Innovation and the contributions from venture capital

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Abstract:

This paper explores the role of venture capital in the development of firms generally and in innovation specifically. In particular, it focuses on the value added of venture capital firms (VCFs) in their portfolio firms in terms of the non-pecuniary contributions. The research question is *what is it exactly that venture capital firms add to a company except pure capital, how much are they involved, and most important - what determines this involvement – are VCFs e.g. more involved in highly innovative firms?* The paper critically reviews earlier, traditional literature and suggests an alternative theoretical approach. Empirical results for Denmark suggest that VCFs primarily act as a link to other financing sources and generally as a networker. The direct contribution to innovation is modest. There was not only a huge variation in how much venture capitalists were involved in their portfolio firms, the firms also differed substantially in their assessment of the value of the contribution from the venture capitalists. Finally, VCFs tend to be more involved in firms who are relatively large, innovative, financially fragile, and with large growth rates. The variance found in what and how much VCFs do indicate that entrepreneurs should be aware of these differences when choosing which VCF to approach.

1. INTRODUCTION

Many innovation studies have focused upon the initial phases of the innovation process, sources for innovation, the generation of ideas. Doing something new usually implies some degree of uncertainty. Innovation is by definition characterized by novelty and uncertainty. It thus should not be surprising that financiers are reluctant to join innovation projects. On the other hand, people do not always dislike taking risks, as illustrated by the following excerpt, in which the Organization for Economic Cooperation and Development (OECD) compares innovation financing with expenses on gambling.

> 'In many countries about 5% of the GNP is spent on traditional gambling – casinos, lotteries, football pools, horse-racing and – one must ask why is so little spent on innovation financing?' (OECD 1982, p.119)

In innovation financing, as in gambling, the chances of financing a successful, radical innovation are relatively small, but the potential gains are large. A consequence of uncertainty is that innovators, be they firms or financiers, must carefully consider the technical practicability and market prospects before putting the innovation process into effect.

But to carry the process of innovation through a number of conditions are vital. Among these the economic development process in society is dependent upon financing innovation and entrepreneurship as mentioned by Schumpeter (1911, 1939), but also more specifically on the ex ante investment screening and the ex post monitoring and nursing of the investee firms. Both these processes require information and competences.

Venture capital is often viewed as a particular valuable source of financing of the innovative and entrepreneurial firm, because it combines capital and competencies. It is widely believed that venture capital involves not just passive finance. In fact, venture capital is often defined by a heavy involvement of venture capital firms (VCFs) in their portfolio firms. This involvement is a way to assist the development of the portfolio firm, something often particularly needed in relation to new, small firms. Such firms are often in need of complementing internal competencies, and venture capital firms may be one such external supplier of additional competencies as well as a gateway to networks.

Various aspects of this have been taken up in the venture capital research (an overview is in Mason & Harrison, 1999 and in Wright and Robbie, 1998). On the involvement of VCFs the issues in the academic discussions may be grouped into four; the degree of involvement, the content of the involvement, the impact of the involvement, and the factors that spur involvement. A number of studies have discussed what VCFs do, and how much they are involved (Reid, (1999), Elango et al. (1995), Ehrlich et al. (1994), MacMillan et al. (1988), Sapienza et al. (1996)). There is, however, little research on what is it on the firm side (other than mere strategy with the VCF) that make VCFs more or less involved. Moreover, the majority of studies are U.S. or U.K. based, both of these venture capital markets are highly developed.[1]

[1] It may be argued that the basics and practise of the value-adding process by venture capital firms are the same regardless the differences in institutional context such as US and European markets (deClercq and Fried, 2005, Sapienza et.al., 1996). However specific cross-country evidence is sparse.

The present paper focuses on three important such aspects of venture capital involvement in a European country where the venture capital market is less developed and less matured. It discusses the theoretical basis for the value adding process and it reports empirical results on an investigation of the involvement of Danish venture capital firms in their investee companies[2]. More precisely, it is discussed *what is it exactly that venture capital firms add to a company except pure capital, how much are they involved, and most important - what determines this involvement.*[3] Several earlier studies have displayed the quantitative development of emergent venture capital markets. This study focuses explicitly on qualitative aspects.
Whereas the pioneering study on this issue by Gorman and Sahlman (1989), and several subsequent studies, answered the research question "What do Venture capitalists do?" by relying on the statements by the venture capital firms, the empirical method in the present paper takes another approach. The empirical research is based on interviews of portfolio firms rather than their venture capital financier. The data for the analyses covers all existing venture-backed firms in Denmark.

