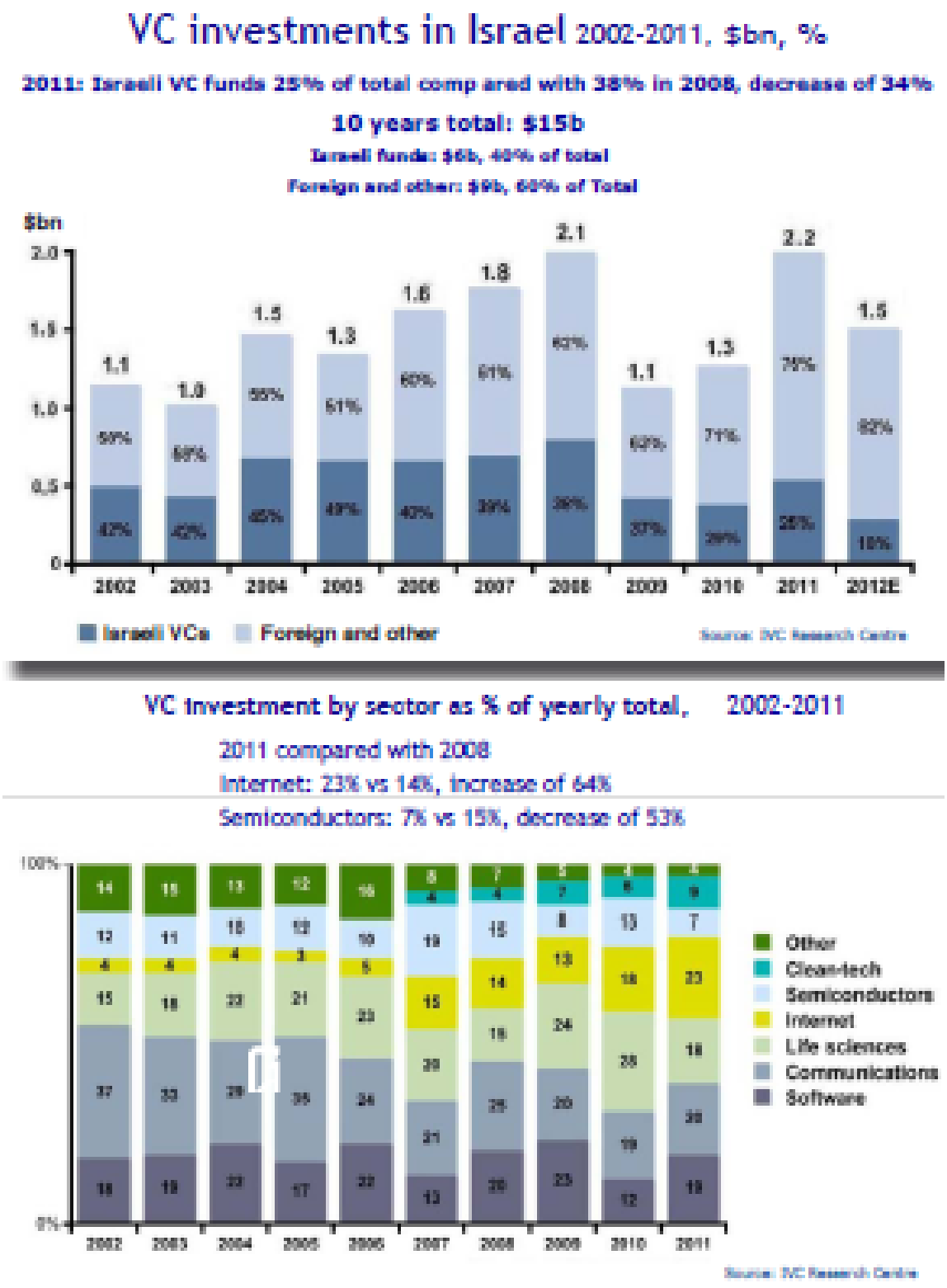
[111] Clarysse, B., Knockaert, M. and Wright, M.: Benchmarking UK Venture Capital to the US and Israel. What lessons can be learnt? May 2009. See more figures in the Attachment II.

can observe that the foreign VCs have contributed on average 60% of the total VC investments in the 2002 -2012 period. Moreover, the foreign venture capital increased in last two years (71 and 75%) and appropriately complemented low domestic VC investments. In sector perspective we see that the Internet segment and clean tech are on surge, while the semiconductor sector is slowly decreasing within the Israeli VC industry. Life science orientation is also remarkable. It results from a strong foundation of academic excellence, including some of the world's leading research institutes; renowned R&D facilities, such as the Technion and the Weizmann Institute, as well as cutting-edge medical centers.[112] Strong focus on the life science sector is not accidental, but rather positive consequence of government support. The Office of the Chief Scientist in the Ministry of Industry, Trade and Labor defines biotechnology as a preferred sector and therefore the government funds up to 50% of the approved R&D budget for 2 years along with other generous incentive packages.[113]

Surprisingly, Israel keeps strict restrictions on VC investments by local institutional institutions, including pension funds and insurance funds. It is reflected in their portfolios as Israeli insurance companies and pension funds only invested 0.2% of their assets in VC. This is sharply lower than in the USA and some European countries, where insurance companies and pension funds invest 3 to 5% of their assets in venture funds.[114] It is also reflected in the composition of sources of funds for the Israeli VC industry, in which industrial corporations (typically from the United States) are the most significant source of funds followed by banks on one side and pension funds with very low level of participation on the other side. [115]

[112] For more details see <http://www.investinisrael.gov.il/NR/exeres/F6640B8E-4938-4113-B6F0-259CA785B0EA.htm>, 31st May 2012.
[113] Ibid.
[114] See supra n. 111.
[115] Mayer, C.,Schoors, K. and 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 11 (2005) 586–608, p. 592.

Table 6: Source IVC Research Center



Looking at the figures and achievements above, we are curious what are the reasons of this success in Israel? Is the Israeli VC as perfect as it seems to be? Are there any lessons to be learnt from this country?

3.1.2 The Evolution of Israeli Venture Capital industry

Avnimelech, Kenney and Teubal[116] describe the background preceding the emergence of the VC industry in Israel. They point out that the period of 1970-89 called "The Background Conditions Phase" was crucial for development of Israeli VC market. The sharp increases in domestic military R&D spending and investments were a consequence of their difficult relationship with their neighbors (Six Day War and the French embargo). Even nowadays, Israeli military expenditures reach an incredible amount of 7.3% of its GDP.[117] Another milestone was the establishment of the Office of the Chief Scientist (OCS) at the Ministry of Industry and Trade in 1969 with the mandate to subsidize commercial R&D projects undertaken by private firms.[118] Regarding the governance of government policies towards the VC industry, there are considerable differences between countries. The Israeli governance has much organized coordination thanks to OCS than for example Sweden, where many agencies more or less overlap with each other in targeting the companies in different development stages.[119]

The R&D law in 1984 allowed consistent increases in OCS funding of business sector R&D. The investment in R&D laboratories by international companies such as Motorola in 1964, IBM in 1972, Intel in 1974, and Hitachi in 1978 also played an important role. The first Israeli VC firm called Athena was established in 1985. The authors see as essential the

[116] Avnimelech,G., Kenney, M. and Teubal, M.: Building Venture Capital Industries: Understanding the U.S. and Israeli Experiences, BRIE Working Paper 160, 2003.
[117] See the Military Expenditures in The World Fact Book at < https://www.cia.gov/library/publications/the-world-factbook/rankorder/2034rank.html>, 31st May 2012.
[118] Trajtenberg, M.: R&D Policy in Israel: An Overview and Reassessment, Tel Aviv University, NBER and CIAR, 2000.
[119] Maula, M., Murray, M, Jääskeläinen, M.: Public Financing of Young Innovative Companies in Finland, Ministry of Trade and Industry Publications, 2006.

launching of the BIRD-Foundation[120] in 1977, which enables Israeli companies to link and create partnership with U.S. high-tech companies and thus gained a valuable reputation in the USA.

For the second stage called "The Pre-Emergence Phase (1989-92) "was typical restructuring of the military industries during the second half of the 1980's, which caused an expansion of civilian-oriented, high-tech activity. Subsequently, laying-off hundreds of engineers from Israeli defense industry complemented by a huge immigration of thousands of engineers from the former Soviet Union in the early 1990's coming to Israel accumulated perspective, but unused potential of quality workforce. Externally, enhanced capital movements and opportunities for foreign SUs to float in NASDAQ opened the door for many successful exits of Israeli VC backed companies.[121] Although the massive government support for R&D, the government was failing in creating of start-ups companies. The officials decided to shift policy objectives from R&D to promotion of Start-ups formation and thus overcome detected problems namely follow up investments, insufficient management capabilities and technological development.

The first significant government attempt of direct involvement into the VC industry was Inbal Program, a predecessor of successful Yozma program, in 1992. Its main objective was twofold; to stimulate publicly traded VC funds and to promote VC industry as such. Inbal was structured as Government Insurance Company that provided VC funds traded in the Israeli local stock market downside protection up to 70% of their assets.[122] A similar structure was incorporated in German WFG. Neither the one of four funds established nor the Inbal were successful. They suffered from burdensome bureaucratic oversight procedures, the necessity of submitting time-consuming periodic reports and the fact that holding companies often trade at a discount to the value of their securities. These facts

[120] Israel – the US binational industrial R&D foundation.
[121] Rosiello, A., Avnimelech, G. and Teubal, M.: Towards a systemic and evolutionary framework for venture capital policy, Springer-Verlag, 2010.
[122] Avnimelech, G. and Teubal, M: CREATING VENTURE CAPITAL (VC) INDUSTRIES THAT CO-EVOLVE WITH HIGH TECH: INSIGHTS FROM AN EXTENDED INDUSTRY LIFE CYCLE (ILC) PERSPECTIVE OF THE ISRAELI EXPERIENCE, March 2006.

stood mainly behind the non- attractiveness of the program from professional venture capitalists providing real value added services and instead they were left to mercy of short-term thinking of the stock market. Nowadays, the former Inbal Funds are managed by one holding company.[123]

The unsuccessful Inbal program did not discouraged the government in pursuing their goal, but rather showed them how to avoid mistakes in structuring the completely different Yozma program (1993-1998), which is considered as the most well-known government supported VC program in the world. Yozma was spectacular in establishing domestic Israeli VC industry within 5 years and a profitable withdrawal of government from the program upon the fact that private investors decided to exercise their options.[124] Importantly, Yozma was designed and implemented by the OCS, who was skilled in promoting high-tech industries[125], as the fund of funds investing $80 million in ten private VC funds. Each fund received $8 million (40 percent) upon conditions that it would match with other 60 percent of private capital and also had to attract a decent foreign venture fund or financial institution to be a private investor.[126] The second requirement was essential as the government's priority was to bring respected foreign VCs to Israel and spillover their managements' skills and knowledge on local VC investors and managers. In order to motivate both the foreign and local VC investors the government offered a strong upside incentive and thus private funds had for 5 years a call option on governments' shares of the funds at cost plus 5-7 percent interest. [127] This tool seems to be very lucrative as all of the created funds were completely privatized by the end of 1998. The government retained $20 million, which were directly invested in early stage start-ups through government–owned Yozma Venture Fund. The program was extraordinary successful because of no government participation in day by day operation, the focus was strictly on early stage enterprises and the government adapted a proven LP form used in the US Venture

[123] See supra n. 115.
[124] See supra n. 118.
[125] Avnimelech, G. and Teubal, M: FROM DIRECT SUPPORT OF BUSINESS SECTOR R&D/INNOVATION TO TARGETING VENTURE CAPITAL/PRIVATE EQUITY: A CATCHING-UP INNOVATION AND TECHNOLOGY POLICY LIFE CYCLE PERSPECTIVE, Economics of Innovation and New Technology, 2008.
[126] See supra n. 115.
[127] Ibid.

Industry.[128] The Yozma Funds were managed by experienced private venture partners; mostly from outside of Israel. The triumph of Yozma program is demonstrated by its effects. Yozma Funds and subsequent new LP VCs founded created follow-up funds. Successful exits of VC backed start-ups helped to spread their reputation and thus reputation of Israeli VC industry. As a results Israel connected with many new strategic partners (f. e. Nokia, AOL), who enhanced their direct investments and accommodated new foreign investment banks, which set up offices in Israel. [129] In overall, the Yozma program played a central role in the co-evolution between VC (the supply agent) and SUs (the demand agent), because the enhanced VC activity stimulated additional start-ups; and additional start-ups drove further VC activity.[130] We cannot forget that the Israeli government has been subsequently introducing changes in taxation and corporate law in order to attract foreign VCs.

