The Prospects for Successful Early-Stage Venture Capital in Finland

Markku V. J. Maula, Janne Ahlström, Kimmo Haahkola, Mauri Heikintalo, Tom S. Lindström, Heikki Ojanperä, Ari T. P. Tiainen

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Foreword

The Finnish innovation environment is of high quality in the world measured by different parameters. Investments in the research and development activities are competitive compared to other nations, too. R&D investments are benefiting Finnish society in many ways. One important channel is the creation of innovative start-up companies seeking venture capital to grow internationally.

Financing of start-up companies is a high risk activity. Private venture capital companies have at least partly withdrawn from equity financing of early-stage ventures leaving the arena into public financiers. Main reasons are a high risk level and past low returns. The situation is not sustainable, because venture capital companies investing in later stages need for their own business a deal-flow good enough in volume and quality.

Sitra contacted institutional investors and found out that they would be interested in investing in early-stage venture capital funds if the returns would be competitive internationally. This led to a basic question, why have returns to early stage venture capital been higher in America than in Europe. The second important question is the amount of early-stage innovative companies seeking for venture capital. Is the demand and supply of venture capital in balance or not? Additionally it would be very interesting to learn to understand how successful international venture capital companies are operating.

Sitra started this unique research project, which fits very well with Sitra's role as a developer of the Finnish venture capital industry. The members of the research team were Markku Maula, Tom Lindström and Ari Tiainen from Helsinki University of Technology and Janne Ahlström, Kimmo Haahkola, Mauri Heikintalo and Heikki Ojanperä from Sitra.

Sitra hereby expresses gratitude to the research team for realizing this very interesting report which certainly will open a lot of questions and discussion.

Helsinki, 16 October, 2006

Heikki Ojanperä
Director
Corporate Funding, Development
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Executive Summary

During the past few years there has been some pessimism towards the prospects of early-stage venture capital firms in Finland and in Europe in more general. The historical returns after the collapse of the IT boom have looked bad. To assess the prospects of early stage venture capital and to develop recommendations on how the prospects could be improved, Sitra initiated a three-part research project. First, the deal flow of early stage venture capital firms in Finland was analyzed. Second, a rigorous analysis of the performance determinants and differences between the European and North American funds was conducted. Third, Sitra made four benchmarking trips to Israel, United Kingdom, and Silicon Valley and Boston in the United States.

The findings of the project are interesting and promising for Finland and Europe. Based on the deal flow analysis, it can be concluded that there is more deal flow in Finland than has been previously thought and that the volume of deal flow is likely to be further increased if new specialized investors enter the market. Second, the performance analysis suggests that although past returns to early stage investment have not been satisfactory, there is no reason why that should be the case in the future. These findings and the benchmarking of early stage venture capital firms in Israel, United Kingdom, and United States produced several suggestions for Finnish early stage venture capitalists: (1) Focus on industry, not geography; (2) Foster close links to corporations that are customers for high tech ventures and often also potential acquirers; (3) Build close links to universities and research institutions to identify opportunities for technology-based ventures; (4) Invest in a small number of companies which you truly believe in and which you can help become global successes; (5) Reserve sufficient funds to allow follow-on investments and fund diversification; and (6) syndicate your investments actively with value adding co-investors.

Overall, the findings of the project suggest that some of the pessimism towards the prospects of early-stage venture capital firms in Finland and in Europe in more general is likely to be unfounded. While there is a lot to be improved in venture capital in Finland and in Europe, there is no reason why venture capital could not work in Europe. Some of the recent European success stories and the greatly improved European short-term returns in early stage VC provide some further evidence supporting this conclusion.

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1 Introduction

This report summarizes a research project on the prospects of early-stage venture capital conducted by a team of Sitra together with researchers at Helsinki University of Technology in 2005–2006. Sitra initiated the research project as a response to the observed fewness of successful early stage venture capital firms in Finland after the collapse of the IT boom (Paasivirta & Valtonen, 2004). The historical returns after the collapse have looked bad for Europe (Dantas & Raade 2006). Given the grim figures, there has been some pessimism towards the prospects of early-stage venture capital firms among institutional investors in Finland and in Europe in more general (Coller Capital, 2006). Investments have concentrated in buy-out funds and later stage VC funds leaving a gap in the provision of funding and support for early stage ventures by private venture capital firms.

Having observed this emerged equity gap and the need to stimulate more private venture capital investment in early stage companies, Sitra first looked into the possibilities to encourage institutional investors to invest in early stage venture capital funds by providing incentives through asymmetric profit sharing models similarly as has been done in several other countries including United Kingdom and Israel (Sitra, 2005). However, it was concluded in Sitra's seminar that the potential return improvements achieved with asymmetric profit sharing models alone were not likely to be sufficient to fully bridge the gap between the observed recent insufficient returns to early stage investments and the required returns for such investments. There was a need to address the underlying determinants of the returns to early stage venture capital. Therefore, Sitra decided to initiate a research project examining the underlying determinants of performance, deal flow in early stage venture capital, and benchmarking of successful operating models used by venture capitalists in more established markets in the United States, United Kingdom, and Israel to analyze the prospects of early stage venture capital and how the prospects could be improved.

The questions concerning performance determinants and differences and the deal flow analysis were addressed in two Master's thesis projects carried out by Tom Lindström ad Ari Tiainen. The benchmarking was carried out by an experienced team of Sitra comprising of Janne Ahlström, Kimmo Haahkola, Mauri Heikintalo and Heikki Ojanperä.