The paper is structured as follows: Section 2 contains a short overview of existing empirical work focusing on the value added of venture capital. This review is helpful in developing the hypotheses for our own research. A discussion of the theoretical basis of the relationship between the parties is provided in section 3. Section 4 describes the data set including construction of data/sample and methodological choices. Section 5 deals with qualitative effects of venture capital as seen by the Danish portfolio firms. Furthermore it incorporates findings from similar surveys in Sweden, Norway and the UK. Finally, section 6 contains concluding remarks on the implications of the results and the limitations of the analyses.

2: RESEARCH ON VALUE-ADDED BY VENTURE CAPITALISTS

2.1. What do VCFs do?

One of the most influential pieces of empirical work on the content of venture capitalists involvement is the article by Gorman and Sahlman (1989) with the title above. In their empirical analysis, questionnaires mailed to 100 VCFs rendered 49 responses. These showed that the most frequent assistance to portfolio firms was to raise additional funds. Strategic analysis and management recruiting were also seen as important. Reid (1999) found that supply of financial capital and related, financial expertise were the most important contributions from VCFs, whereas "knowledge of product or service" and "knowledge of markets" were evaluated as unimportant. Along these lines Elango et al. (1995) found similar results from a survey of 149 venture capitalists. They did not find that highly involved VCFs assist with making introductions to costumers, suppliers and service providers. In stead, these VCFs were much involved in seeking additional financing, recruiting management and operational planning. MacMillan et al. (1989) and Ehrlich et al. (1994) likewise found that financial aspects of the

[2] Differences between what venture capital firms do in different countries is an interesting issue in itself, although only briefly discussed in this paper.
[3] In this paper we thus do not analyse the possible relationship between venture capitalists involvement and firm performance. MacMillan et al. (1989) and Barney et al.(1996) investigate this issue explicitly. The former study found no relationship between neither the type nor the level of involvement on the one hand, and performance on the other. Barney et al. (1996) conclude their review of other studies with the claim that "Researchers generally conclude that the impact of VC advice on venture performance is probably relatively small" (p. 259). They likewise find that firm performance is not related to the evaluation of VCF assistance. DeClercq and Fried (2005) do find clear positive impact of venture capital firms value added on portfolio performance. They do, though, point to that other factors affect performance.

venture was the most important aspect of the interaction, and that serving as a sounding board to the entrepreneur was important as well. Generally, the studies have not identified a role for VCFs to assist in technology development (e.g. Fredriksen et al., 1997 and Ehrlich et al., 1994).

Sapienza et al. (1996) found consistent results across four countries with respect to what is the value-added contribution by VCFs. In their study strategic roles encompassing sounding board and financier were assessed as most important by the VCFs themselves. Second most important were interpersonal roles as mentor and confidant, whereas networking roles were third.

2.2. The level of involvement

Discussing the level of involvement unavoidable introduce some degree of subjectivism and imprecise measurements. Various studies defined and measured the level of involvement differently. Elango et al. (1995) grouped their VCFs ”inactive”, ”active advice-givers” and ”hands-on”. MacMillan et al. (1989) denoted their VCFs in ”laissez faire”, ”moderate” and ”close tracker”. Both groupings are similar to that of Perry (1988), who use “investors”, “advisors” and “partners”. Other studies, such as Sapienza et al. (1996), use the exact annual hours or days devoted by the VCF to work with the venture. Using this measure that study found significant differences in the level of involvement across countries. U.S. and U.K VCFs spend on average more (twice the amount) time on each venture compared to their French and Dutch counterparts.

By far most of the previous empirical studies use the assessment of the VCFs to determine the level of involvement. The present study takes its point of departure in statements from the managers of firms[4]. It uses a five-point Likert scale to differentiate active VCFs from passive ones. It thus resembles that of Ehrlich et al. (1994).

2.3. Determinants of high involvement

Gorman & Sahlman (1989) point out that requirements to VCF involvement are higher in early stage investments. Thus, the size or age of the portfolio firm may be one determinant of the level of involvement. In his ph.d. dissertation Sapienza (1989) add to this point by pointing to four such determinants that may indicate that higher involvement is necessary:

a) the start-up experience of the entrepreneur
b) the level of innovation in the firm
c) low levels of goal congruence
d) geographical distance

Landström (1992) provides a model of the relationship between the parties that divide the variables influencing the involvement into four groups. The first of these groups is characteristics of the portfolio company such as the innovation level of the firm and the development stage of the venture, as pointed to above. He also include what he denotes dyadic characteristics, which is the geographical distance, ownership share and the like. A third group of characteristics are linked to the entrepreneur, such as prior experiences in the industry, management, former interaction with VCFs. Finally, environmental characteristics are those that

[4] Fredriksen et al. (1997) find in a pair-wise study that the two parties generally had the same perception of the influence of the interaction.

make up the external framework for the relationship, such as competition and other market conditions.