Collapse of stock market bubble followed by World capital market and high technology crisis (2000) caused significant reduction of VC flowing to Israel. VC investments were also significantly reduced (a 39% reduction in 2001, a 43% reduction in 2002 and an additional 11% reduction in 2003). No Israeli Startup company was listed in the NASDAQ between March 2001- September 2004. There was also a steep decrease in the share of total VC investment in 'seed phase' (from 10% of total in 2000 to 5% in 2001, 2% in 2002) and a movement towards safer later stage financing.[131] The government reacted to this unfavorable impact by setting up no taxation of foreign investors, encouraging local pension funds to invest in the VC industry and launching a new government sponsored seed VC as that stage suffered by global downturn dramatically.[132] However, if we look closely at the OCS budget, we can see that the government response to the Dot Com bubble crisis was unsuitable, because they reduced the OCS budget by 7.6%, despite a big drop in VC funding. The second slowdown has been managed more appropriately. In 2008–10, the OCS budget was increased by 13% in 2009, but unreasonably decreased by 4% in 2010.

[128] See more details of YOZMA program in Attachment III.
[129] See supra n. 119.
[130] See supra n. 121.
[131] Ibid.
[132] See supra n. 115.

In general, we could see in the tables 5 and 6 that the government has provided desirable support to VC industry as in 2008 the Israel was the second biggest VC market after the USA and in 2010 it managed to invest respectable 2.2 billion into perspective start-ups companies. Now, we would briefly present the current laws regulating VC in Israel and government's initiatives towards VC as it is important not to just establish, but also maintain a thriving VC environment.

3.1.3 Ongoing government initiatives toward Venture Capital Industry

The following changes to Israeli law are noteworthy as they are able to affect the VC industry. There is a new tax incentive scheme for angel investors to deduct qualifying investments against income from any source. Since 2011, seed investors can receive a tax deduction of up to NIS 5 million per firm spread over three years. However corporate tax rates increased to 25 % from the previous 24 % contrary to the previous plans to reduce the tax to 23 % and capital gains tax also rose to 25 % from the former 20 % as of January 2012.[133] We assume that these last two negative amendments of law would be temporary by the time the government stabilize a public finance. As the investments of foreign VCs are essential for Israel VC industry, the Israeli Income Tax Authority provides tax relief to non-Israeli investors that invest in high-tech companies, but they should be located in Israel or incorporated outside Israel, but with most of the assets located in Israel. A venture capital fund shall qualify for the tax exemption only when it raises more than $10 million, of which at least 50 % must be from foreign investors. Further the fund must invest at least 50 % of the funds raised in companies located in or associated with Israel in specified industries such as communications, information technology, medical technology and biotechnology or research.[134] As we mentioned before the low involvement of Israeli institutional investors has been Achilles' heel of VC industry[135] and therefore in November

[133] Venture Capital in Israel, Practical Law Company at <http://crossborder.practicallaw.com/4-500-9442?source=relatedcontent>, 2nd June 2012.
[134] Ibid.
[135] This is also a weakness of European VC industry in general.

2010, the government decided to encourage domestic institutional investors to deep more money into potential start-ups enterprises by launching the "The Safety Net program", which provides 25 % risk guarantee for them, on January 2011. [136] Next years will show us whether this downside incentive is able to raise more investments from Israeli Institutional investors or not. The major government's incentive towards the VC industry is currently the R&D Fund, through which the Israeli Office of the Chief Scientist of the Ministry of Industry and Trade pays for up to 50 % of R&D costs from its annual budget of US $300 million. After a critique that the grants are directed to the big companies, which would conduct the R&D regardless of this support, the new legislation was enacted in 2011, which excludes firms with over $100 million in revenues from this funding. The money should be initially diverted to small, young firms. Individuals are also encouraged to buy shares in technology companies with tax deduction if at least 75 % of the proceeds are used for R&D. Easing is also visible in case of transferring technology abroad by OCS- supported firms, which could apply for a license to transfer technology without paying increased royalties.[137]

There are also programs supporting pre-seed stages such as Tnufa, which assists start-up companies to evaluate the technology and the economics of a novel idea, to prepare a patent proposal or a business plan and also a direct support of up to $50,000 to each project. Nofar is specialized in bridging the gap between basic and applied research. Grants of up to 90 % are available to biotechnology projects. The last program called Heznek provides capital, which may not exceed $ 1.1 million over two years and 50 % of the start-ups working program, alongside with external investor in exchange for non-voting rights shares, which could be buy-out by investor within the first seven years.[138]

[136] See High Tech Industry Association Annual Report 2010 at <http://www.iati.co.il/attachments/275_HTIA%20Annual%20Report%202010.pdf>, 31st May 2012.
[137] Cohen, E., Gabbay, J. & Schiffman, D.: The Office of the Chief Scientist and the financing of high tech research and development, 2000–2010, Israel Affairs Vol. 18, No. 2, April 2012, 286–306
[138] Government Incentives at <http://www.iati.co.il/high-tech-in-israel/government-incentives>, 2nd June 2012.

3.1.4 Challenges for a future growth

What are the challenges for the governments towards the VC industry in the future?

Despite the all glory about the Israeli VC industry, there is an inability to turn its high-tech start-ups into mature companies. The biggest home-grown company is Teva, a drug maker listed on NASDAQ, with a market capitalization of $ 43 billion.[139] According to the Israel High Tech Industry Association, a trade association for the high-tech and venture-capital sectors, it has only four technology companies with market capitalizations of more than $1 billion. The Israeli start-ups are usually sold before they have a chance to grow into respected company with management and a proven business record. Two main factors contributing to these failures are insufficient late stage financing and short term thinking characteristic for Israeli start-ups.[140] While the former problem might be resolved in time by already mentioned "The Safety Net program", which allocates 200 million shekels to cover future losses of domestic Institutional Investors or by increasing of the attractiveness of Tel Aviv Stock Exchange, the later one could be more difficult. The needs to grow Israeli start-ups into more mature companies is not just a question of creating more jobs in home country and contribution to social welfare, but also necessary to successful exits. Recent trend reveals that companies need, in order to go public today on the Nasdaq Stock Market, to generate revenue about $100 million. Not ignoring these circumstances and the need to capitalize domestic stock exchange the government decided to incentivize start-ups to do IPO in Tel Aviv by providing tax benefits in condition that they sold at least one-third of the shares to public.[141]

Unlike in the late 1990's the market acquires companies with managerial organization, not just an idea or technology. [142] The later problem lies in Israeli's mentality. They act before they plan as there is no tomorrow. The exit strategy is proof of entrepreneurial concept. If

[139] What next for the start-up nation? The Economist, Jan 21st 2012.
[140] STUB, S.T.: Innovative Israel Failing To Grow High-Tech Start-Ups, The Wall Street Journal, August 2010. <http://online.wsj.com/article/SB10001424052748703632304575451211403181030.html> , 2nd June 2012.
[141] Supra n. 137.
[142] Ibid.

there is somebody willing to pay a lot (relatively), it means that a start-up has validity. Non-conventional explanation is also that the purpose of the first exit is to support a family and the second one to change the world.[143] We do not want to doubt the expert's opinions of bringing more companies into more mature stages, but what if just this feature of Israeli short termism stands behind its success? Aren't the smaller companies better suited for innovative solutions?

3.2 Finland – R&D Nation

We analyzed Finland and its VC industry for many reasons. The first one is the fact, that we can compare its public involvement towards the VC industry with Israel. Finland, with a population of 5.2 million[144], is a bit smaller that Israel, but it is more suitable for comparison, in terms of economic indicators[145], than other bigger economies such as those of Germany or France. The second reason is that the VC industry is also very young in its existence and it has been facing similar challenges as Israel. At the beginning we need to say that the development of Finnish VC industry has not been successful to the same extent as Israeli VC, which has been extraordinary in each aspect.

3.2.1 Current Situation

Finland fairly belongs to the leading group of countries with highest percentage of R&D expenditures compared to its GDP (Growth Domestic Product). In 2009, it invested outstanding 3.96% of its GDP[146] into the R&D industry and took a first rank amongst all

[143] Starting up in backpacks, The Jerusalem Post, May 22, 2012.
[144] See World FactBook at < https://www.cia.gov/library/publications/the-world-factbook/>, 10th June 2012.
[145] The GDP of Finland in 2011 reached $ 270.6 compared to $ 245.6 of Israel. The GDP per capita was also higher in Finland than in Israel, $ 38,100 and $ 31.000 respectively.
[146] See Gross domestic expenditure on R&D, 2000-2010 (% share of GDP) at <http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Gross_domestic_expenditure_on_R%26D,_2000-2010_(%25_share_of_GDP).png&filetimestamp=20120112082042>, 11th June 2011.

European Union countries in 2009. The similar figures targeting almost 4% of its GDP in recent years gives us reasonably the right to call Finland the R&D Nation. Although, this amount is high in EU perspective, it still lags behind Israel, which spent in the same year 4.27% of its GDP[147] into R&D sector. In contrast to R&D, early stage VC is not as reputable as the world class R&D performance.[148] In relative terms, Finland outperforms almost all selected European countries, except of the UK and Sweden, in the average value of VC as a percentage of GDP (Table 6). While in Expansion and Replacement stage, the difference amongst the countries is marginal, early stage investments of Finland together with Sweden and the UK, highly exceeded the others (0.045; 0.053; 0.45 respectively). We can observe a general trend of preferring the later stage investments both in Finland and other countries analyzed; however since 2006 Finnish PEFs[149] (Private Equity Fund) have distributed more VC to early stage than later stage enterprises (see the attachment IV)

Table 6: Source: IPTS WORKING PAPER on CORPORATE R&D AND INNOVATION [150]

Table 1. Average values of venture capital from 1995 to 2009 for selected countries. Percentage of GDP.

	Early Stage	Expansion and Replacement	Total Venture Capital	Public R&D
European Union (15 countries)	0.028	0.092	0.120	0.664
Denmark	0.036	0.068	0.104	0.771
Germany	0.024	0.048**	0.075**	0.762
Spain	0.011	0.080	0.092	0.477
France	0.026	0.074	0.100	0.783
Italy	0.009	0.050	0.059	0.531
Poland	0.007*	0.048*	0.055*	0.403
Finland	0.045	0.077	0.122	0.956
Sweden	0.053	0.141	0.194	0.931
United Kingdom	0.045	0.198	0.243	0.613

* from 1998; ** from 1997 Source: Eurostat

[147] See Research and development expenditure (% of GDP) at <http://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS>, 11th June 2011.

[148] Challenges and Initiatives for the Nordic Seed Stage; Promoting a common Nordic seed capital market, Nordic Innovative Centre, June 2009.

[149] It does not reflect total VC investments trend just attitude of Finnish PE Funds.

[150] Bogliacino, F. and Lucchese,M.: Access to Finance for Innovation: The role of Venture Capital and the Stock Market, No. 5/2011, November 2011. Interestingly, the authors found that a high correlation between VC investments in early stages and public R&D expenditure. They explained it by the fact that the institutional characteristics in Nordic countries, with high level of public expenditure and a consolidated system of innovation and social and labour relations, reduces the uncertainty of more risky investments.

Although quite impressive figures above, Finland is in absolute volume of VC investments below of all Scandinavian countries. In 2008 Finnish companies raised € 262 million, but the value of invested VC fell to less than a half (-59%), with only € 108 million in 2009. The decline continued also in 2010, when the value of capital investments reached only € 92 million.[151] In comparison, Norway (4.7 mill. population) invested € 265; € 160; € 179 million[152] respectively during 2008-2010.

In the next part we will introduce the evolution of the Finnish VC industry, the government's initiatives in this sector. We will also try to detect obstacles of the VC industry as high R&D investments do not correlate with the total volume of VC and propose optimal solutions to the impediments of the VC industry.