This report summarizes the findings from the two Master's theses and the benchmarking trips and provides conclusions and recommendations for venture capitalists, institutional investors, and policy-makers. The rest of the report is structured as follows. First, the analysis of the early stage deal flow is presented to give a view of the Finnish context and the balance of supply and demand in early stage venture capital (Tiainen, 2006). Then, an extensive study on the differences and the determinants of performance in European and North American venture capital funds is summarized (Lindström, 2006). Thereafter, the findings from the four benchmarking trips to Boston and Silicon Valley in the United States, London region in the United Kingdom, and Israel by Sitra teams are summarized. Finally, conclusions and recommendations are provided.

2 Demand and Supply for Early Stage Venture Capital in Finland

2.1 Background

Overall, there is very little prior research on the deal flow of venture capital firms. The study conducted by Ari Tiainen (2006) as a part of this project is the first published study focusing on quantifying the deal flow of early stage venture capital investment opportunities.

There are divergent opinions on whether the early stage venture capital funds lack good quality investment offers or whether there are enough good quality investment offers but not enough funds. While there is an active ongoing debate about the amount and quality of deal flow and many important decisions are based on the assumptions of the deal flow, there is little research available to give an objective picture of the deal flow. Therefore, this study tries to answer the following research question: What is the volume and the quality of the deal flow in early stage venture capital in Finland? To answer the key research question, the following sub questions were addressed in the study: What is the volume of investment offers (business plans) received by venture capital institutions investing in early stage ventures in Finland? How large proportion of the total deal flow leads to investments? How is the deal flow distributed across investment size, time, and industry sectors?

2.2 Methods

While many venture capital firms have views of how many business plans they receive annually and some more or less subjective assumptions on how big share of the deal flow they receive, there has not been a market level analysis on the total number of unique companies applying for venture capital finance.

In this study, Finnish venture capital firms that invest in early stage companies were contacted. Given the sensitivity of deal flow information for investors, nondisclosure agreements were made to guarantee confidentiality. Seven out of 18 identified venture capital firms provided detailed deal flow information to enable consolidation of the data to identify the number of unique

firms seeking finance. The others provided an estimate of their deal flow. The calculated number of unique companies in the sample of investors reporting the deal flow, the deal flow estimates of the other venture capitalists, and the estimated share of unique deal flow were used as a basis for extrapolating the market level deal flow figures. In addition to this primary approach, several secondary approaches were used to ensure the robustness of the estimates including interviews, venture capitalists´ estimates, and various industry statistics (see Table 1).

2.3 Findings

The analyses suggest that there are most likely *800 to 900 different Finnish companies attempting to raise early-stage venture capital each year*. When including Tekes start-up capital loans, the number increases up to 1000 companies per year. Seven investors sent data with total 918 different companies registered in two years – an average of 459 companies per year. From this data set with seven investors, the average share of unique deal flow was derived. This leads to a 52% share of unique deal flow - meaning that on average one investor adds 52% of its deal flow (in other words compared to number of investment offers received by single venture capital management company) to total deal flow. This share of unique deal flow may naturally decrease when new investors are added, but since nearly all other early stage venture capital companies that did not send deal flow data have somewhat different investment strategies or geographical locations, the rate of 52% could be used as a reasonably good estimate. Sensitivity analyses with alternative estimates of unique deal flow indicate changes in the deal flow estimates from 801 deals per year with 45% assumption to 915 per year with 60% assumption.

Six other early stage investors were phoned and asked of the number of investment offers per year they are receiving. The information was received from all but one of these investors. Answers varied from 90 to 200 with an average of 127 and median of 120 cases. Since one of these five investors who revealed this information had significantly larger deal flow than the others, the median of these reported deal flow figures was used as an estimate of the deal flow for the sixth investor. Taking 52% of these values and adding them up leads to a deal flow of 395 new companies per year. Adding the estimated 395 companies to the calculated 459 companies leads to 854 companies per year requesting financing from early stage venture capital management companies.

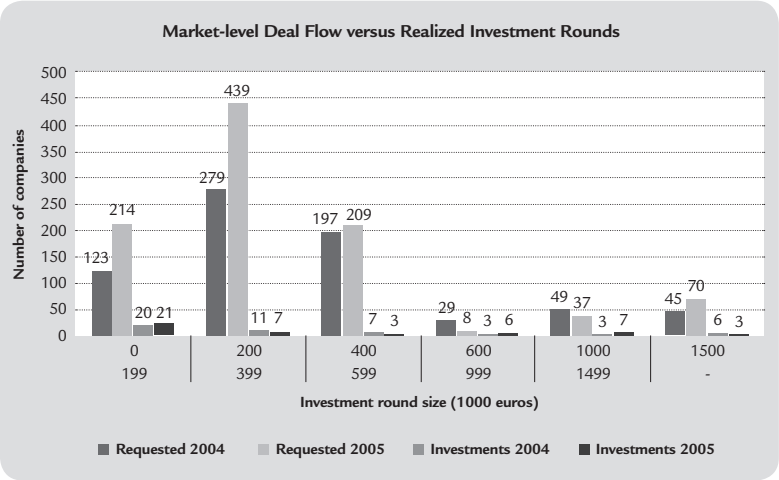
Based on the available data, 800 to 900 investment targets seems the most accurate estimate for the total annual deal flow in early stage venture capital in Finland. The method presented above is likely the most accurate one since it is directly based on actual deal flow data consisting of actual investment offers.