Complementary the attitudes of the portfolio firm may heavily influence the interaction. Barney et al. (1996) finds that firms are not receptive to advise from VCFs when they are themselves experienced in the industry. Vice versa they welcome advise when they are unexperienced. An important implication from the Barney et al. study is that an appropriate level of involvement from the VCF is not only dependent upon the characteristics pointed to above. It is also partially contingent upon whether the portfolio firm is open to learning. Generally, the knowledge exchange is dependent upon not only the structural setting of the investment contract, but also whether the entrepreneur have positive expectations, motivation and abilities (Nahapiet and Ghoshal, 1998).

3: ESTABLISHED AND ALTERNATIVE THEORETICAL FRAMEWORKS ON THE VENTURE CAPITALIST – INVESTEE LINK

The literature discussed above has shown us some of the existing knowledge and thinking about our three research questions. It may be useful to extend this discussion to include also a few more general theoretical considerations. This take the form of discussing two rather different perspectives on the VCF-firm relationship, the one stemming from more traditional financial theory, and the other an attempt to apply some of the theoretical developments from other research areas that are relevant as a new perspective on this relationship.

Generally, barriers to financing of especially small and/or innovative firms are said to be rooted in the lack of information, trust, and competencies between the parties. Venture capital is characterized by illiquid equity investments involving high degrees of information asymmetries. This requires relative intense monitoring, which in the literature (Amit et. al, 1998, Fredriksen, 1997) has been pointed to as one explanation why venture capital firms exist: due to the specialized abilities to screen potential deals and to cope with asymmetric information, venture capital firms use this competence to invest in firms with a high risk/high return profile and where returns are highly uncertain. It is often claimed in the literature that such barriers may be mitigated by the hands-on character of venture capital financing, involving close interaction between the firm and the venture capital firm, which facilitates the buildup of trust and mutual understanding between the parties (de Clercq and Sapienza, 2001, Shepherd and Zacharakis, 2001).

The information and economics literature generally rest on the basic assumption that asymmetric information between a lender and a borrower may have deterrent effects on loan markets because of moral hazards and adverse selection effects. Theoretically the relationship between entrepreneurship and the financing of the process has been described by applying models of asymmetric information leading into principal-agent problems (Myers and Majluf, 1984, Leland and Pyle, 1977, Stiglitz and Weiss, 1981, and numerous later models). Interestingly, the asymmetry is almost always described as an information gap on the part of the financier: the bank – or whatever financier – does not have as much information as the entrepreneur about the true nature of the entrepreneurial firm and the potential moral hazard of the entrepreneur. Therefore, the financier must put up incentive schemes to ensure alignment between interests of the financier and the entrepreneur. Another, related, theory is the principal-agent theory, in which it is discussed how can a principal (for example, a provider of funds for a venture capital firm) set up a compensation system to motivate an agent (for example, the management of a venture capital firm) to act in the principals' interests. It is presupposed that there are potential conflicts of interests and that the principal cannot directly observe the

actions of the agent. Again, principal-agent line of thinking may be reversed: by accepting equity investor, thus often departing with influence, the entrepreneur could expect the financier to contribute with consultancy and other contributions.

These theories seem at first sight a natural starting point for a microeconomic analysis of the relationship between the firm and the financier, in this case a venture capital firm (Reid 1999). Indeed there is some appealing research within this area, and the literature is to some extent valuable for an analysis of the interaction between venture capitalists and firms. In particular, the literature directs our attention to the impact of information incompleteness. An important deficiency with respect to these theories is that they disregard trust and learning effects[5]. VCFs increasingly act as networkers both in networks of portfolio firms and in networks with other VCFs. This makes opportunistic behaviour more costly because of excessive reputation effects that spread rapidly between members of the network. Although learning effects has been partly integrated by way of game theory using repeated games, then the pure economic theories seem inadequate for analysing the VCF-firm dyad. This proposition has been supported by other studies sceptical of the dominating principal-agent approach to the analysis (Landström, 1992, Sapienza and De Clercq, 2000).

Although still rarely applied to the relationship between VCF and portfolio firm, other types of theories have now begun to be integrated in the theoretical thinking of the VCF-firm dyad. Overall these other theories may perhaps be said to be "less economic". Thus, Cable and Shane (1997) claim that pure economic theories are incomplete, as they do not explain social ties between the parties. They discuss organizational theory to expand the theoretical understanding. Other studies pointing to alternative theoretical avenues include Barney et al., 1996, Shepherd and Zacharakis, 2001, de Clercq and Sapienza, 2001, Manigart et al., 2002, DeClercq and Fried (2005).