3.2.2 Emergence and Development of Finnish VC industry

Government intervention has played an important role in the emergence of the Finnish VC industry and even nowadays public VC organizations still play an important role within its dual structure. [153] The Finnish VC started its evolution in the late 1960s and the 1970s when the first companies were established. The first venture capital company called Sponsor Oy was established with the support of Bank of Finland, which was a majority shareholder with 60 % of the shares, in 1967. Sponsor Oy was a pioneer in experimenting first VC activities, but it relatively quickly turned its focus from early stage investments to financially attractive later stage financing. It was fully privatized in 1983.[154]

[151] TECHNOPOLIS ONLINE Annual Report 2010, Summary of Finnish High Tech Company Capital Raising Activity. < http://www.technopolisonline.com/sitefolders/newsroom/research/Technopolis%20Online%20Annual%20Report%202010.pdf>, 12th June 2012.
[152] < http://nvca.no/userfiles/Private_Equity_Funds_in_Norway_-_Activity_report__2011_-_Finale.pdf.> The investments were exchanged to € under current exchange rate (Norwegian Krone/ €). In Norwegian Krone the investments represented 1998; 1207 and 1356 million.
[153] Teubal ,M. and Luukkonen, T.: VENTURE CAPITAL INDUSTRIES AND POLICIES: Some Cross-Country Comparisons, The Research Institute of the Finnish Economy, 2006.
[154] Supra n.120.

Sitra, originally founded in 1967, has played a very important and different role in the inception and development of the Finnish VC market over the time. Sitra was researching venture capital and participated in the establishment of the Finnish Venture Capital Association in 1990. After shifting supervision from Bank of Finland to the Finnish Parliament in 1991, Sitra started its role as a venture capital investor. It has been involved in acting indirectly in venture investments both domestically and internationally as a fund of funds, but its focus has gradually been on direct investments in the early stage domestic firms. This diversion to early stage funding as well as unclear roles of both Sitra and FII caused that both public organizations have overlapped with their functions.[155] Appreciably, Sitra has invested in technology start-ups in the field of biotechnology, which in general suffers the most in gaining finance from private investors. The positive effect of Sitra's activities has been diminished by the large number of portfolio companies per manager, which has resulted in poor added value services offered to portfolio companies by overloaded managers.[156] It has also not succeeded in attracting foreign venture capitalists to invest in Finland in a sufficient way. The problem is that Sitra and other public agencies have not been able to hire enough foreigners as senior employees. It could be a negative result of the fact that these agencies operate largely in the Finnish language, which put foreigners to the second line in the crucial decision process.[157] Secondly, the reluctance of institutional investors to invest in new start-ups is also a consequence of huge losses suffered during a dotcom crash.[158] Since 2005 the new strategy of Sitra aims to improve the social impact of its activities by specializing in operations in innovation, health care, environmental technology, nutrition, Russia and India (Sitra Annual Report, 2004).[159] The VC industry was developing very slowly and in the early 1990's sixteen of the VC/PE companies were controlled by government, three privately-funded and independent VC/PE

[155] Lerner, J., Moore, D. & Shepherd, S.: A study of New Zealand's venture capital market and implications for public policy, LECG, September 2005

[156] Luukkonen, T.: VENTURE CAPITAL INDUSTRY IN FINLAND – COUNTRY REPORT FOR THE VENTURE FUN PROJECT, ETLA 2006.

[157] Supra n. 120. For example Israel is fully aware of importance of English language, which is in its perception considered as a language of Venture Capital. "Hebrew is a wonderful language, English is the VC language" (Gemini Venture Fund presentation), <http://www.gemini.co.il/files/ForEntrepreneurs/Dos_Donts_1.1.pdf>, 13th June 2012.

[158] Challenges and Initiatives for the Nordic Seed Stage; Promoting a common Nordic seed capital market, Nordic Innovative Centre, June 2009.

[159] Ibid.

companies, and 29 were corporate VC/PEs. The great deal of government intervention and its influence in the market has been a result of its social-democratic orientation, thus it is not surprising that 16 of these VC funds were owned by the Government. Nowadays, the government still plays a major role in funding the early stage enterprises.

The VC/PE companies usually had regional economic policy objectives and their investment decisions were highly influenced by their corporate shareholders. Large proportion of VC/PE investments was conducted by companies for whom the VC/PE activities were only a part of their activities. In 1987, SKOP a major Finnish commercial bank launched the pivotal Finnish VC-fund, which took a structure of the US limited partnership (LP), but with a little modification. Limited partners of the fund required a strong position in the decision making (investments decisions and strategy).[160] This was very different from the global standard. In 1995 the Finnish government established Finnish Industry Investment (FII), which primary policy goals are twofold; to promote the venture capital investment market by investing in new venture capital and private equity funds (fund of fund function), and to promote the commercialization of innovations by direct investments in seed and growth stage enterprises.[161] FII invests indirectly in seed and start-ups enterprises pari passu as other private investors; in this role FII acts as a fund of funds. The FII has not been ideally structured as it has invested in on the same conditions as other private investors. It means that the private investors are not incentivized enough, because FII does not offer them any additional upside leverage for high risk investments into early stage enterprises different from normal commercial returns. Secondly, the requirement to generate annual returns above the inflation rate was counterproductive as it shifts the FII's interest into less risky and more profitable later stage funding.[162] Moreover, FII has rapidly provided financing directly to Finnish firms, [163] [164] but without providing any value-added services to its portfolio companies as it has not

[160] Ibid.
[161] Ibid.
[162] Supra n. 156.
[163] Ibid
[164] In evolution of Finnish VC industry have been created many more funds and subsidies schemes. For more detail description see the Attachment V.

engaged in their boards.[165] This feature is typical for Finnish VC-directed policies, because public VC/PE organizations have perceived that their function is just to provide missing finance to start-ups, not to provide business development services as such.[166] In 2004 FII launched a new seed financing programme on the basis that 50% of funding from the programme should be supplemented by 50% of financing from private investors.

Additionally, more support in R&D funding is guaranteed by government support organizations. Tekes[167], the Finnish Funding Agency for Technology and Innovation, is a major funding organization for young innovative start-ups involved mostly in basic, applied research. Finnvera[168] offers financing services to promote both the domestic operations and internationalization activities of Finnish businesses. Finnvera plc's venture capital investment company, Veraventure Ltd, was founded in 2003 in order to manage and develop the investment activities of regional funds operating as limited companies. Its role is to stimulate the growth and development of SMEs (Small and Medium Enterprises) through investments in funds. The resistance of institutional investors to deep money into the new start-ups is clearly visible in the early stages investments, which is filled by public agencies. Upon the Annual Report of FVCA (Finnish Venture Capital Association), Veraventure commands over 80% of the early stage market. Veraventure is not allowed to make any direct investments in portfolio companies.[169]

Regarding the Corporate VCs, there are only a few corporate VC in Finland. The major one is Nokia Venturing, which has a global geographical focus, but according to Luukkonen (2006) and his findings, it surprisingly does not invest in Finland. Notwithstanding the previous, the extraordinary growth of Nokia, its own R&D activities and spin-offs create a lot of R&D investments and activities in Finland. Nokia also contributed markedly to relatively dynamic development of VC industry in the 1990s.[170] Nokia is, above all, one of

[165] Supra n. 155.
[166] Supra n.153.
[167] < http://www.tekes.fi/eng/>, 13th June 2012.
[168] <http://www.finnvera.fi/eng>, 13th June 2012.
[169] Supra n.156.
[170] Nokia's effect on the Finnish ICT has not been just in immediate and direct effect, but also in its networking effect with a large network of suppliers and subcontractors. Its contribution is also in research collaboration with

the biggest R&D Investors in Finland. The dependency of Finland on Nokia is so great that whenever Nokia is doing badly, the immediate consequence is the decrease in R&D investment in Finland. It will be interesting to see what will be the consequences on Finnish R&D as a result of losing the market share by Nokia in near future. The government should have some backup plan how to keep a high level of R&D in case of lower spending by this giant.

In general Finnish public programs of direct support of R&D seem to be more selective and focused on specific technologies than those of Israeli. Promotions of regional development via regional funds, which decisions making in investments are bias on regional criteria and are usually small are also questionable. In our opinion such redistribution of funds is less effective as these funds provide finance based on local criteria rather than quality of companies' business plans.

3.2.3 Lessons from structuring public venture capital programmes

To sum up, we have seen several systematic mistakes in building successful VC industry by Finnish government. The overall structure of public organizations seems to be very fragmented. It results in overlapping their functions and excessive expenses spend on human labor. Also the goals of these organizations have not been defined properly. These obstacles are planning to be overcome by new reorganization of the public organizations supporting the venture capital universe. Hence, Sitra will concentrate solely on venture capital investments within its specific programmes mentioned before; FII will focus on growth stage investments and Veraventure on investments in the seed and startup stages.[171] Similarly, following the risk aversive nature of public agencies resources are spread too widely for many companies, which causes that follow-on investments are not sufficient.[172]

SMEs and public sector research organisations. Positive sign of its networking strategies is that Nokia provides strong spill over effects on the Finnish research system and the ICT sector [Luukkonen (2006)].

[171] Supra n. 158.

[172] Ibid.

Further, there have been no upside leverage incentives, which would attract private investors, more specifically foreign PVCs. Investing 'pari passu' seems to not overcome a risk associated with financing start-up enterprises in this stage of development. The evaluation policy of FII's performance should be viewed in long term perspective in accordance to cyclical feature of VC and not on annual basis, which does not reflect the real performance of a fund. Public organizations should invest through independent, private funds and minimize direct investments into the start-ups. By investing through Private funds they can substantially reduce the crowding out effect, which might occur when the government organizations invest directly into start-ups companies. Finally, the public organizations should be more oriented to provide services, such as networking with world leading venture funds, which would help and motivate start-ups to grow globally. Only successful stories of Finnish start-ups can catch attention of big foreign venture funds willing to invest more money in the country.

At the end we cannot forget that successful public VC programs must be complemented by favorable investor's environment. Before the reform of Income Tax Act introduced in 2006, participation of international investors in Finnish Funds led to permanent establishment, which caused that they had to pay taxes to Finland and their home country as well. The amendment of tax law, which abolished the application of this principle, has been positively perceived by foreign investors, who began to participate more in Finnish Funds. However, this applies only to the subjects with a residence in tax treaty countries and thus foreign investors from the non-treaty countries have remained to be in disadvantage in investing in Finnish Funds. Besides, there is another significant problem in Finnish VC taxation concretely participation exemption. The law provides exemption for the capital gains on fixed asset shares, but this however does not apply to the sale of shares by the companies, which main scope of business consist of VC/PE investments. This should be revised. Capital gains tax should be relaxed not only for gains obtained through dividend distributions but also for gains obtained through sale of securities. Liquidity is king, and getting optimal securities sale conditions (in terms of tax) can make the market more liquid.

Less flow of capital comes from Association of the public good (charitable and non-profit organization), which are tax exempt and may invest directly in companies or investments funds and receive the proceeds tax exempt. Surprisingly, in practice the investments of these associations are not tax exempt if invested in Venture Funds.[173] It would be desirable if the Finnish government extended the Income tax Law also for foreign investors from non-treaty countries, enable VC/PC Funds for Participation Exemption and extend the scope of tax exemption for Association of the public good to Venture Funds. It might increase the volume of investments into the early stage enterprises.

Another problem for early –stage investments is exit strategy because of the small size of the Helsinki stock exchange with poor liquidity and vulnerability. Since the dotcom downturn an IPO as an exit route is more of an exemption than the rule. A possible solution might be to grow start-ups globally and prepare them to be listed on foreign stock exchange like NASDAQ or considering cross-listing. While the first suggestion can drive the value away from Finland (and Europe), because the companies do also migrate their corporate seat to the US in order to be closer to their investor base, double-listing seems to be more appropriate in this regard.

Another solution might be to incentivize start-ups to do IPOs in Helsinki Stock Exchange by offering tax benefits under the condition that they sell certain percentage of shares to public. This trend is currently pursuing by Israeli government in order to capitalize the Israeli Stock Exchange.

[173] Obstacles to Nordic Venture Capital Funds. Promoting of Common Nordic Venture Capital Market, Nordic Innovation Centre, Updated version, November 2011.

IV. Development of Venture Capital industry in Slovakia[174]

4.1 Current VC performance in Slovakia

Slovakia has the most underdeveloped venture capital market amongst the countries in Visegrad group[175], which is also accompanied by poorly developed entrepreneurial culture.[176] This financing tool is still struggling in its attempt to gain significant position in the financing of SME's in Slovakia. This is reflected in total VC investments in Slovakia according to European Private Equity and Venture Capital Association's annual Central Eastern European Reports (Table 7), which are far below those of other selected countries; regardless of lower VC activities in Hungary in 2009 or Poland in 2009 and 2010. Slovakia reached the top in VC investments in 2004, when it invested € 7.056 mil and two years later € 4.02 mil (Table 8). In 2010 Slovakia reported € 2.072 VC investments from which majority were directed to seed stage. There was no VC activity reported in 2008.