Table 1 Annual early stage deal flow estimates with different approaches

	Total deal flow estimate	Average of deal flow estimate	Limitations of the approach
Primary approach Estimate based on deal flow data received from seven venture capital management companies. From this data the average share of unique deal flow was estimated. The share of unique deal flow was further used to extrapolate an estimate for total deal flow in Finland.	800–900 companies	850 companies	The average share of unique deal flow changes when data from a new venture capital management company is added.
Secondary approaches Estimate based on the interviews. Ten venture capital investors were asked to estimate total deal flow in Finland.	200–500 companies	350 companies	The interviewed VCs found it difficult to estimate total deal flow. Investor myopia.
Ten venture capital investors were asked to estimate the share of deal flow that is good enough for investments. Estimates ranged from 1,5 % to 5 % of total deal flow. Finnish Venture Capital Association reports included 97 initial early stage investments in 2004 and 2005 combined.	970– 3250 companies	2110 companies	Large spread in answers. Investors may present investor-level investment percentage as market-level investment percentage.
From deal flow data 6,9 % of deal flow had led to investments. Finnish Venture Capital Association reports included 97 initial early stage investments in 2004 and 2005 combined.	700 companies	700 companies	6,9 % is derived from the deal flow data collected from investors. Only 5 investors sent information of their investments.
Estimate based on the results of "Finnish Software Product Business: Results from the National Software Industry Survey". Estimate is based on the number of small software companies looking for equity based external financing.	530–930 companies	730 companies	It is presumed that only software companies with 1 to 10 employees are looking for early stage venture capital financing.
Estimate based on the results of PK-Yritysbarometri. Estimate is based on the number of strongly growth oriented young Finnish micro-enterprises which were going to request financing from private equity investor.	1660 companies	1660 companies	Assumes that share of strongly growth oriented micro-enterprises is the same than with all SMEs.

To assess the balance of supply and demand, the data was scaled to make them comparable with completed investments registered by Finnish Venture Capital Association. This requires an assumption that the sample of 414 companies with available "requested financing" data represents whole early stage venture capital deal flow in Finland somewhat well in terms of a distribution. With this assumption, the sample is extrapolated to represent whole estimated deal flow of Finland in 2004–2005. This leads to a total of 800–900 annual different companies requesting for venture capital investments. This can be compared to 97 initial early stage investments registered by Finnish Venture Capital Association. Figure 1 reports the 2004–2005 unique companies seeking venture capital and the realized initial early stage investments based on FVCA data.

Figure 1 Market-level early stage deal flow and realized investment rounds in 2004-2005



As shown in Figure 1, the greatest demand, measured in numbers of companies, focuses on very small investment rounds below 600 000 Euros. This analysis also suggest that small investments between 200 000–600 000 euros are the most challenging to get. In the smallest end of the scale, below 200 000 Eur, inclusion of Tekes Start-up capital loans in these figures would increase the probability of getting finance. However, above 600 000 Eur level, both the volume of deal flow and the number of realized investments are quite small. The low level of ambition by entrepreneurs and the lack of investments (and availability of investors that make such investments) appear to create a chicken and egg problem that hinders growth oriented entrepreneurship in Finland.

2.4 Conclusions

To conclude, this is the first reported study that has focused on the analysis of market-level deal flow of early stage venture capital companies. While national venture capital associations have provided annual figures of the number of early stage companies receiving initial investments, there has not been objective analysis of the demand side, i.e. how many companies in a market have requested financing from venture capitalists. This thesis is the first one to provide a well justified estimate of the market level deal flow thereby providing valuable new information on the balance of supply and demand in early stage venture capital finance.

The study resulted in some interesting findings. First, the estimated annual number of companies seeking early stage venture capital finance, 800–1000 companies per year, is significantly greater than what has been thought. Even venture capitalists themselves have underestimated the volume of deal flow. Although they see their own deal flow, they do not see what others receive. The study that collected name lists of companies revealed that on average, the majority of the early stage deals were not seen by others. The finding that early stage venture capital firms tend to create a large share (estimate based on this data 52%) of unique deal flow suggests that emergence of new investors is likely to further increase the deal flow. New investors do not just take a slice of the pie, but help grow it larger. Several natural experiments from the emergence of new investors and the resulting immediate very large deal flow suggests that there is latent deal flow in the Finnish market. It can be hypothesized that the more unique focus and the greater the expected value-added support to the growth and internationalization of the portfolio companies, the greater the new deal flow generated.

3 Performance Determinants in Venture Capital

3.1 Background

This chapter summarizes the study by Tom Lindström (2006) on the venture capital performance determinants and differences between Europe and Northern America.

According to published statistics, there has been a performance gap between Europe and Northern America. The European venture capital funds have performed worse than American on average. Figure 2 illustrates the differences in returns between European and North American venture capital firms based on their vintage years. An important observation is that largest differences can be found in the funds established between 1994–1998, which have been very successful in the North America but not as successful in Europe. In other vintages, the differences are smaller. In funds established in 2000, the average returns were still negative in the end of 2005 both in Europe and in the North America, both because of the declined market conditions after the peak valuations around 2000 as well as the J-curve effect (e.g. Meyer & Mathonet, 2005), because of which the returns of immature are usually negative.

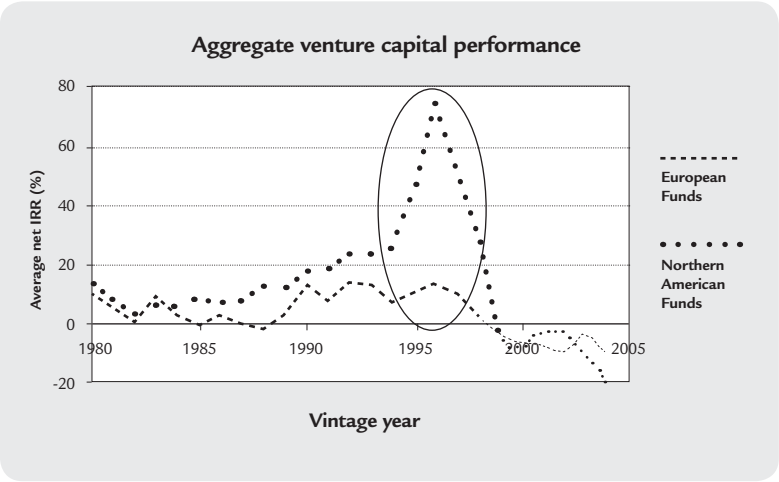


Figure 2 Aggregate performance of venture funds in Europe and in Northern America.