Theoretical developments also have pointed to that the interaction must lead to ways of pooling the information in a manner suited to the receiver's organizational structure and ability to process informational signals (Arrow, 1974). The more specialized the organizational design, the more effective the receiving and processing of information. This aspect is dealt with in depth and applied to venture capital by Bottazzi et al (2004).

The above indicates that an efficient knowledge exchange require a mutual adaptation of the other party's ways and habits of interacting. If routines for knowledge exchange are in place communication tends to be smoother. In this way the venture capital firm takes the absorptive capacity of the other party into account. The idea of absorptive capacity was, at least in the Cohen and Levinthal work (1989), meant as an argument for why firms prefer to do R&D for other reasons besides making new products or processes. It may be, according to this theory, that firms increase their ability to assimilate external information. A firm that engages in intramural R&D will be in a much better position to assess what is relevant external information and what is not relevant. Moreover, it becomes easier to interact with other researchers due to the proximity in culture, logic, and language. For the venture capital firm, the concept of absorptive capacity is highly relevant because the capacity is related not only to the size and age of the investee firm but also to the degree of specialization of the venture capital firm and whether the competencies of the two parties match. Wijbenga et al (2003) link a possible fit between the value added by VCFs and the ventures strategy to the performance of the port folio firms. In doing so they ex-

[5] An additional omission, which is rarely recognised, is that these theories tend to see the potential opportunistic behaviour one-sided. It is only considered that the entrepreneur may act opportunistically and monitoring efforts are imposed on the entrepreneur only.

plicitly take into account the abilities and personality of the entrepreneur as well as the organisational learning capabilities of the firm. In a similar vein it has been argued that VCFs during the screening process identify how they can add value after investment and consequently allocate the type and amount of resources to these areas (Kaplan and Strömberg, 2001) as well as design the financing arrangements accordingly (Gompers, 1995). DeClercq and Fried (2005) find that value adding activities are more efficient when venture capital firms are clear about their commitment in the interaction with the portfolio firms. This commitment not only add resources and time, it also facilitates that portfolio firms are more open to the advise of the venture capital firm.

The argument that absorptive capacity is related to the degree of specialization may at first seem counterintuitive. The reverse hypothesis, that broad scope will increase one's ability to interact with many types of people, may be plausible. However, as venture capital firms experience an increasing degree of specialization at a number of markets, they increase not only their knowledge of the market and the technologies involved but also their ability to interact with certain types of firms. The second point is that it is important that the absorptive capacities of the two parties match, or at least have some overlap. Such a proper matching is even more important than a high level of absorptive capacity on both sides. For example, a biotech entrepreneur may be well equipped for understanding what is discussed in the negotiations with a technology-focused venture capital firm. However, if the same entrepreneur approaches a venture capital firm that specializes in Internet-based firms, the two parties may have quite different understandings of time horizons and other aspects of the relationship. It may therefore be argued that absorptive capacity is a relevant aspect of understanding the interaction between venture capital firm and entrepreneur. However, this aspect ought to be seen as a relative concept and not something that reflects an absolute level of, for example, specialized knowledge.

These theoretical arguments may be seen as a justification of not only focusing on one of our three research questions in isolation: the type and level of involvement should perhaps e.g. be seen in relation to what type of firm VCFs are interacting with. In sum, a positive VCF-entrepreneur dyad may require the structural and contractural arrangements but also a cognitive platform as well as a relational dimension establishing common norms, trust and expectations. As explained in social network theory knowledge relatedness and social capital facilitate transfer and creation of knowledge (Napiet and Goshal, 1998, Putnam, 1995, Burt, 1992). Similarly, coherence and efficiency of the venture capital firm-entrepreneur dyad is enhanced if the above-mentioned dimensions are in place. Pushing the argument one step further, this accentuates the importance of human capital in the venture capital involvement in portfolio firms.

4: THE DATA[6]

Data for our analysis has been collected by the following procedure. First we identified all venture capital investors in Denmark using different sources such as the European Venture Capital Association (EVCA), business press, The Danish Investment Fund. In doing so we limited ourselves to only focus upon "true" venture-backing (Bygrave & Timmons, 1992), thus excluding firms financed by buy-out funds and other funds not having their main activities in venture capital, i.e. hands-on investments – mainly equity - in young, un-listed firms with high risk and high growth potential. The venture capital firms were asked to provide information on still existing venture-backed firms from earlier investments. In case of merger or acquisition the continuing firm is included in the sample. We therefore concentrate on suc-

[6] Financial support and sparring on data collection is gratefully acknowledged from The Ministry of Industry (in particular Claus E. Christensen) and The Danish Growth Fund.

cessful venture-backed investments while venture-backed firms that for different reasons have been closed down are excluded. With this approach, and after cleaning the data, we identified approximately 300 existing venture-backed firms in Denmark. We consider the sample to be a very good indicator for the total number of venture-backed firms in Denmark in year 2000.[7] Thus, we believe to have close to all the venture-backed firms in Denmark in our sample, which is rather unusual.