Table 7: Type of VC investments in € thousands in the V4

Stages/ Country	Slovakia			Hungary			Poland			Czech Republic		
Year	2010	2009	2008	2010	2009	2008	2010	2009	2008	2010	2009	2008
Seed	1742	0	0	853	0	0	0	1100	4003	0	0	0
Start up	0	0	0	5761	1255	2017	1293	0	10660	13139	0	281
Later-stage venture	330	1739	0	11286	362	22900	1272	634	35687	9910	29987	12717
Total Venture	2072	1739	0	17900	1617	24917	2565	634	50350	23048	29987	12998

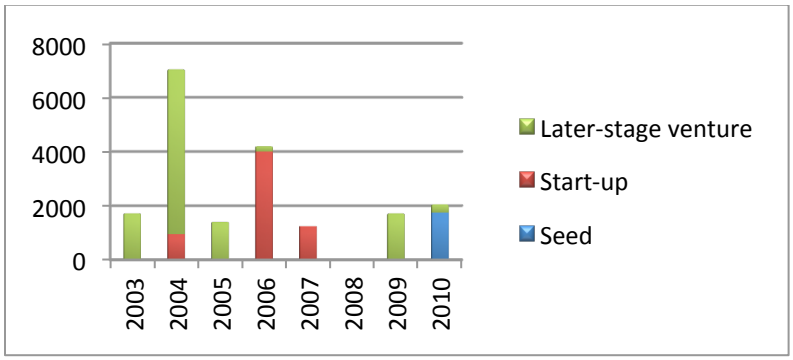
Source: EVCA, CEE Annual Reports

[174] Czechoslovakia was formally dissolved to be replaced by the Czech and Slovak Republics on 1 January 1993. By CEE standards both countries have well developed economic systems although Slovakia has the less developed of the two economies (Bulir & Charap, 1993).

[175] The Visegrad Group (also known as the "Visegrad Four" or simply "V4") reflects the efforts of Czech Republic, Slovak Republic, Poland and Hungary to work together in a number of fields of common interest within the all-European integration. <http://www.visegradgroup.eu/>, 21st June 2012.

[176] Mike Wright & Judit Karsai & Zbigniew Dudzinski & Jan Morovic (1999): Transition and Active Investors: Venture Capital in Hungary, Poland and Slovakia, Post-Communist Economies, Taylor and Francis Journals, vol. 11(1), pages 27-46.

Table 8: VC Investments in thousands in Slovakia (2003-2010)



Source: Computed from EVCA, CEE Annual Reports (2003-2010)

Remarkably low VC investments in Slovakia in Table 7, specifically no VC activity in 2008, prompted us to investigate the reasons of this poor performance. We reviewed the Annual Reports of NADSME [177] on the Situation of SMEs in Slovakia from 2006-2010 and found the different figures than those in EVCA CEE Reports about Slovak VC investments. It might be a result of insufficient cooperation between EVCA on one hand and NADSME and SLOVCA[178] on the other hand or internally between SLOVCA and NADSME.

In 2006, 9 investments were executed in total amount of € 2.05 mil. In 2007, there were 10 investments realized reaching the value of € 7.04. The number of investment increased to 23 amounted for the value of € 8 mil in 2008. In 2009, there were 26 investments undertaken in the amount of € 13.9 mil. Next year, the VC investments decreased by number of investments; just 20 investments were realized as well as the amount invested, which decreased by 18% to € 11.9 mil. (See table 9).[179] Regardless of the inaccuracies in measuring the volume of VC investments in Slovakia, the Slovak VC market still lags behind the other V4 countries.

[177] *"The National Agency for Development of Small and Medium Enterprises (NADSME) was founded in 1993 by a common initiative of the EU and the government of the Slovak Republic. The agency supports development and growth of small and medium-sized enterprises (SMEs) in the Slovak Republic with the aim to improve the competitiveness of the sector within the single EU market and the markets of third countries by means of 4 main priorities: the stimulation of the sector growth, the increase of its competitiveness, internationalisation – penetration into new markets, the facilitation of the access of SMEs to funding sources."*
< http://www.nadsme.sk/en/content/about-us>, 22nd June 2012.

[178] Slovak Venture Capital Association. < http://www.slovca.sk/>, 22nd June 2012.

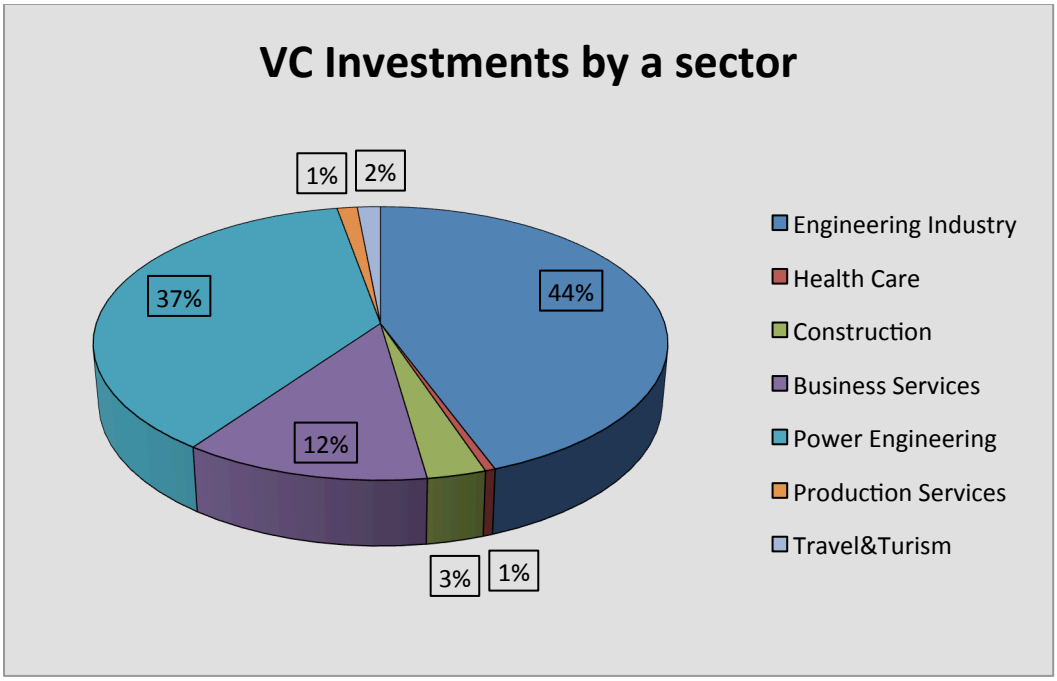
[179] The Situation of SMEs in Slovakia in 2010. Available only in Slovak at < http://www.nadsme.sk/files/Stav_MSP_2010-fin.pdf> , 22nd June 2012.

Table 9: Numbers and amounts of approved VC Investments of selected Funds in € thousands (2006-2008). Total executed VC investments in € thousands (2009-2010). NoI = Number of Investments, AoI= Amount of Investments. There were no amounts of investments available for selected funds in 2009.

Name of Fund	2006		2007		2008		2009		2010	
	NoI	AoI	NoI	AoI	NoI	AoI	NoI	AoI	NoI	AoI
The Seed capital fund	1	249	2	663	23	6881	-	-	-	62
Early stage fund	3	950	3	448	4	1846	-	-	-	642
Early stage development fund / The Slovak Growth Capital Fund- since 2008	1	232	1	166	0	0	-	-	-	9346
SISME Fund	2	332	0	0	0	0	-	-	-	693
INTEG Fund	0	0	0	0	0	0	-	-	0	0
Regional start-up capital fund	2	116	0	0	1	166	-	-	-	676
The Slovak Development Fund	3	3983	8	6838	3	3452	-	-	-	-
Total Investments	12	**5862**	14	**8115**	31	**12344**	26	**13900**	20	**11400**

In the pie table below, we can see the VC distribution of total € 11.4 mil in 2010. A huge amount of funds was directed to relatively new sector of industry – alternative energy resources, which were in the main interest of The Slovak Growth Capital Fund's investments. Engineering industry was the most preferential destination of VC funds with 44%. On the other hand, only 1% of the VC investments were allocated to health care and production services.

Table 10



Source : NADSME Annual Report on the Situation of SMEs in Slovakia in 2010

4.2 Short history of Venture Capital in Slovakia

The goal of the Slovak government has not been to create a robust VC market as in Israel, but similar to Finland to support SMEs and thus overcome financial constrains in their financing.

Since the history of Slovak capital market is short, the size of it cannot be compared to European markets with decades of history. The first venture capital investments in Slovakia occurred no sooner than in the first half of nineties, when the Slovak American Enterprise Fund[180] (SAEF) entered the market as a first venture capital investor.[181] In

[180] *"The United States Congress enacted the Support for East European Democracy Act (SEED), which authorized the creation of enterprise funds to assist the development of private market economies in Central and Eastern Europe, in 1989. SEED established the funds as unique "public-private partnerships" for the purpose of investing U.S. Government (USG) funds to support the private sector and nascent market economies of Poland and Hungary.*

1991, SAEF was originally established as Czech and Slovak American Enterprise Fund in order to achieve growth and transform the Slovak economy to market economy principles. Since 1996 the SAEF has been fully oriented just in equity investments into SMEs and providing loans and advisory services for SMEs; exclusively in Slovakia.[182] Over the years SAEF invested $37.2M in total; concretely $34M was invested in 25 Slovak companies in the form of equity valued at $25M, and loans valued at $9M. Indirect effects of SAEF's investments served as a catalyst to encourage financial institutions to provide loans for small businesses. Additionally, SAEF also presented western style corporate governance practices through its portfolio companies.[183] The second milestone in creating VC industry in Slovakia was launching "Fund of Funds", s.r.o.[184] (former Seed Capital Company, s.r.o.) by the National Agency for Development of Small and Medium sized enterprises, as its subsidiary, back in 1994. Its role has been to manage the Start-up Capital Fund financed by the National PHARE Programme. In 1995 the company became one of the founding members of SLOVCA - Slovak Association of Venture Capital and a member of EVCA - European Venture Capital Association.

In the next part we will analyze the strategy of NADSME in the risk fund creation in the period 2006 – 2013. It is a positive sign that NADSME chose the form "fund of funds"[185] as the instrument for the public intervention for the risk bearing funds creation. This structure proved to be successful in Israel (Yozma) and in other developed VC markets. NADSME was appointed to be the organization for implementation of the fund of funds creation and matching the fund with private investors. We agree that the NADSME has the capability to manage the public fund of funds. NADSME received € 40 mil from public funds and aimed to create three funds, but only two with private participation. They did not count with private participation in launching The Seed Capital Fund focused on start-ups,

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Subsequent Foreign Appropriations Acts extended the authorization to establish funds in other Central and Eastern European countries, including the Slovak Republic."
At < http://www.slovakamericanfoundation.org/about/history.aspx>, 21st June 2012.

[181] Polák, M: Focus on Venture Capital: The Slow Start of a Fast Industry, AMCHAM CONNECTION.

[182] At < http://www.saef.sk/>, 21st June 2012.

[183] See < http://www.slovakamericanfoundation.org/about/history.aspx>, 21st June 2012.

[184] S.r.o is the abbreviation of Limited Liability Company according to the Commercial Code of Slovak Republic.