However, although the differences in the aggregate returns are widely known (e.g. Dantas et al., 2006), there is very little previous academic research that tries to explain the observed performance gap between Europe and America. The thesis by Tom Lindström (2006) attempted to contribute to this area of research by studying the determinants of venture capital returns and the differences between Europe and Northern America. The thesis employed two empirical research methods: a qualitative study with expert interviews and a quantitative study on performance determinants utilizing best available commercial databases and sophisticated statistical methods.

3.2 Methods

This is the first reported study on VC performance determinants combining information from Venture Economics and Private Equity Intelligence databases. The data set employed in the analyses consists of fund characteristics information on 3673 funds (2282 venture funds) with vintage year 1998 or older from Venture Economics combined with performance information on 674 funds (331 venture funds) with vintage year 1998 or older from Private Equity Intelligence as available in Spring 2006. The dataset in which real IRR figures from Private Equity Intelligence are combined with a more representative set of fund characteristics and investment data collected by Thomson Venture Economics has several advantages over prior studies: (1) large sample, (2) correction for selection bias, (3) accurate return information (realized IRR figures), and

(4) a large number of variables describing the fund operations. Prior studies have typically used either a large dataset enabled by Venture Economics with crude proxy variables for performance or a small number of VC funds from a fund-of-funds investor with accurate IRR data but often limited generalizability. The quantitative analyses employed regression analyses in which the dependent variable was Internal Rate of Return (IRR) and the explanatory variables were a dummy variable denoting the location of the fund (Europe vs. North America) and other hypothesized determinants of fund returns.

3.3 Findings

The quantitative analysis resulted in interesting and promising findings. The key findings are reported in Table 2. In the first regression model only a dummy variable denoting European fund (1 if fund located in Europe, 0 if North America) was included as an explanatory variable. With this specification, the differences between Europe and North America were clear as expected. In the second model, fund vintage years were added as control variables. In the third model, a sample selection bias control was added (see e.g. Heckman, 1979). Inclusion of control for vintage years or running the model using Heckman sample selection bias correction did not change the picture much. However, when adding controls for the fund characteristics and their investment behavior in the fourth regression model specification, the location effect of Europe became insignificant. Based on this most advanced empirical analysis, two funds with similar characteristics in Europe and in Northern America have equal expected rate of return.

Table 2 Aggregate performance of venture funds in Europe and in Northern America

Regression model specification	Controls			Estimated difference in IRR (absolute percentage points)	Significance of the difference
	Vintage years	Sample selection bias	Fund characteristics		
Model 1				– 11,32 %	Significant at 0.1% level
Model 2	X			– 13,37 %	Significant at 0.1% level
Model 3	X	X		– 10,16 %	Significant at 5% level
Model 4	X	X	X	1,14 %	Insignificant

According to the quantitative model, the most important venture capital determinants are the structure of the fund (corporations as limited partners), the share of investments in business-to-business (B2B) companies, and the amount of syndication. The variables attributable to most of the performance gap between Europe and Northern America are (effect on IRR difference between Europe and Northern America in brackets) syndication (6%) and corporate limited partners (4%). In addition, the poor performance of European venture funds investing in America, lower share of IT and high-tech investments the higher amount of stage specialization, and lower amount of investments in B2B companies decreased the aggregate performance of European venture capital.

A qualitative study carried out in the same context supported the findings and indicated that the differences in the characteristics and modes of operation between the European and American venture capital companies are not as significant as the general perception in the industry indicates. However, there are some differences in the venture markets and in the way venture funds operate. American venture funds seem to utilize external advisory boards more and have closer relationships with big corporations. American VCs also get access to a larger deal flow due to the larger markets.

3.4 Conclusions

To conclude, the analysis suggests that while the aggregate performance of venture capital has been lower in Europe than in Northern America, the poorer performance of European venture funds is not due to their location but due to their other characteristics such as syndication behavior, investment focus and corporate relationships. Therefore, good returns are equally possible in Europe as in Northern America and the pessimism about the European venture capital performance as a whole is not justified. Poor performance does not have to be Europe's destiny: European venture capital funds can be successful.

4 International Benchmarking of Early Stage Venture Capital

In order to identify and benchmark functioning models of early stage venture capital investment, teams of Sitra made four benchmarking trips to regions with the most advanced VC markets: Israel, United Kingdom, and East and West Coasts of the United States. Teams of Sitra made altogether interviews with representatives of 26 early-stage venture capital firms and a large number relevant experts in the Spring and Summer 2006. The total number of interviews was over 40. The interviewed venture capital firms are listed in Table 3. Interviews were informal but guided by a five-page interview guide. Each interview was documented and the interview reports and presentations and other archival material that was received from the interviewed venture capital firms were used when synthesizing the findings of the benchmarking studies. The findings from the benchmarking interviews were discussed in a workshop.