Financial data for 10 years was then added to the database using commercial business register. A realised sample of 121 managers in firms were then interviewed by telephone to get information about the venture capital investment, and the role of the VCF in the development of the venture. In total 175 venture-backed firms were contacted rendering a response rate of 71%. The questions concerned what the firms saw as the contribution of the VCF. We also asked about how much VCFs were involved and the impact of this involvement. Finally we asked the firm a few questions about characteristics with respect to development in revenues, employment and innovation. We therefore have data that are very suitable for investigating the three research questions in this paper[8].

Consistent with the definition of "true" venture above the sample is dominated by relatively small firms. Information on the total portfolio firms on size is shown in the following tabulation.

TABLE 1 ABOUT HERE

5: THE VCF INVOLVEMENT IN DANISH FIRMS

5.1. WHAT DO VCFS DO?

Definitions of venture capital emphasize that the venture capitalist besides financial strength also contributes with additional managerial competencies and mentoring of the investee firm. But what is more precisely the content of involvement, or in other words, what is it venture capital firms provide in addition to capital[9]? As mentioned above, this issue has achieved much attention from researchers lately. Indeed, even in textbooks (e.g. Entrepreneurial Finance, Smith & Smith, p.510, 1999), this is substantiated, where it lists the time venture capitalists spent in portfolio firms by different tasks. That book listed "directing and monitoring" as the task that VCFs used most time on with close to 25% of all of what they did in the portfolio firm. Secondly and thirdly was ranked "recruiting management" and "consulting".

[7] Manigart, Baeyens *et al.* (2002) create a sample of 565 venture-backed firms in Belgium for the period 1987-1997. They estimate to cover 57% of venture investments in Belgium in their sample. As we focus upon a relative narrow definition of venture capital (e.g. excluding MBO funds) and for a smaller country in a shorter period, it seems fair to conclude that the number of venture capital-backed firms we found in Denmark is realistic. A similar sampling approach in a Norwegian survey rendered 240 firms (Aslesen and Langeland, 2003).

[8] The survey included other issues like exit from the investment. These other issues are not reported here.

[9] The *organisation* of how venture capitalists are tutoring investee firms may differ from case to case. In most cases the venture capital firm take a seat in the board of the firm. In fact, this is so in 79% of the firms in our sample of venture-backed firms, roughly alike the findings by Bottazzi et al (2005) who finds that 68% of European venture capital firms have a seat at the board of their portfolio firms. Rosenstein et al. (1993) and MacMillan et al. (1989) discuss the role of venture capitalists in the workings of the board. In the data set of Kaplan and Strömberg (2001) venture capitalists have the majority in the board in 25% of their 213 cases.

Our own survey was inspired by the theoretical and empirical literature, but also by similar surveys in Sweden and the UK (Isaksson, 1999 and BVCA, 1999). In fact, to ensure comparability we adopted some of the questions posed in these countries. Thus, on some points surveys in Sweden and the UK are comparable with our own, and to some extent also a survey in Norway (Aslesen and Langeland, 2003).

In table 2 the main results on the content of venture capital involvement from these surveys are included together with results from our own survey. Minor differences in the formulation of the questions and in the scale used for assessment make direct comparison a bit difficult, but still possible.[10]

TABLE 2 ABOUT HERE

The results indicate that Danish firms primarily see the contribution of venture capital as a link to other financing sources. Second, "Strategy", and the somewhat related categories "Sounding board for new ideas", "Financial advice" and "Contacts and networks" are important. It is evident from the results that "Technical know-how" is not seen as a major contribution from the venture capitalist.

As should be expected the percentages from the Swedish survey are below the Danish (as a 6-point scale was used). There is nevertheless agreement on the importance of "Strategy", "Sounding board for new ideas", "Financial advice", "Contacts and networks" as opposed to the small importance of another group "Increase the ability to develop new products", "Increase knowledge on the market" and "Recruitment". The British survey is less comparable but emphasises more the innovative contribution from venture capitalists – "Challenging status quo" and "Sounding board for new ideas" came out as top-priority contributions. The results largely resemble those of other studies as reviewed in section 2[11].

Interestingly, many Danish firms see even more contributions from the venture capital firm than those listed in the table. Respondents were asked to specify such additional contributions. Reviewing those statements rendered two dominating categories: the ability of the venture capital firm to improve the functioning of the board, and a positive image effect from the financing. The latter is interesting and came rather surprising as the literature only sparsely point to these effects[12].