[185] Venture Capital in the Slovak Republic, MASTER PLAN Developed within the ESTER project, NADSME, BIC Bratislava 2005.

because of the high risk of these investments.[186] Here, we have consensus with the NADSME in regards of riskiness of seed investments, but we would implement a different strategy. We believe that by offering attractive incentives (upside side leverage), they could mitigate the riskiness and match even this fund with private investors. Moreover, the value added services provided by private management companies could be in better help for vulnerable early stage enterprises that the services provided by the NADSME. The second fund – Early stage fund- aimed to target young companies up to three years of their existence or up to three years of development of a new product or service. They intended to match € 10 million public money with at least 10 million from private investors. This structure is in line with our finding in the third chapter that the governments should syndicate with the Private Venture Capitalists and keep a minority stake in such heterogeneous syndicate. Providing loan co- financing is proclaimed by the NADSME as an advantage, but we oppose that is more of a disadvantage as the companies would get cheaper finance, but without any additional services needed. The third fund – Early stage development fund- should address the needs of companies in their development phrase. They did not need to be innovative, but had to be technology based. The management of the Fund of Fund has been assigned to the NADSME, which will be also a member of the investment committee in selecting of the private investors. The intention to keep at least some Slovak managers in single funds with foreign capital participation is very reasonable, because Slovak managers could gain valuable experience from foreign private investors while managing a fund. Also a passive role of the Fund of Funds in managing the single funds has followed a global standard. However, the Fund of Funds keeps its representatives, who have a veto right during decision process. Requirement for Management Company to invest into a fund is widely used in the VC industry worldwide. Finally, we will introduce the all incentives introduces by the NADSME:

- The main incentive for the private investors is the participation of the fund of funds;
- Risk sharing, where the major part of the risk will be borne by the public fund
- Management of the risk capital funds and management fee

[186] See Supra 186.

- Possibility of buying pats of public fund of funds for LIBOR and 2 % p.a.
- Penetrating CEEC markets[187]

In general, the incentives for private VCs above have not been sufficient for underdeveloped Slovak VC market. The possibility of buying stakes of public funds for attractive 2 % p.a. is the only positive point. On the other hand, investment parri passu seems to have no effect in this development stage of the VC market in Slovakia and providing downside protection has been proved ineffective several times through this thesis, even counterproductive (Inbal; WFG, Germany). We are also critical to sharing the yields from the funds as private investors will obtain the same 5 % as the Fund of Fund. It means any upside leverage for Private investors again.

4.3 Current public Venture Capital Funds

The Fund of Funds (FoF) still plays the main role in supporting Venture Capital investments in Slovakia. More precisely its main objective is to support a creation of new and development of already established SMEs in Slovakia. The FoF intends to invest into the SMEs so that the profit gained from these investments could be used for further financing of the SMEs.[188] It is different from the Israeli Yozma program, which was implemented with the purpose of creating a VC market and exit as soon as private investors buy their stakes in portfolio companies.

At present, the FoF manages 4 funds of venture capital, which were established from public funds, i.e. PHARE programme funds and partially from state budget resources. The FoF also covers the Slovak Business Angels Network (SBAN) which supports small and medium entrepreneurs through Business Angels investments on a platform of matching entrepreneur‘s financing demands with investor's offers.

[187] See Supra n.186.

[188] Kubrická, M.: Support and development of small and medium-size enterprises (SMEs) in Slovakia, NADSME, Bratislava, 2012.

Start-up capital fund and *Regional start-up capital fund* support small and medium enterprises. In our view the scope of their funding is too wide and does include the sectors with no innovative orientation such as Tourism, Manufacturing etc. I am not sure if we can talk about venture capital investments although they invest into the equities of targeted companies. More innovative focused are *INTEG fund*[189] and *SISME fund*, which aim to support innovative companies. However, since their inception in 2005 the INTEG Fund has not executed any investments and the SISME fund has provided only € 332 000 for two projects in 2006 and € 693 000 in 2010. The main features of the FoF are direct investments into companies. As we pointed out in the third chapter, the most effective way of government involvement into the VC industry is through syndication with private investors, who will manage creating funds. The disadvantage of FoF in direct funding of SMEs is poor selection process, low value added services offered to companies and possible political involvements in selection process.

Seed Capital fund's main goal is to provide seed investments into newly established, young and innovative small and medium enterprises in Slovakia.

Nowadays, there are only two funds which are managed by private management companies. *Slovak Development fund* has been founded in cooperation with Slovenská sporiteľňa[190], in 2006. Its objective is to support small and medium enterprises through venture capital investments, contribute to the improvement of business environment in the Slovak Republic and at the same time valorize the invested funds. The second and the youngest fund called The Slovak Growth Capital Fund ("SGCF") was established in June 2008 by the National Agency for Development of Small and Medium Enterprises ("NADSME"). The major investor in the fund is NADSME through its subsidiary the FoF whereas Wood & Company, a.s. ("WOOD & Co") has been selected as the exclusive manager

[189] Too narrow investment strategy of the INTEG fund caused that it has not fulfilled its objectives. Thus the European Commission adopted a decision on the return of € 400 thousand they provided to the fund. For the same reasons, the Ministry of Finance asked for a refund of € 400 thousand from the fund. The Fund is currently inactive.

[190] The biggest commercial bank in Slovakia.

of the fund. The SGCF focused on SMEs and projects with an acceptable risk and return profile in Slovakia.[191] We might be overcritical, but we still miss the innovative orientation of these funds. It will be interesting to analyze the innovative character of supported companies. Unfortunately, we do not have an access to this information. Despite of that, we appreciate the volume of capital invested by the SGCF amounted to € 9.35 million in 2010. This is a proof that private investors should be left to manage public VC funds.

4.4 Obstacles of Venture Capital Industry in Slovakia

Development of Venture Capital Industry in Slovakia faces several structural problems on both supply and demand side. Venture Capitalists especially point out the anxiety of business owners toward VCs and a lack of skills possessed by potential entrepreneurs. The research conducted by the NADSME revealed that the Slovak business owners are anxious about letting venture investors become stakeholders in their company. They perceive the VCs as potential threat of losing control of their company, whilst overlooking the advantages of co-operation with venture investors. However, this problem could be easily tackled by presenting the cases of successful companies supported by VCs. More problematic seems to be the lack of entrepreneurial skills (such as inability to sell a product or financial management skills) amongst the people with technical background, researchers and developers who are the best suited to start innovative companies in developed VC markets. In Slovakia, R&D practitioners exceptionally start their own companies and connect the R&D results into practice.[192] The reasons of low entrepreneurial activities and corresponding business skills might lay in short time history of free market economy as the principles of free market economy have been used in Slovakia only since 90's.

The already mentioned problem of the anxiety of business owners derives from the insufficient awareness of VC and its positive effects. We can blame the SLOVCA and the

[191] NADSME website.
[192] See supra n. 181.

NADSME for neglecting to promote the potential of VC as a source of financing to entrepreneurs. Consequently, the low investments opportunities lead to low number of VC investors and reduce competition between them.[193] Moreover, Slovakia is struggling with the same problem as Israel and Finland because of the absence of a vivid stock exchange, which is reducing the possibility to exit successfully via IPO.

Serious problem not just for creating a VC industry, but also for the economy is small innovative production of SMEs. The main reasons of this are insufficient R&D expenditures in Slovakia. Slovakia invested only 0.63% of GDP to R&D in 2010. It was even less than 10 years ago when R&D expenditure amounted for 0.65% of GDP.[194] In this regard Slovakia is deeply below the European average of 2% of GDP in 2010. The second reason is a missing communication and a transfer of solutions between R&D institutions and companies.[195]

Finally, we cannot forget to overview the tax and legal environment (TLE) regulating the VC industry in Slovakia. In 2008, the EVCA was conducting research focused on measuring the attractiveness of the TLE in Europe.[196] Slovakia was ranked at the bottom of this classification just above the Czech Republic. The overall TLE was marked as very unfavorable not only for LPs and fund management companies, but also for investee companies and for retaining talent.

Generally, institutional investors are indispensable sources of VC in developed VC markets. It is very important to attract them to invest into the VC as they can invest huge amount of money and they tend to invest in long term projects. Pension funds face serious problems while investing in Private Equity (PE) and VC in Slovakia. According to the § 81 of the Act 43/2008 Coll. on the complementary pension saving as amended, Pension funds can invest only into assets which are explicitly listed in this article. Although private equity is not included in the list of allowed assets and thus they shall not invest into companies not

[193] Ibid.
[194] See Attachment VI.
[195] See Supra 185.
[196] Benchmarking European and Legal Environments, Brussels: EVCA, 2008.

listed on a regular market. However, private equity can get into the portfolio of pension funds via open-ended specialized common funds, which invested into non-public assets. It is practically impossible to invest into foreign private equity indirectly through collective investments, because pension funds shall invest only into foreign funds, which are in compliance with the UCITS[197] directive. Pension management companies themselves are allowed to invest into the private equities. They are not regulated in the Act; only pension funds. These constrains are reflected in the composition of pension funds' portfolios in Slovakia, which have one of the smallest proportion of equity investments in OECD.[198]

The Slovak Insurance Law[199] allows categories of investments and sets out the limit of the technical reserves that can be invested in each assets class. Although, private equities the same as in the Pension Funds are not included. This applies only for the technical reserves. Other assets of insurance companies can be invested in the private equities.

Slovakia is not a traditional PE/VC fund jurisdiction. However, foreign offshore funds are normally used. Nevertheless, new Act on Collective Investments [200] introduced a new form of collective investments called Alternative Investments Specialized Common Fund (AISCF); Ar. 119(5). The AISCF is not regulated by a legally binding act of the European Union governing the collective investment. It is a joint stock company governed by the applicable provisions of the Commercial Code with stipulated minimum registered capital requirement of € 125000. It is not a legal person and it must obtain a license from the Slovak National Bank prior to its incorporation. The AISCF can invests its assets in unlisted securities, equity shares in companies, commodities, commodity derivates, convertible securities and precious metals and the certificates which represent them. Ambra considers this type of fund as the basis for the establishment of private equity and venture capital

[197] Undertakings for Collective Investment in Transferable Securities directive as amended.
[198] See Attachment VII.
[199] § 32 8/2008 Coll. on Insurance.
[200] Act No. 203/2011 Coll. on Collective Investment. The new Act on Collective Investment cancels and to the full extend replaced the Act No. 594/2003 Coll. on Collective Investment, as amended. The Act transposed the Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) as amended by Directive of the European Parliament and of the Council 2010/78/EU of 24 November 2010 (UCITS IV Directive). The Act is accessible at
< http://www.nbs.sk/_img/Documents/_Legislativa/_FullWordingsOther/A203_2011.pdf>, 24th June 2012.

funds in Slovakia.[201] The Article 136 of the said Act also introduced the Specialized Common fund of professional Investors (SCFPI). The fund unit certificates of a professional investor specialized common fund may be issued for professional investors only. The professional investor is a person, who complies with requirements related to a professional client of a qualified investor under a separate law or an investor, if, at least, the amount of € 50,000 is invested. The funds unit certificates of a professional investor may be transferred to another unit-holder provided that he is a professional investor. It may be established solely without a public offering. The advantage of *SCFPI* as compared to other collective investment funds lies in the fact that the law places no restrictions on *SCFPI* in terms of investment strategy and investment instruments. Therefore, *SCFPI*s are not subject to undue restrictions on investment. The rules governing the activities of the fund are set forth in its statute and its formation and commencement of business operations are subject to the grant of a license by the Slovak National Bank. [202] Funds' assets are held in custody or other care by a depositary bank. Both funds are not legal persons. Revenues flow directly through to investors or owners; that is, the income of the entity is treated as the income of the investors or owners. The individual investors in these funds are exposed to two types of taxes. In case of the redemption of shares the income is subject to 19% of Income tax. The same rate applies for capital gains from holding the shares in the funds. While the former rate is well below the European average of 39.6%, the latter is almost 4% higher that the European average. The revenue of domestic legal persons is taxed at corporate level at company tax rate 19%.[203]

Unfortunately, Slovakia does not provide any fiscal incentives to support young and innovative companies in their early development phase. Slovakian enterprises enjoy favorable tax treatment at company rate of 19%. As mentioned above, corporate gains are taxed as income at flat rate 19%. Dividends are not subject to any tax burden. The low R&D

[201] AMBRA, T.: New Regulation of Collective Investments in Slovakia. "Rekodifikácia zákona o kolektívnom investovaní". In Konferencie "Kolektívne investovanie na Slovensku 2010"
[202] Act No. 203/2011 Coll. on Collective Investment.
[203] The new Slovak government intends to increase corporate tax to 23% as a part program of the Public finance consolidation.

expenditures are accompanied by no incentives for business R&D expenditures, R&D capital expenditures, technology transfer etc.[204]

After the amendment of Income Tax Law,[205] stock options are not taxed as employment income when they vested, but on the day an employee sells them.

Conclusion

We have seen in the previous part that the problems of the VC industry are on the both supply as well as demand side. There is no simple solution for the improvement, but this challenge has to be tackled by a complex plan. The government sponsored Venture funds should be complemented by a favorable tax and a legal environment, which will energize the creation of potential companies for VC investments.