Table 3 Interviewed venture capital firms

Venture capital firm
Tel Aviv region in Israel
Evergreen Venture Partners
Giza Venture Capital
JVP
Star Ventures
The Yozma Group
Vertex Venture Capital
London region in the United Kingdom
Amadeus Capital Partners
Benchmark Capital
First Ventures
MTI Partners Limited
Boston region in the United States
3i
AppleTree
Battery Ventures
Boston Millennia Partners
Common Angels
SCP Partners
Silicon Valley region in the United States
AVI Management Partners
Blumberg Capital
Diamondhead Ventures
OPUS Capital
Rembrandt Ventures
Selby Venture Partners
Sofinnova Ventures
Tallwood Venture Capital
Trident Capital
Vision Capital

4.1 Tel Aviv region in Israel

The key observation from the benchmarking trip to Israel was the global perspective and ambition the Israeli venture capitalists had. It is a very common strategy to develop technology-based ventures with core R&D deeply rooted in Israel, but with the intent of establishing the sales and marketing functions and the headquarters close to the main markets, often in the United States com-

bined with a Nasdaq listing. Trade sales exits for foreign large corporations are seen as a positive outcome, because they often provide the best valuation and resources for further growth (funding and global distribution channels). Many Israeli venture capital funds have foreign (often US) large corporations as limited partners providing additional contacts for the venture capitalists to support the internationalization of their portfolio companies. Overall, Israeli venture capitalists have strong foreign syndication networks and strategic partners. In terms of internationalization, the United States has traditionally been the key direction for internationalization, but Asia has become increasingly important as well.

Israeli early stage venture capital firms have relatively large fund sizes with US type fund structures and make relatively large investments. To be able to invest large sums in selected companies, the benchmarked Israeli venture capitalists conduct a very strong due diligence analysis lasting from three to six months or even more. However, in companies that pass the detailed due diligence analysis, the interviewed Israeli venture capitalists are prepared to invest significant amounts of money. The investments are staged so that companies that meet their milestones can receive the funding they need without interruptions and delays. However, bad performance is not tolerated and funding is easily cut if milestones are not met. An important factor in the detailed due diligence processes is the ability of venture capitalists to get proper answers from potential customers and other relevant stakeholders. Therefore, venture capitalists need close connections to the global corporations that are often intended customers for Israeli high tech startups. The strong foreign corporate limited partner network is therefore very valuable already for the due diligence process.

Early-stage venture capital funds often source their deals from army related research. Venture capitalists keep close contacts to Army research institutes and Technion (Israeli Institute of Technology), which are major sources of deal flow. The amount of serial entrepreneurs in the deal flow is also increasing. The army service supports entrepreneurship in that a major share of the long service is allocated to R&D type of activities. Furthermore, the IPR is allowed to be commercialized after the service. This functions as a public support mechanism for entrepreneurship and as a major source of deal flow for venture capitalists.

The role of public support for innovation is important also in other ways. The Chief Scientist's Office has a strong portfolio of tools to support entrepreneurial ventures. The ambition level concerning outcomes (e.g. growth and internationalization) has been high, the rules in incubation and other activities clear, and activities have been privatized whenever possible. Incubators play an important role in the early stage of development for companies. Public fund-

ing can be arranged relatively easily via incubators, which supervise its use. Incubators have a role in supporting the ventures from the beginning to the exit.

Israeli venture capitalists tend to be actively involved in their portfolio companies. They are in general professional and experienced. They often invest alone in the beginning, but syndicate actively with value-adding syndicate partners in later rounds. Foreign investors are often invited in later rounds to smoothen the access to Nasdaq listing. Networking with foreign corporations and investors is an important part of the Israeli early stage venture capital model.

4.2 London region in the United Kingdom

In London, the interviewed venture capitalists have also very international perspective. The ambition is to grow global or at least pan-European companies. The interviewed venture capitalists emphasized the need to invest in all stages and reserve enough capital for follow-on rounds. The fund size has to be sufficiently large (preferably EUR 150-200 million) to allow portfolio diversification and to make follow-on investments to scale rapidly growing companies alone or at least with syndicate partners. Syndication plays an important role in investment strategy. Early stage investors did not have stage focus but invested from the beginning to the exit.

The UK venture capitalists also emphasized their global perspective. They considered their close links to the United States of being very important and valuable. In their investment criteria they focused on the strengths of the teams and their execution capability. In investment decisions, general partners do not always require a consensus.

For public sector, the interviewed venture capitalists saw the primary role to be to create the conditions for successful venture capital markets but not get involved directly. In their view, direct involvement raises wrong companies and increases valuation without providing direction and proper support for the ventures.

4.3 Boston region in the United States

The interviewed venture capitalists in the Boston region considered the understanding of the economic cycles to be important for investment performance. Venture capitalists attempt to forecast the cycles in order to focus investments in times when the valuations are low and exits in times when valuations are high. When considering the development trends and performance in venture capital, it was seen as important to cut the years 1999–2001 away as anomalies.

In early stage venture capital, it was felt that there are some gaps because of venture capital firms generally having moved away from the earliest stages. Business angels are seen to partially fill the gap. Venture capitalists managing large funds want to focus on larger investment rounds. The ambition is to invest total 20–50 million in 2–4 rounds to receive at least 100 million returns for the investment.

Concerning the sources of deal flow, the research universities were considered to be very important. Venture capitalists have good connections to professors. Universities have a commercial orientation and clear rules, guidelines and capabilities to commercialize research in collaboration with venture capitalists. Professors are interested and venture capitalists create sometimes incentives for professors by giving minority stakes in companies in which they contribute to. Universities are often limited partners in venture capital funds creating incentives for collaboration in research commercialization. Serial entrepreneurs are also very important and growing source of high quality deal flow for venture capitalists.

In terms of investment criteria, market size and potential were emphasized. Everything else can be changed. Management is often changed based on the stage of development. Globalization of the markets and investment activity was also noted. However, the internationalization was directed increasingly towards Asia in addition to Europe.

The hands-on support for portfolio companies was emphasized. Some investors e.g. sit one day per week in portfolio companies' offices. However, value added is a person question. It is more about the skills, experience and contacts venture capitalists can bring rather than spending time in the offices of the portfolio companies. The role of venture capitalists is to ensure there is right management, give contacts and provide access to networks, and help arrange further finance. In terms of exit routes, the Sarbanes-Oxley legislation has increased the costs of Nasdaq listing and turned the focus on trade sales exits and in some cases London AIM which has lower costs and easier requirements.