Selected statements are included below:

[10] One complication is that the British survey lists the percentage of firms who see each sub-issue as a contribution from venture capital, whereas the firms are asked to assess each sub-issue on a scale 1-5 in Denmark and 1-6 in Sweden. Nevertheless, the ranking of the issues provides useful information on what are the primary non-economic contribution from venture capital.

[11] Although not strictly comparable the results from a Norwegian survey also reveal that strategy, networks, advice and access to additional finance are important contributions, whereas assistance with product development, marketing, and organisational development is ranked low.

[12] Related, Shane and Cable (2002) find that reputation may mediate the effects of social ties and alleviate asymmetries in information. Their investigation is, however, more on the initial investment decisions by VCFs rather than the post-investment relationship. Fredriksen (1997, p.56) also point to the fact that it is an aspect of value added that venture financing is signalling quality of the company hence alleviating financial constraints on the capital market. The reputation effect may be present on the financier side as well as entrepreneurs in some cases may deliberately choose to approach a venture fund with good reputation, even if this involves paying a premium (Hsu, 2004).

"Our work on the board of the firm has been improved substantially through this collaboration"

"They contributed a lot to the work of the board in a very positive manner"

"Our image has improved after collaborating with XX"

"To be supported by YY gives a positive image among other firms and financing sources"

With regard to contribution to innovation it may be concluded that the role of venture capital firms does not seem to be direct. The contribution to new product development, innovation management and technical know-how is ranked low. Rather there are indications that venture capital firms have a role as networker and in that sense may indirectly contribute to innovation. Thus, relations to other financing sources and contacts and networks are at the top of the list of contributions.

5.2. HOW MUCH DO VCFS DO WHAT THEY DO?

A different issue is the *level* of involvement. Investments may be made quite differently with respect to the involvement of an investor. An investor may be only passively providing capital, or he may be heavily influencing the development of the firm. According to the firms in our survey an assessment of this aspect varies, as shown in table 3. A majority (69%) of the firms consider the involvement of the venture fund to be "to some degree" or more. It is to be expected cf. the definition of venture capital, that at least some involvement would be reflected in the responses. It is, however, uncertain what level one should expect.

TABLE 3 ABOUT HERE

A Swedish survey (Isaksson, 1999) asked a similar question but used a 6-point scale. Although this complicate direct comparisons the results indicate that Swedish venture capital firms are a bit more involved in the portfolio firm. Interesting, there are apparently a number of firms both in Denmark and Sweden, who do not consider the venture capital firm to be actively involved at all in spite of the definition and usual perception of venture capital firms as hands-on investors[13].

TABLE 4 ABOUT HERE

In the literature there is an implicit assumption that the involvement of the VCF is positive, and that "the more the better" – the firms only benefit from VCF involvement. But according to the firms in our survey, there is apparently no uniform opinion of whether the involvement

[13] These results are consistent with Fredriksen (1997), who finds that 7% of the venture capitalists in his empirical investigation are not active at all.

of the venture capital firm is seen as something positive or the opposite. Statements from firms during the interviews provide documentation of a variety of opinions on this point.

Statements from firms on the involvement of venture capital firms:

> "The collaboration has been very fine. They (the venture capital firm) are very active in the daily running of the firm"
>
> "The collaboration has been good and positive. They (the venture capital firm) have not interfered in the daily running of the firm"
>
> "The venture capital firm restricted our development by their heavy involvement"
>
> "XX has taken up too much of our time compared to the amount invested in our company"
>
> "It has been a positive experience. They performed well as general partners in several areas"
>
> "It has been perfect until now. They do not interfere in the daily running of the firm. They just provide capital."
>
> "The collaboration with the venture firm has been a positive experience so far. They virtually saved our life."
>
> "The collaboration with the venture firm has been outstanding and very decisive for the further development of the firm."
>
> "The collaboration with the venture firm has not worked at all. ZZ has generally been a hindrance to our development."

The statements render clear indications that just assuming positive outcomes of the involvement is too simplistic (Barney et al. 1996). Most surveys have failed to ask about negative outcomes and have thus contributed to this one-sided view. The statements also indicate that firms have different assessments of what is an appropriate level of involvement (Barney et al. 1996).

On the other hand, there is no doubt that even if there are firms who consider VCF-involvement to be counter-productive the survey also render clear evidence that VCFs have important – in some cases vital – positive influence on the development of the firm. Thus, firms were asked a hypothetical question "Without the involvement of the venture capital firm, would the firm then either be closed down, developed slower, had the same development, developed faster" (see table 5). On this point the British survey is directly comparable, and is included in the table.