Firstly, the NADSME, SLOVCA and SARIO[206] must promote Venture Capital to the greater extent. They should connect successful Slovak start-ups enterprises backed by Venture Capital with this source of financing and point out its positive effects, which can help to grow a company globally. It is a positive sign that SARIO and its business partners launched the Slovak Start-up Development Program last year, which enables young innovative start-ups to compete the 3 month placements in Silicon Valley Plug and Play International Tech Center and develop their businesses there. It provides successful entrepreneurs an opportunity to facilitate the expansion of their innovative ideas across borders, network with other entrepreneurial peers and to get acquainted with innovative know-how.[207] The role of Slovak representatives in the USA is also indirectly increasing an awareness of the Slovak VC market for US investors.

[204] See Supra n. 196.
[205] Income Tax Act No. 595/2003 Coll.
[206] The Slovak Investments and Trade development Agency.
[207] For more information see < http://www.sario.sk/?start-up-en>, 24th June 2012.

Secondly, the R&D expenditures should increase and catch up with the European average. In times of the economic downturn, it is seriously a difficult task, but as was said at the beginning, innovative companies are capable of creating new jobs in near future and consequently the economic growth as well. Public finance should not be necessarily burdensome by providing direct subsidies to R&D, which would be otherwise preferred, but through giving tax credits to individual researchers and businesses conducting R&D. Additionally, Slovakia as a small economy does not have the capacity to excel in all domains of R&D. Therefore, we share the SARIO recommendation to specialize in specific R&D sectors such as Design in Automotive, ICT R&D and Software Development, R&D in Nuclear Power, R&D in Renewable Energy and R&D in Optoelectronics and thus provide direct R&D subsidies or tax credits preferably to these areas.[208] We also consider potential of the Fund of Funds to create new funds with Corporate Partners. Corporates' participation in the fund can be significantly useful in the selection of perspective enterprises and they can also offer necessary value added services to portfolio companies (networking, partnering etc.). By this, they can help to overcome the lack of entrepreneurial skills of business owners and assist them in commercialization of R&D outcomes. Moreover, corporations can also participate in creating successful exit strategies for VC backed companies.

The Fund of Funds investment strategy needs to be also amended. The FoF should launch more funds or transform already established funds and syndicate them with private investors who would possess majority stakes. It has been proved that this kind of syndication is the most effective model of government intervention into the VC industry. The FoF should take advantage of relatively big amount of money in its disposal and no pressure to generate quick returns and engage in long term projects. These advantages can be very well utilized in biotechnology and pharmaceuticals industry. Keeping in mind the size of Slovak economy, the FoF should attract mostly foreign VC investors and offer them competitive incentives. The Slovak government should provide the incentives to both General Partners (GPs) and Limited Partners (LPs) as hybrid funds are mostly structured as Limited Partnerships (LP), in which Investors become LPs and venture capital managers

[208] R&D in Slovakia – Discover the Potential. SARIO.
< http://www.sario.sk/userfiles/file/sario/pzi/rad/handout_rad_v1.pdf>, 24th June 2012.

are the GPs of the fund. It is necessary to engage with a reputable management company and therefore the GPs should be offered the same or slightly better conditions than those on the market (higher carried interest, higher management fees etc.). The purpose of this is to avoid the less experienced GPs to manage Government sponsored Venture Funds. The government might also attract foreign VCs by providing them a tax relief if they invest in high tech companies under certain conditions. They could follow the Israeli policy, which stipulates that a venture capital fund shall qualify for the tax exemption only when it raises more than $10 million, of which at least 50% must be from foreign investors. Further, the fund must invest at least 50% of the funds raised in companies located in or associated with Israel in specified industries such as communications, information technology, medical technology and biotechnology or research.

We advise providing upside leverage incentives (exclusive buy-out options, use a strategy invest first get the money back last or Capped return for Public Investments) to VC investors. It is very suitable tool for energizing the VC industry in a development phase. The FoF should also have a clear focus on innovative early staged start-ups and abandon the role of supporting SMEs in general, which should be exclusively in the competence of the NADSME. This could be a way of supporting more innovative companies with potential to grow globally. We also suggest leaving the policy of redistributing the money based on regional criteria and focus more on quality projects. It could increase available finance in the funds, which are necessary for developing perspective start-ups' ideas. In general, the FoF should gradually withdraw from providing direct investments to SMEs and transfer that money to the disposal of hybrid funds with private participation as we proved that the private investors tend to invest the money more effectively and profitably than pure public funds. It is clearly seen in the volume of investments made by privately managed Slovak Growth Capital Fund (€ 9.3 mil in 2010). Moreover, the strategy of the FoF should focus on the creation of the VC industry and exit as soon as possible (Yozma case). Investments of public VC through the fund of funds schemes can also as we mentioned before, protect private investors from negative crowding out effects.

The Slovak government must be ambitious in pursuing the goal to create the vivid VC market. Apart from the suggestions above, the government should remove obstacles from the tax and legal environment for all VC market participants. We have seen that pension funds are legally excluded from making VC investments. Objectively, we must admit that VC investments are very risky and therefore it would be unwise to let pension funds invest in private equity arbitrarily. However, it is irrational to exclude them completely from these investments as they could be very profitable. We recommend allowing mandatory pension funds to invest into unregistered equities up to 10% of the fund value. This percentage might increase for voluntary private pension funds with prior consent of individuals. Even Sweden, one of the best VC markets in Europe, allows domestic pension funds to invest only 10% into unquoted securities.[209] In regard of Insurance companies, we recommend those to not to be regulated to the same extend as the pension funds.

As we noted before, the new government is planning to increase corporate tax rate to 23% in order to stabilize public finance. It is not very likely that the government will decrease any tax rates in near future. However, the governments should consider some incentive scheme for angel investors. For example, there is a new tax incentive scheme for angel investors to deduct qualifying investments against income from any source in Israel. Since 2011, seed investors can receive a tax deduction of up to NIS 5 million per firm spread over three years. We believe that providing any tax reduction for the angel investors will not have tremendous consequences on the state budget as the group of angel investors is not so numerous in Slovakia.

Despite the advantages of the two new introduced funds (AISCF and SCFPI) of collective investments into the Slovak legal system, their structure is not entirely in harmony with international standards. Globally, one of the most comprehensible and recognized legal fund structures is the Limited Partnership.[210] As the main goal of Slovak VC market is to

[209] SURVEY OF INVESTMENT REGULATION OF PENSION FUNDS, OECD, June 2011. < http://www.oecd.org/dataoecd/9/1/48094890.pdf>, 25th June 2012.

[210] Zinecker, M.: PRIVATE EQUITY AND VENTURE CAPITAL: INVESTMENT FUND STRUCTURES IN THE CZECH REPUBLIC, 2011.

attract foreign private investors, incorporation of LP into the Commercial Code or by means of a special act might be a way of achieving this. The legal obligation for both funds to hold their assets in custody or other care by a depositary bank is different than in countries with developed PE/VC markets. They either do not apply any financial regulation at all (the UK or the Netherlands) or only a "mild" form of regulation is applied by the regulatory authority. However, it needs to be noted that the Directive on Alternative Investment Fund Managers (AIFMD) may lead to a marked change of this situation.[211] [212]

In summary, the main barriers preventing the establishment of a standard PE/VC fund in the Slovak Republic are the inflexibility of corporate law (fixed capital level requirements), tax obstructions and license requirements for both funds.

The exit strategies through IPOs are very rare in Slovakia, because of the small size of Bratislava stock exchange with poor liquidity and vulnerability. The most appropriate solution to this might be cross listing. It is also possible to grow start-ups globally and prepare them to be listed on foreign stock exchange such as NASDAQ, even if it can drive the value out of Slovakia. The negative effect of driving the value out of Slovakia can turn into an advantage over arrival of new Venture capitalists to Slovakia, who would be eager to invest into Slovak young enterprises. Slovak policy makers could also find a motivation how to energize the stock market in Israel, which offers tax benefits to start-ups enterprises under the condition that they sell certain percentage of shares to public.

[211] Ibid

[212] *The AIFMD introduces a European regulatory framework for fund managers of alternative investment funds (real estate, hedge funds, private equity, VC). The Directive aims to regulate management as well as marketing of AIF and will take effect in early 2013. The requirements imposed by the AIFMD include issues related to disclosure, use of depositaries, and capital adequacy. With limited exceptions, the requirements are not related to the nature of the AIF under management, i.e. it is not tailored to the business model of private equity or VC.* (Potential of Venture Capital in the European Union,Directorate – General for Internal Policies, February 2012).

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Attachments

Attachment I

Cumulative funds raised in Europe

(Source: Leleux & Surlemont [2003])

Country/ Year	1990	1991	1992	1993	1994	1995	1996
Sweden	642381	750470	1067976	1010174	1133941	1654673	1862157
Norway	143153	251453	262821	318544	353203	403919	538823
the Netherlands	2214769	1508812	1560028	1701854	1846893	1907032	3271028
Belgium	657988	749355	842230	964844	1101040	1268995	1429094
Finland	180339	190558	167421	155060	206798	277797	331109

Public VC investments
(Source: Beuselink&Manighart [2007])

Country/ Year	1990	1991	1992	1993	1994	1995	1996
Sweden	64000	19359	701	1109	0	0	133
Norway	0	3011	0	14440	36535	63333	47258
the Netherlands	23810	26282	28740	29897	2348	2622	2837
Belgium	44747	62646	0	44013	44608	38981	73670
Finland	6104	13817	9530	15814	18413	12948	20477

Total VC raised without Public VC

Country/ Year	1990	1991	1992	1993	1994	1995	1996
Sweden	578381	731111	1067275	1009065	1133941	1654673	1862024
Norway	143153	248442	262821	304104	316668	340586	491565
the Netherlands	2190959	1482530	1531288	1671957	1844545	1904410	3268191
Belgium	613241	686709	842230	920831	1056432	1230014	1355424
Finland	174235	176741	157891	139246	188385	264849	310632

Proportion of Public VC to Total VC raised

Country/ Year	1990	1991	1992	1993	1994	1995	1996	Average %
Sweden	9.96%	2.58%	0.07%	0.11%	0.00%	0.00%	0.01%	**1.82%**
Norway	0.00%	1.20%	0.00%	4.53%	10.34%	15.68%	8.77%	**5.79%**
the Netherlands	1.08%	1.74%	1.84%	1.76%	0.13%	0.14%	0.09%	**0.97%**
Belgium	6.80%	8.36%	0.00%	4.56%	4.05%	3.07%	5.16%	**4.57%**
Finland	3.38%	7.25%	5.69%	10.20%	8.90%	4.66%	6.18%	**6.61%**