In the interviews, three characteristic operating models emerged. Venture capitalists following the first model were analytical and screened, positioned, and mapped companies in technology and market spaces. In this approach, VCs have their focal markets already researched and wait for the right player to emerge to address the business opportunity. In the second characteristic model, the venture capitalists developed a good business idea, established a venture, manned it, and incentivized the management. The third characteristic model is based on experience, intuition, a hands-on approach, and good people management skills. The question is how to find superb people and to get them make miracles. Best business angels might also fit in this profile. The conclusion is that there is not just a single template or model how a VC can be successful, but many alternative models depending on the circumstances

4.4 Silicon Valley region in the United States

In the Silicon Valley, the interviewed venture capitalists take an active role in supporting their portfolio companies. VCs have commonly a tight industry focus. The venture capitalists also have deep experience in industries they invest in. They also take very often chairman positions in the boards of their portfolio companies. They make large investments in a small number of ventures they truly believe in.

The Silicon Valley ecosystem was seen as very important for the VC activity. In the deal flow sourcing serial entrepreneurs, business angels, and close links to leading research universities are important. Universities are an important source of deal flow. Close links to corporations are considered very important for identifying market opportunities based on the needs of large corporations as well as for the due diligence process to check the interest in and demand for the products of the potential portfolio companies. The business due diligence is very thorough.

The interviewed venture capitalists increasingly view venture capital as a global business and focus on how to effectively operate globally. In the companies they invest in, headquarters and marketing have to be close to the market and customers (often in the United States), but technology and R&D can remain where it has been developed. Venture capitalists have a broad geographic market focus, and a tight industrial focus. The US market is homogeneous compared to Europe.

The fund size has to be large enough to allow large enough first investments and sufficient follow on investments to scale growing companies rapidly. The investment rounds are large by European standards, but the investors also set critical milestones to portfolio companies pass to qualify for further investment.

High quality syndication networks are very important both in local and in international operations. Syndication with value-adding partners is used actively to both scale the size of investment rounds but also to combine complementary skills and contacts to support the portfolio companies. For investment performance, also good understanding of the cyclicality of the venture capital market is important to be able to benefit from them.

Table 4 Summary of the benchmarking interview findings

	Tel Aviv region in Israel		London region in the United Kingdom		Boston region in the United States		Silicon Valley region in the United States	
Investment focus								
Geographic focus	+++	no home markets, international investors, Nasdaq	++	global investment markets, international portfolio, mostly EU	+	importance has been noticed, EU, India	+	importance has been noticed, EU, India
Industry focus	+/-	different mgmt companies and funds for LS and other tech	+/-	different mgmt companies and funds for LS and other tech	+/-	broad focus	+++	very specialized funds and management companies
Investment stage focus	+++	early stage	+/-	broad focus	+	trend is moving to more mature companies	++	early stage and some mature companies to balance portfolio
Temporal focus	+/-	not emphasized	+	starting to understand the importance	+++	most important single factor in VC, timing is everything	++	not as crucial as in the East Cost
Networking strategy								
Corporate relations	+++	due diligence, limited partners, M&A partners	+/-	not emphasized	+	contacts, networks	++	Silicon Valley, market, test marketing, exit partners
University relations	+	military tech is important tech and DF source too	+/-	not emphasized	+++	key success factor and structured operation model	+++	key success factor and structured operation model
Syndication	+++	A-round alone, later rounds always with syndicate	+++	always if possible	+++	always if possible	+++	always if possible
Operating model								
Investor expertise/ background	++	business, network, financial	++	financial	++	business, network	++	industrial, business
Deal flow sourcing	++	very proactive	++	active internationally	+++	very connected, university	+++	very connected, university
Preinvestment activities	+++	very thorough and time and money consuming due diligence	+	very pragmatic, rather fast process	++	well processed with good basic market and tech. information	++	networked community to make due diligence analyses
Post-investment activities	++	from startup to IPO	+	financially oriented	+	active in selecting key mgmt	+	active in selecting key mgmt
Fund size	+++	optimal size MUSD 150-200 to be invested in about 20 companies	+++	optimal size MEUR 150-200 to be invested in about 20 companies	+++	optimal size MUSD 200-250 to be invested in about 20 companies	+++	optimal size MUSD 200-250 to be invested in about 20 companies
Investment size	+++	big enough to maximize returns	+	case by case	+++	big enough to maximize companies growth and value	+++	big enough to maximize companies value, milestones
Other								
Suggested government role	+++	chief scientist office, well processed and simple	-	should only create working infrastructure, market disturbance	-	should only create working infrastructure, market disturbance	+/-	is used if found reasonable

The summary table is based on Sitra team's impressions on the issues emphasized in the benchmarking interviews. The rating scheme is as follows: +++ critical success factor; ++ important; + positive; +/- insignificant; - negative; -- disturbing; --- show stopper.

4.5 Conclusions

The key observations from the benchmarking interviews are presented in Table 4 and discussed below. The table is based on impressions of the factors emphasized in the benchmarking interviews.

Common to all benchmarked regions was the global approach to investment activity. Funds are focuses on industries, but seek best investment opportunities from a broad geographical area including foreign markets. Furthermore, the ambition is to create global companies. It was common to all regions that early stage investors also make follow-on investments to avoid dilution. The goal is to speed the development from the initial investment to the final exit.

A very interesting finding is that a focus on economic cycles and the attempt to time investments based on them was very visible particularly in the United States, an issue that also prior research has found very important part of venture capitalists operations (Lerner, 1994). When comparing the investments in Europe and in the United States (Lindström 2006, page 137) it is can be seen that the US investors have had a better track record in timing i.e. investing at times when the valuations are low and exiting when they are high. Given the large weight that has been given in Europe in 2003–2006 for the short term performance figures dominated by investments made less than six years ago at the bottom of the peak around 2000 suggests that some of the market participants may not yet be fully aware of the temporal dynamics of the venture capital market i.e. the importance of the cycles as well as the J-curve effect (Grabenwarter & Weidig, 2005; Meyer et al., 2005).