TABLE 5 ABOUT HERE

About two thirds of the Danish venture-backed firms state that they would either not have existed or would have developed in a slower pace without venture capital financing. One out of five firms believe they would have had an unchanged development, while only 4% believe they could have managed better without venture capital. The perception concerning the impact of venture capital in the UK seems to be more positive compared to the Danish case. Also Norwegian venture capitalists seem to have kept more firms alive than Danish VCFs.

One of the main motivations for VCF involvement is that the nursing of the portfolio firm may add value and improve economic performance. But which firms are nursed more? This question is researched in the subsequent section on what are characteristics of firms who experience high involvement from their VC financier.

6: WHY DO VCFS DO WHAT THEY DO?

We have already in the theoretical discussion pointed to some possible factors explaining VCF-involvement in their portfolio firms. In this section we consider what characteristics may explain this involvement. The following variables may contribute to explaining the level of involvement does this.

The variables that we ideally would like to look further into are

- the ownership share. We would expect this variable to be positively related to the degree of involvement, VCFs would have an incentive to closely monitor and guide firms they are heavily involved in financially (Landström, 1992).
- The age of the firm. We would expect this variable to be negatively related to the degree of involvement, VCFs would probably not need to assist management of firms who have passed the difficult start-up stage to the same extent. Sapienza et al. (1994), Cumming et al. (2005), and Timmons (1982) found that VCFs were more involved in firms in early stage. However, Elango et al. (1995) found no such relationship.
- The size of the firm. We would expect this variable to be negatively related to the degree of involvement, again, VCFs would probably not need to assist management of firms who have passed the difficult start-up stages, and both age and size of firms are indicators on this.
- Innovation. We would expect this variable to be positively related to the degree of involvement, as innovation often involves additional uncertainties and VCFs would be more engaged in establishing networks and sales channels for new products/highly innovative firms. This assertion may be traced back to Schumpeter (1939)[14]. Findings by Sapienza, 1992, Sapienza et al. (1994) and Sapienza et al. (1996) also lend support to this hypothesis.
- Development of performance of the firm. One could argue for different expectations to how this variable is related to the degree of involvement. On the one hand, it is plausible that VCFs would act as "firefighters" (Frederiksson, 1997) and become more involved if things go wrong. On the other hand we could also expect that, as venture capital is much about picking a few "stars", the VCF would get more involved in developing further firms who show to be potential such stars.

[14] In a passage in his "Business Cycles" (1939) Schumpeter emphasizes the importance of a close contact between borrower and lender in the screening and monitoring function of the banker. Thus, the financier "….should know, and be able to judge, what his credit is used for and....the banker must not only know what the transaction is which he is asked to finance and how it is likely to turn out, but he must also know the customer, his business, and even his private habits, and get, by frequently "talking things over with him," a clear picture of his situation. But if banks finance innovation, all this becomes immeasurably more important."(p.90).

- The financial situation (stock) of the firm. If the firm is financially fragile this may be an indication of relatively more problems with asymmetric information. Such firms could be thought of as particular necessary to monitor closely.
- Geographical distance between the firm and the VCF (in case of more than one VCF among the owners the distance to the one with the largest ownership share, as VCFs often leave the bulk of the work with monitoring etc to the VCF with the largest share, thus acting as lead investor[15]). We would expect this variable to be negatively related to the degree of involvement, VCFs would be more inclined to be involved in firms with close localisation (Lerner, 1995).

Most of our variables are directly obtained form either the survey data or the register data, whereas there are some approximation for some variables. Table 6 provides an overview of how variables are measured.

TABLE 6 ABOUT HERE

Table 7 shows means and median values for our variables. The table display some of the key features of the firms in the two groups "active VCFs" and "passive VCFs". It should be noted that the number of observations in the calculations of each variable differs, and may be below the maximum 107. This is due to either deletion of outliers from the calculations or lack of available data for the specific variable.

TABLE 7 ABOUT HERE

The variables generally show consistency with respect to the relative size of means and medians between the two groups. Our first hypothesis that VCFs are more involved in firms where they have a large ownership share is not confirmed by the above, admittedly preliminary, calculations. Means and medians display no significant differences between the two groups[16]. Likewise, the hypothesis that venture capital firms are more involved in younger firms is rejected. In fact, there are significant differences between the groups on two other, inter-related characteristics, size of firm measured either as number of employees or the size of the revenues in 1999. But whereas our hypothesis posits that we expect a negative correlation between the variables and level of involvement, we find that VCFs are more involved in larger firms. This finding is contradicting that of Sapienza et al (1994) as that study indicates that one should expect small firms to need more guidance, hence requiring more involvement from the venture capital firm.