Attachment II

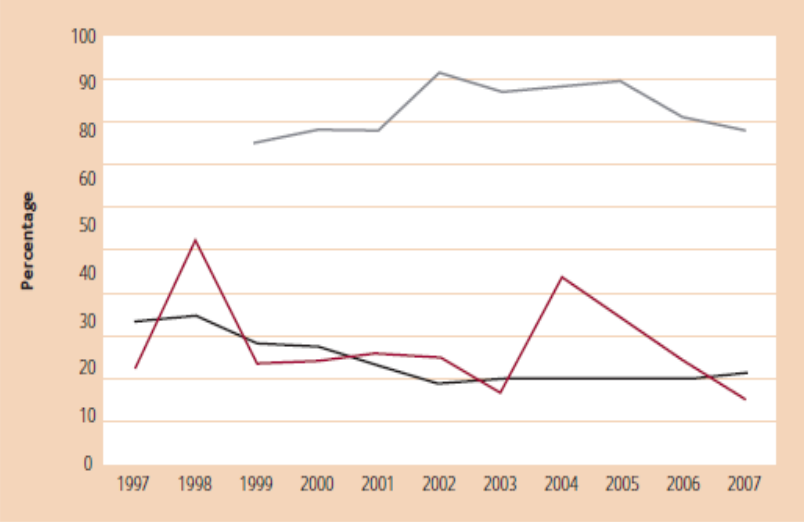


Figure 5:
Early stage investment as a % of total VC investment

Source: *BVCA, IVC, NVCA*

- US
- UK
- Israel

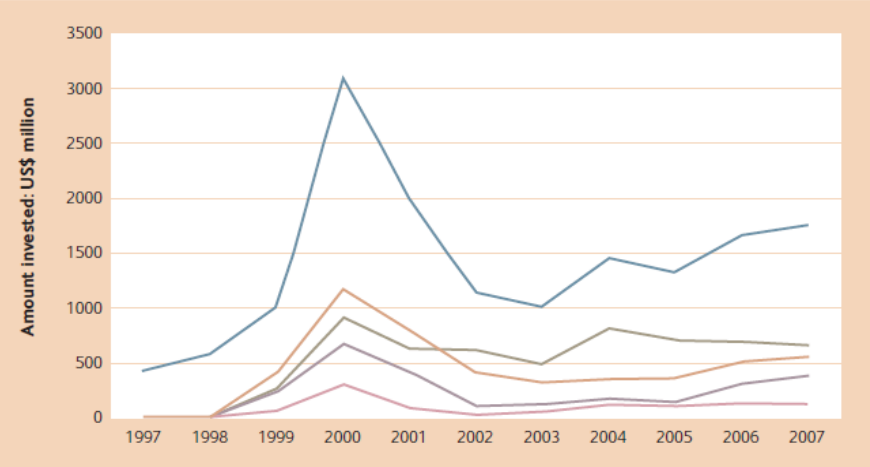


Figure 2:
Overview of VC investments in Israel

Source: *IVC (Note: Only* total *amounts available for 1997-1998)*

- Start-up/Seed
- Early stage R & D
- Mid-stage
- Late stage
- Total Investment

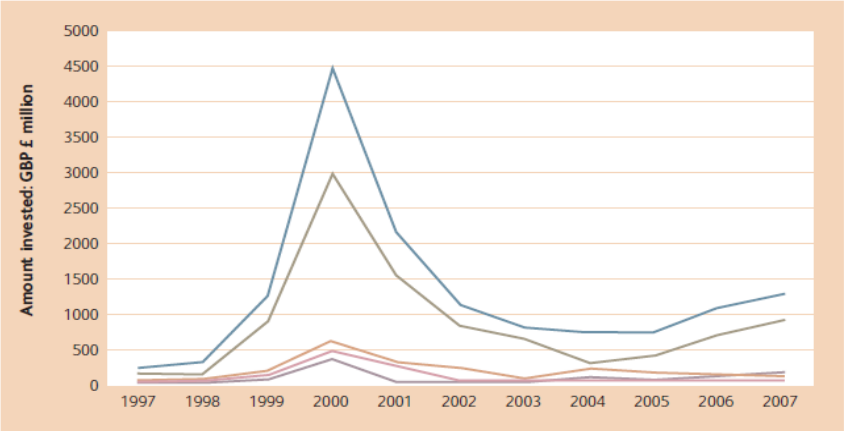


Figure 3:
Overview of VC investments in the UK

Source: *Thomson One*

- Start-up/Seed
- Early stage
- Expansion
- Late stage
- Total VC

Attachment III

Box 5: Critical Dimensions of Yozma Program Design

Promoted by the OCS and Structured Fund of Funds (& Direct investments);
Target Level of Capital Aimed at 250M$ (Government Support- 100M$).
10 Privately owned Israeli VC Funds each managed by a local management company (formal institution) & involving Reputable Foreign Financial Institution.
Government Participation in each Fund- $8M (up to 40% of fund's capital)
Strong Incentive to the "Upside"- a 5-year option to buy the Government's share at cost.
No Government intervention in the day by day operation of Yozma Funds
Planned 'Privatization' of Yozma Fund & Program: Privatization was completed in 1998. Yozma became a Catalytic Program.

Box 6: Factors Explaining the Differential Yozma-Inbal Impact

YOZMA	INBAL
The program was structured as Fund of Funds (equity investments in the hybrid funds).	The program was structured, as a Government Insurance company (guarantees to the funds)
Single Objective: Creating a VC industry	Dual objective: Promoting the local stock exchange and a VC industry.
LP form of VC-the ideal form of organization according to U.S. experience.	Publicly traded form of VC; hard to leverage current success to fundraising and bureaucracy.
Investments focused on early stages	Investments also in later stages and non-high tech
Strong incentive to collective learning, to VC cooperation, and to 'learning from others' (through requirement of having a reputable foreign financial institution)	No incentive to collective learning, to learning from others or to VC cooperation. Did not attract any new global financial nor strategic investor into Israel
The Government owned fund started to invest immediately - encouraged VCs to invest fast.	No mechanism to encourage VC firms to invest immediately
In addition to administrative criteria, Managers' abilities were an important criterion for selection of 'Yozma Funds'.	Administrative and financial criteria figured prominently in selection of Inbal VCs (there being no assurance of existence of specific VC abilities).
Limited number & period of Yozma funds-created an incentive to join fast; and clear and easy way out of the program.	No explicit limit to the number & timing of funds that could enjoy the INBAL benefit; and complex way out of the program.
Leveraged Incentives to the Upside. Attracting professional VC teams.	Downside guarantees, which favor entry of non-professional VC firms

Box 7: Comparison of Yozma-Inbal impact

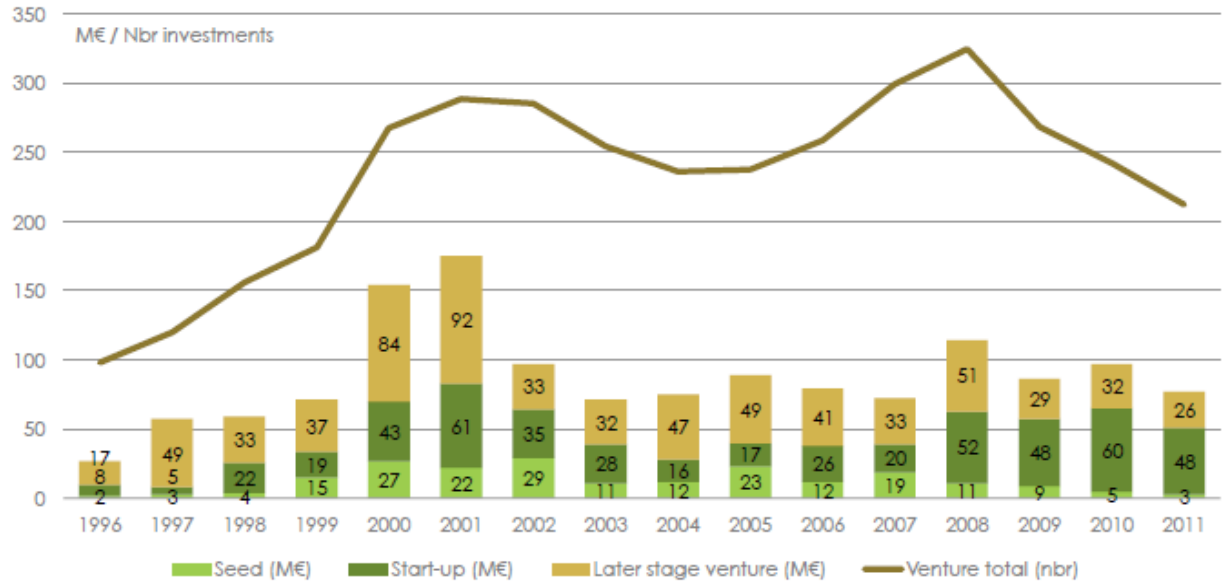
YOZMA	INBAL
Created a critical mass of VC investment	Critical mass of VC activity was not achieved
Most 'Yozma fund' are among the 20 leading VCs in Israel	Non of the INBAL fund are among the 20 leading VCs in Israel
Very high private VC performance	Low private VC performance
Follow up funds & strong growth of capital	Very few secondary issues
Yozma Funds were models for the design of many other VC companies in Israel	Very few other public traded VC were established in Israel

Source : Avnimelech & Teubal (2006)

Attachment IV

Source: VC/PE Industry in Finland 2011

Annual stage distribution of venture investments made by Finnish PE firms in 1996 – 2011



Venture and buyout investments made by Finnish PE firms by investor type in 2007 – 2011

Source: Markku Maula: Statistics on Cross Border Venture Capital Investments in the Nordic Region, 2010

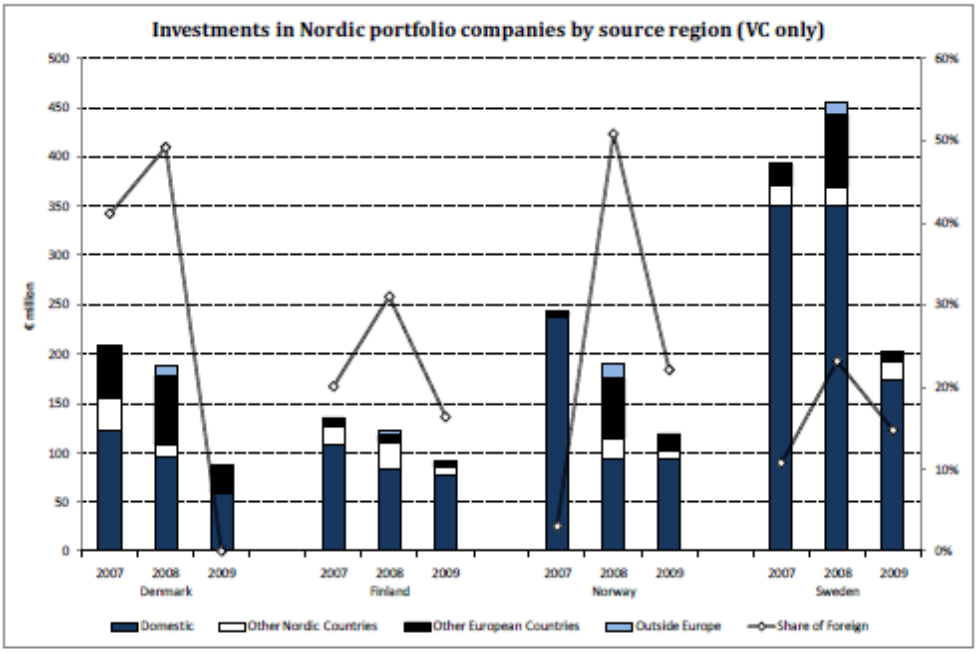
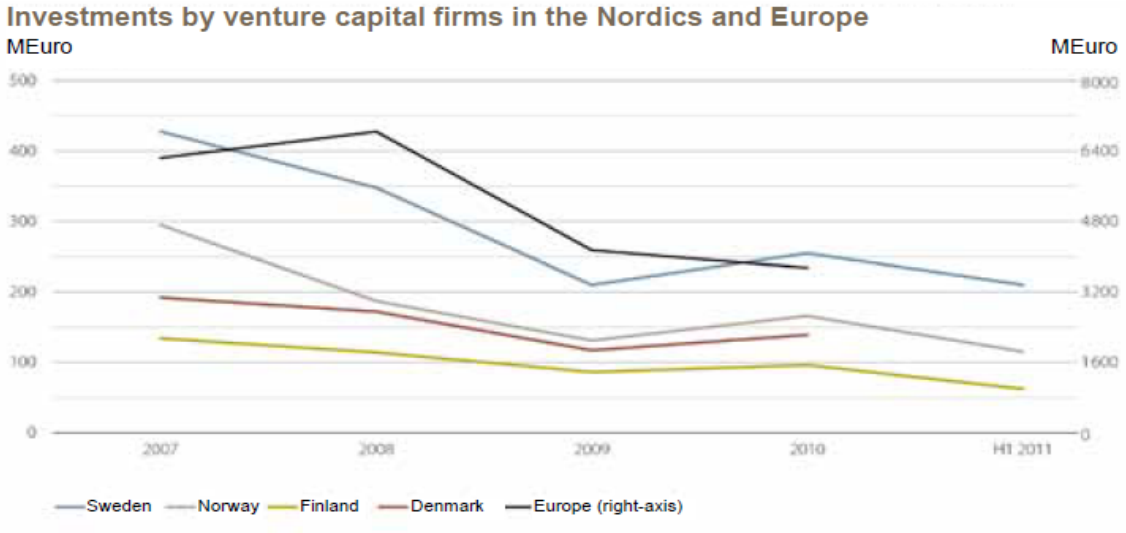