In terms of networking strategies, in all regions best venture capitalists built very close relations to the leading global corporations in their focal industries. These relations were very valuable not only in exits, but already in the due diligence process. Good relationships with large corporations help identify business opportunities and in the due diligence process to get good answers. The benchmarked venture capitalists were also very active in sourcing high-quality deal flow. Close connections to leading research universities or other research institutions played an important role. Also serial entrepreneurs were an important source of deal flow (In the US, about 10% of the VC-backed entrepreneurs are serial entrepreneurs with the share being somewhat higher, about 15% for the leading VCs, see Lerner et al. 2006). In all regions, the interviewed venture capitalists syndicate their investments very actively, preferably with partners that can provide added value to the development of the portfolio company.

In terms of operating model, in all regions except for UK based on these interviews, the model was based on investors having very strong industry experience and thereby being able to support the portfolio companies in a hands-on mode. Deal flow sourcing was done very proactively. Also the due diligence received a lot of attention and resources in the benchmarked firms. Funds and investment sizes were big to enable follow on funding and portfolio diversification.

The main role of the government was seen to be ensuring a working infrastructure and an entrepreneurial environment that promotes risk taking and responsibility. Direct interventions in venture capital markets were often considered as market disturbances. Common in support structures in Israel (incubator network) and United States (SBIR program) is that same organizations provide funding for several stages from the earliest feasibility studies to prototyping and commercialization.

5 Conclusions and Recommendations

5.1 Discussion of Findings

During the past few years there has been some pessimism towards the prospects of early-stage venture capital firms in Finland and in Europe more generally. The historical returns after the collapse of the IT boom have looked bad for Europe. To assess the prospects of early stage venture capital in Finland and to develop recommendations on how the prospects could be improved, Sitra conducted a three-part research project. In the first part, the deal flow of early stage venture capital firms was analyzed. In the second part, a rigorous analysis of the performance determinants and differences between the European and North American funds was conducted. In the third part, Sitra made four benchmarking trips to Israel, London area in the United Kingdom, and Silicon Valley and Boston area in the United States.

The findings of the project are interesting and promising for Finland and Europe. First, in the analysis of deal flow in Finland it was found that the actual volume of deal flow, 800 to 1000 different Finnish companies attempting to raise venture capital finance every year, is significantly larger than what has been thought and speculated. Based on the interviews Finnish venture capitalists often think they get to see a very large share of the deal flow in the country. That's often not the case. When comparing the deals different venture capitalists have seen, it in fact seems that different investors tend to see different deals. It can be estimated that for each new investor roughly half of its deal flow is unique i.e. not seen by others. The bottom line is that the deal flow in Finland has already been larger than often thought and that new investors with specific focus areas and expertise can further expand it.

Second, in the analysis of the performance determinants and differences between North American venture capitalists it was confirmed that based on industry statistics there have been historically relatively large return differences between European and North American early stage venture capital funds. For instance, whereas US investors successfully benefited from the IT boom exiting many investments during the boom, in Europe venture capitalists were far less

successful in their timing and rather than exited they accelerated their investments during the period of high valuations. In the quantitative analysis of performance determinants it was found that without controlling for investment strategy and practices, the European funds had significantly lower IRR figures. However, when adding variables measuring the investment strategy and practices, the significance of the location variable disappeared. Significant performance determinants include sufficient fund size, syndication, and close links to corporations. The results are in line with prior academic research (Söderblom, 2006). These findings are again positive for Europe: although the returns have been lower, it does not have to be Europe's destiny. Proper investment strategies and practices can produce equal returns also in Europe. The recent short term performance measures and exit multiple published in Europe and United States attest to this: European performance has been far better than what it looked a few years ago and based on many recent analyses even better than in the United States since 2004 (Fricke, 2006).

Based on the deal flow analysis, it can be concluded that there is more deal flow in Finland than has been previously thought and that the volume of deal flow is likely to be further increased by adding new specialized investors that attract new deal flow. Second, the performance analysis suggests that although past returns to early stage investment have not been satisfactory, there is no reason why that should be the case in the future if European venture capitalists are able to learn better investment practices.

5.2 Recommendations for Venture Capitalists

The findings of the performance study and the benchmarking of successful early stage venture capital firms in the most advanced venture capital markets in Israel, London area in the United Kingdom, and Boston and Silicon Valley areas in the United States produced several suggestions for Finnish venture capitalists investing in early stage technology ventures:

1. Focus on *industry, not geography*. A *global approach is imperative*! Technology-based venturing has been global for a long time. To help born global firms grow, their investors need to have a strong understanding of the global business environment and close connections to the key individuals and organizations in the specific industry sectors. Venture capital has rapidly become a very global business (Deloitte, 2006)
2. Foster *close links to large corporations* (often foreign) that are the intended customers for high tech ventures and often also potential acquirers. These links are valuable not only in exits, but already in the due diligence process when assessing the demand for the products of the company.

3. Build also *close links to universities and research institutions* to identify opportunities for technology-based new ventures. Universities and research institution are valuable sources of new technologies and IPR that can be used to realize the business opportunities identified in discussions with large corporations and other potential customers. Clear collaboration models are important.
4. Invest in a *small number of companies which you truly believe in* and which you can help become global successes rather than small investments in a large number of companies without active support. It is important not only for your returns, but also for the whole market.
5. Reserve *sufficient funds* to allow large enough investments, follow-on investments to avoid dilution, and sufficient fund diversification. It is of course needed also to generate enough management fees to allow professional operation.
6. *Syndicate actively with value-adding co-investors* to combine complementary resources and capabilities to build successful ventures as well as to share deal flow and information. Centrality in co-investment networks is a major success factor in venture capital (see e.g. Hochberg, Ljungqvist, & Lu, Forthcoming).