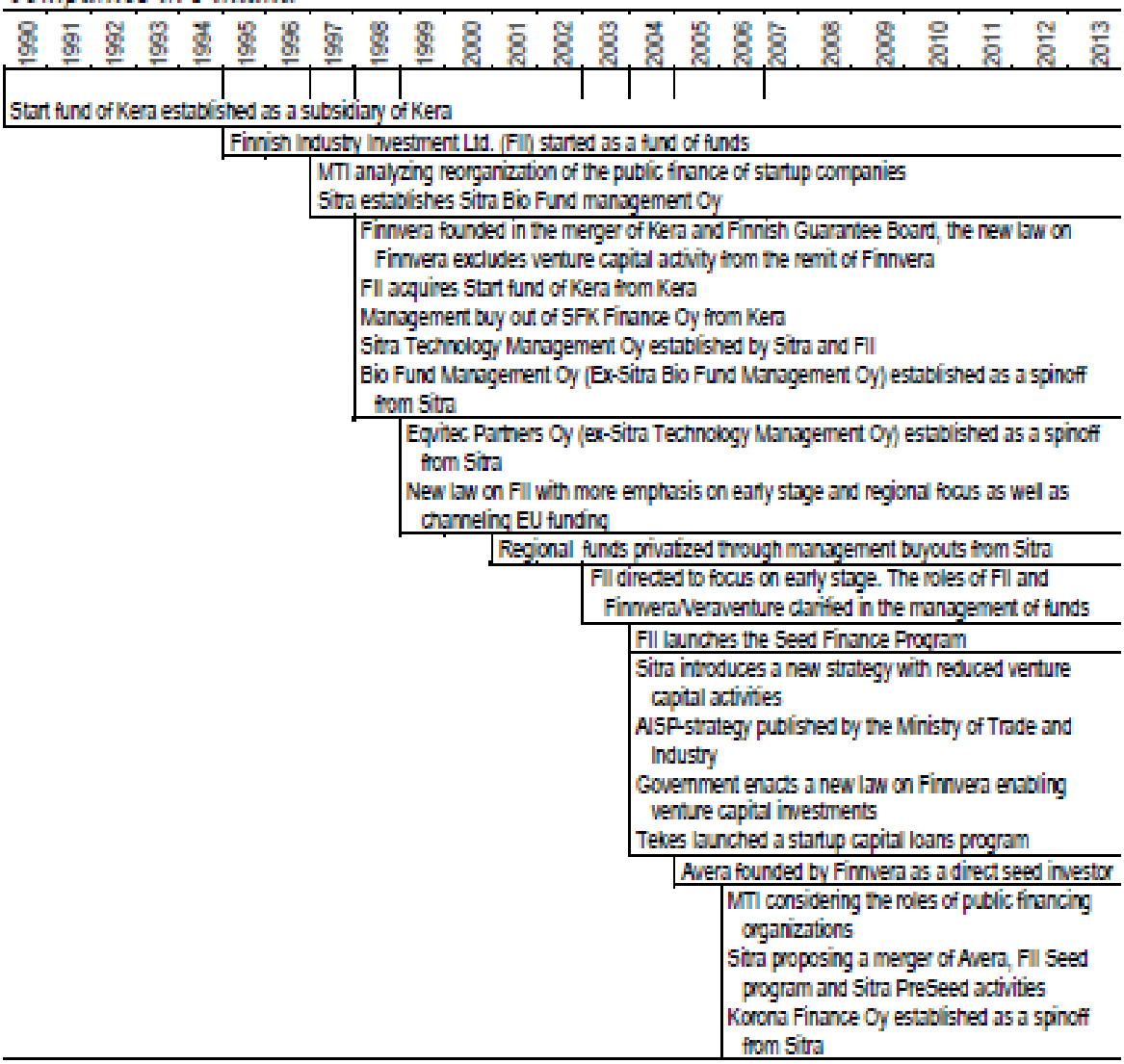
Figure 2 Investments in Nordic portfolio companies by source region



Source: Swedish Private Equity & Venture Capital Association

Attachment V

Table 1. Time line of the evolution of public financing of young innovative companies in Finland[84]



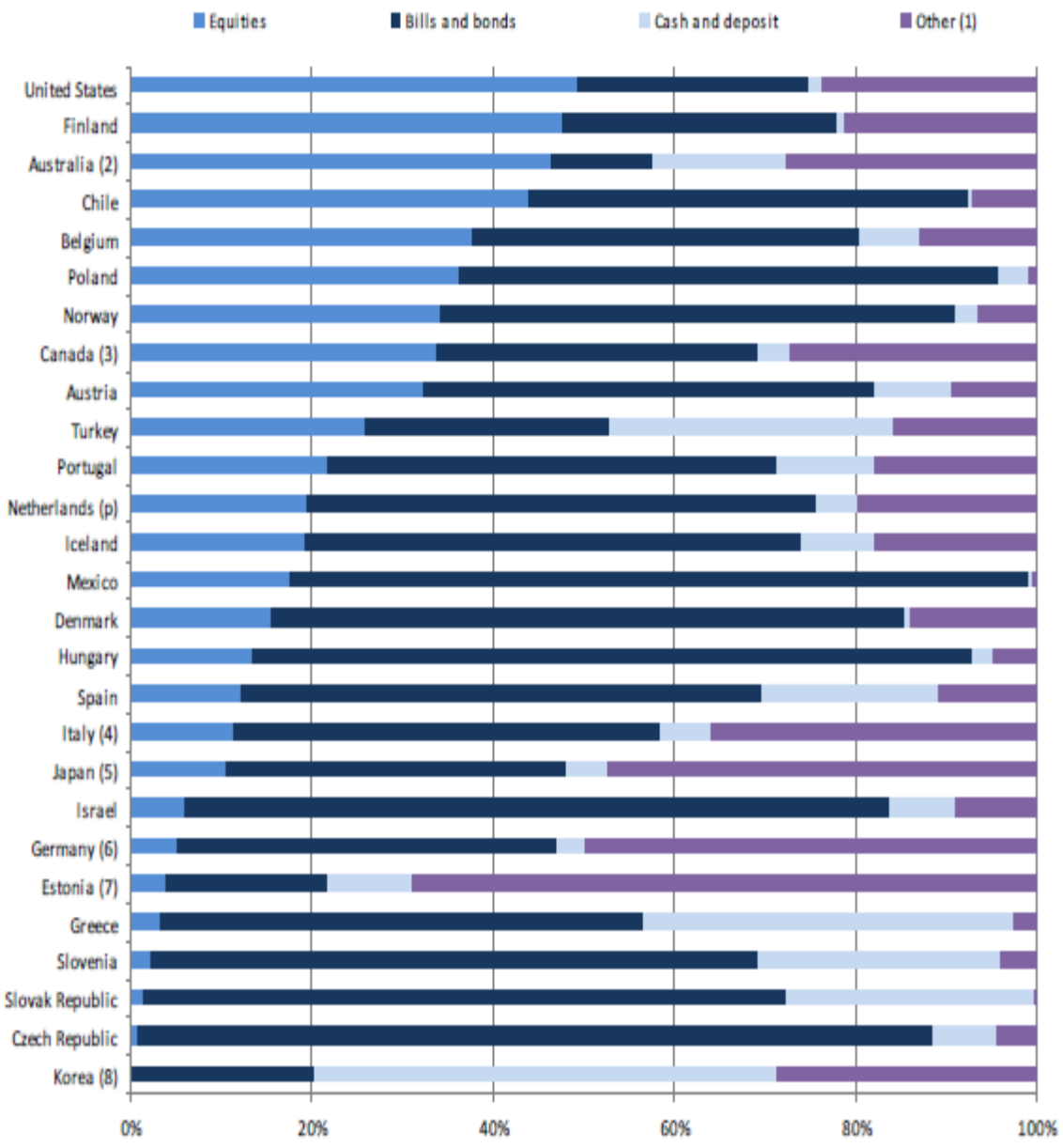
Source: Maula, Murray & Jääskeläinen (2006)

Attachment VI

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU-27	*1.86*	*1.87*	*1.88*	*1.87*	*1.83*	*1.83*	*1.85*	*1.85*	*1.92*	*2.01*	*2.00*
Euro area (EA-17)	1.84	*1.86*	*1.88*	*1.87*	*1.85*	*1.84*	*1.87*	*1.88*	*1.96*	*2.06*	*2.06*
Belgium	1.97	2.07	1.94	1.87	1.86	1.83	1.86	1.89	1.97	2.03	1.99
Bulgaria	0.51	0.46	0.48	0.48	0.49	0.46	0.46	0.45	0.47	0.53	0.60
Czech Republic	1.17	1.16	1.15	1.20	1.20	1.35	1.49	1.48	1.41	1.48	1.56
Denmark (1)	2.24	2.39	2.51	2.58	2.48	2.46	2.48	2.58	2.85	3.06	3.06
Germany	2.47	2.47	2.50	2.54	2.50	2.51	2.54	2.53	2.69	2.82	2.82
Estonia	0.60	0.70	0.72	0.77	0.85	0.93	1.13	1.08	1.28	1.43	1.62
Ireland	1.11	1.09	1.09	1.16	1.22	1.24	1.24	1.28	1.45	1.74	1.79
Greece	:	0.58	:	0.57	0.55	0.60	0.59	0.60	:	:	:
Spain	0.91	0.92	0.99	1.05	1.06	1.12	1.20	1.27	1.35	1.39	1.39
France (2)	2.15	2.20	2.24	2.18	2.16	2.11	2.11	2.08	2.12	2.26	2.26
Italy	1.04	1.08	1.12	1.10	1.09	1.09	1.13	1.17	1.21	1.26	1.26
Cyprus	0.25	0.26	0.30	0.35	0.37	0.41	0.43	0.44	0.43	0.49	0.50
Latvia	0.45	0.41	0.42	0.38	0.42	0.56	0.70	0.60	0.62	0.46	0.60
Lithuania	0.59	0.67	0.66	0.67	0.75	0.75	0.79	0.81	0.79	0.83	0.79
Luxembourg	1.65	:	:	1.65	1.63	1.56	1.66	1.58	1.57	1.66	1.63
Hungary (3)	0.81	0.93	1.00	0.94	0.88	0.94	1.01	0.98	1.00	1.17	1.16
Malta (3)	:	:	0.26	0.25	0.53	0.57	0.62	0.58	0.56	0.54	0.63
Netherlands	1.94	1.93	1.88	1.92	1.93	1.90	1.88	1.81	1.77	1.82	1.83
Austria	1.93	2.05	2.12	2.24	2.24	2.46	2.44	2.51	2.67	2.72	2.76
Poland	0.64	0.62	0.56	0.54	0.56	0.57	0.56	0.57	0.60	0.68	0.74
Portugal	0.73	0.77	0.73	0.71	0.75	0.78	0.99	1.17	1.50	1.64	1.59
Romania	0.37	0.39	0.38	0.39	0.39	0.41	0.45	0.52	0.58	0.47	0.47
Slovenia (4)	1.38	1.49	1.47	1.27	1.39	1.44	1.56	1.45	1.65	1.86	2.11
Slovakia	0.65	0.63	0.57	0.57	0.51	0.51	0.49	0.46	0.47	0.48	0.63
Finland	3.35	3.32	3.36	3.44	3.45	3.48	3.48	3.47	3.70	3.92	3.87
Sweden (5)	:	4.13	:	3.80	3.58	3.56	3.68	3.40	3.70	3.61	3.42
United Kingdom	1.81	1.79	1.79	1.75	1.68	1.73	1.75	1.78	1.79	1.86	1.77
Iceland	2.67	2.95	*2.95*	2.82	:	2.77	2.99	2.68	2.64	3.11	:
Norway	:	1.59	1.66	1.71	1.58	1.52	1.49	1.62	1.61	1.80	*1.71*
Switzerland	2.53	:	:	:	2.90	:	:	:	2.99	:	:
Croatia	:	:	0.96	0.96	1.05	0.87	0.75	0.80	0.89	0.83	0.73
Turkey	0.46	0.51	0.51	0.47	0.51	0.58	0.57	0.71	0.73	0.85	:
Japan (4)	3.04	3.12	3.17	3.20	3.17	3.32	3.40	3.44	3.45	:	:
United States	2.69	2.71	2.60	2.60	2.53	2.56	2.60	2.66	2.79	:	:

(1) Break in series, 2007.
(2) Break in series, 2000 and 2004.
(3) Break in series, 2004.
(4) Break in series, 2008.
(5) Break in series, 2005.
Source: Eurostat (tsiir020), OECD

Attachment VII



[1]This category includes loans, land and buildings, unallocated insurance contracts, private investment funds, other mutual funds.

Source: OECD (2011) Pension markets in focus