5.3 Recommendations for Institutional Investors

The findings from the conducted three studies also provided several suggestions for Finnish institutional investors in venture capital and private equity:

1. *Focus on expected returns*, not solely on past returns, of venture capital funds. Attention should be moved forward from potential mistakes made in the late nineties. European venture capital market is now much more mature and experienced (e.g. Braun & Clovis, 2006).
2. *Keep in mind that timing and market cycles are extremely important* in venture capital. Diversify across vintages and make sure to invest also when the valuations are low. Waiting for realized good returns is a recipe for investing too late. As concluded by Lerner et al. (2006): "The strong pro-cyclicality of capital flows into the private equity industry seems to be mainly driven by less sophisticated LPs, which subsequently have very poor performance"
3. *Prefer industry focus over geographical focus.* Venture capital is increasingly global and high tech entrepreneurship has been global already for a long time. Industry level risks can be diversified more effectively in fund portfolio rather than within individual VC funds.
4. Ensure general partner's *ability to generate unique deal flow.* In high technology venture capital, good deal flow often emerges from serial entrepre-

neurs and as spin-offs from leading research institutions and corporations. Evaluate whether the general partner has a superior access to such sources and can help put together dream teams to commercialize new technologies.

5. Ensure general partner's *ability to support portfolio companies' internationalization*. VCs should have very strong contacts to leading global corporations and international investors in their focal industries. Those contacts are needed in all stages from accessing relevant information in the due diligence phase, supporting portfolio companies in closing critical deals, to finding right partners and exit avenues including potential acquirers in trade sales exits.
6. Ensure that funds you invest in have a *sufficient fund size* to make follow-on investments to avoid excessive dilution in later rounds and to diversify the portfolio.

5.4 Recommendations for Policy Makers

Government has an important role in creating a favorable environment for successful venture capital industry. A well-designed VC policy is important, because venture capital plays a significant role in commercialization of the outputs of research and development investments in an economy and has been shown to have important impact on the growth and employment in the economy (e.g. Achleitner & Klöckner, 2005). Therefore, it is in the best interests of the governments to ensure a functioning environment for a venture capital industry. The findings from the studies provide some suggestions for policy makers:

1. Focus on *creating an environment that facilitates risk taking and responsibility and incentivizes experienced and wealthy individuals to recycle their experience and wealth*. Encouraging serial entrepreneurs and business angels is an important goal for VC policy.
2. Facilitate *pathways to international success*. Every venture should have professional and incentivized individuals taking full responsibility of the development from the initial stage to the exit and beyond.
3. Avoid crowding out private activity from early stage and making it a government monopoly. Focus on measures that *catalyze private activity*. Improve also opportunities for universities to participate in commercialization of research outputs. In most developed markets, universities are often important limited partners in venture capital funds reaping financial benefits for successful commercialization. Clear rules and win-win collaboration models between universities, researchers and professors, and venture capitalists facilitate collaboration in research commercialization.

4. When designing support programs, make them *streamlined* and such that make entrepreneurs *focus on customers* rather than domestic support organizations. Avoid unnecessary fragmentation. Rather than have separate programs by stage, make programs more focused on industries and customers to avoid unnecessary delays, uncertainties, and turf wars between agencies. For instance the SBIR program in the United States involves many agencies, but for an individual company operating in certain sector, there is one sector specific organization from the beginning to the end.
5. *Address simultaneously the supply and the demand sides to solve the chicken and egg problem* in early stage venture capital. As stated by Gilson (2003): *"replicating the U.S. venture capital contracting structure confronts a daunting simultaneity problem. Three central inputs are necessary to the engineering process: capital, specialized financial intermediaries, and entrepreneurs. The problem is that each of these inputs will emerge if the other two are present, but none will emerge in isolation of the others."*
6. Keep in mind that *successful exits are the key determinant* of functioning venture capital markets (Black & Gilson, 1999). A stock market with sufficient liquidity for entrepreneurial ventures is important (EVCA, 2005). Both IPO and trade sales exit channels should be developed and regulation should not restrict cross-border exits.

5.5 Final Conclusions

Overall, the findings of the project suggest that some of the pessimism towards the prospects of early-stage venture capital firms in Finland and in Europe in more general is likely to be unfounded. While there is a lot to be improved in the functioning of venture capital in Finland and in Europe, there is no reason why venture capital could not work in Europe. Some of the recent European success stories (e.g. Skype) and the greatly improved European short-term returns in early stage VC (e.g. Braun et al., 2006; Fricke, 2006) provide some further evidence supporting this conclusion.

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Private venture capital companies in Finland have significantly decreased their financing to early-stage companies and left the arena to public financiers. This is mainly due to high risk levels and past low returns seen in the market. Institutional investors are not interested in investing in early-stage venture capital funds either due to the same reason. Internationally early-stage venture funds have been more successful – or have they? And if they have been – why?

What is the truth? There are several different opinions in the marketplace. Many operators think that this is a crucial problem. At the same time several players think that there is too much money available for start up companies.

To clarify this matter Sitra initiated a three-part research project. First, the deal flow of early stage venture capital firms in Finland was analyzed. Second, a rigorous analysis of the performance differences between the European and North American funds was conducted. Third, Sitra made four benchmarking trips to Israel, United Kingdom, and Silicon Valley and Boston in the USA.

The interesting and also promising findings of this project are described in this report. Also recommendations for the market players are given.

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