The assertion that venture capital-backed firms, who assess the VCF involvement to be high, are more innovation-intensive seems to be justified in the responses from our sample of firms, although median values indicate that it is not a strong result. On the other hand, the lack of clarity of the results is consistent with the findings on the content of the involvement, where technological assistance was ranked low. Even when VCFs do play a role in innovation it may

[15] Gorman and Sahlman (1989) find that VCF use ten times as much time on an investment where the VCF is the lead investor compared to a late stage investment

[16] It could be argued that these are not the relevant indicators. Rather this variable should list the share of firms with a majority stake within each group.

well be more of a mediator and networker than a technology specialist (Florida and Kenney, 1988). Even quite some years ago Timmons and Bygrave (1986) pointed to the qualitative role played by venture capitalist in the innovation process. Florida and Kenney (1988) contended that venture capital has a key role to play in a *new* model of innovation. In their perception, the new model of innovation is based on integrating components of how Schumpeterian theory sees the change in the way innovation takes place[17]. Thus, Florida and Kenney see venture capital-backed innovation as a new form of innovation in between the (individual) entrepreneurial-driven and the (large) corporate and R&D-driven innovation process.

Financial variables render a somewhat mixed picture, though the results do indicate that venture capital firms need to work more with financially fragile firms. Even if statistics for differences of means are not all significant, then the size of means and the median values for the growth variables are clear indications that venture capital see the short term development of the firm as important for their decision to invest time in assisting the firm[18].
Following earlier studies, the hypothesis and theoretical considerations in section 2 and 3, and the frequency analyses above, we establish a model to be tested using our data set. As the independent variable we use the degree of involvement as experienced by the responding firms in our survey. This variable is on an ordinal scale as are many of the other variables in the questionnaire. We therefore use categorical data analyses techniques. We use a logistic regression model to test for independence, which render results similar to those of the descriptive statistics.

7: DISCUSSION AND CONCLUSION

It has been claimed, even in early studies (Wells, 1974), that there is huge variation among VCFs in what they do. This variation may also be considerable over time (Fried et al, 1993). The behaviour of VCFs may, e.g. be different in a recession compared to an up-swing, not only with regard to the investment decision, but also the post-investment activities. In addition, VCFs behaviour is likely to differ in different countries (Knight, 1994). This will, of course, make general conclusions more difficult. Nevertheless, we believe that the results from this study on what VCFs do, that VCFs primarily act as a link to other financing sources and generally as a networker, rather than playing a direct role in innovation, adequately reflects the behaviour of Danish VCFs.

Even earlier studies have emphasized that the venture capital firm may have an important intermediary role. Venture capitalists are important parts in networks and are furthermore in between, and central to, several different types of networks. In Florida and Kenney (1988, p.127) these networks are grouped in four, although they do overlap. The first of these is the financial network, which includes the venture capital fund and its back funding to syndication partners like other venture capital funds and business angels as well as complementary financing sources[19]. The second network is used in the location of investment opportunities and their

[17] Changes in the mode of innovation has, however, long been discussed by many authors; see, for example, the well-known discussion of a Schumpeter Mark I and II mode of innovation. In short, Mark I is the entrepreneurial mode that has the creative individual as the driving force, whereas innovation in Mark II is driven by R&D departments of large firms. More recently innovation theory has discussed extensively the existence and changes in technological regimes.
[18] The causality of this could be both ways. The results could also reflect that the involvement has resulted in high growth rates.
[19] Venture capitalists are important intermediaries in relation to their portfolio firms as well. It is a deliberate strategy in some venture capital firms to place a limited number of managers on the boards of several portfolio

screening. This group spans from other venture capitalist and business angels to accountants and universities. A third network surrounding venture capital firms consists of accounting firms, lawyers, consultants, and other professional service firms. Finally, a personal network is used to ensure the human resources in the innovation process, on both the management and the technical side. An important prerequisite for this venture-backed innovation process to succeed is a well-developed technological infrastructure, or in Florida and Kenney's own words, "social structures of innovation" (1988, p.120). Perhaps even more important, as reflected in this chapter's focus, is the microeconomic, personal interactions between the parties.

Although Florida and Kenney do not address it in their work (1988), the social structures of innovation would often constitute completely different things in different national and even regional contexts. Stimulation of such social structures ought to be subject to policy development, but until recently it has largely been overlooked by policy makers in the European countries.

On a firm level it may be difficult for the firm to adequately assess how much the VCF is actually involved. The subjective judgements from the interviews may to some extend also reflect different expectations to how much a VCF should be involved. Half of the venture-backed firms claimed that the involvement of the VCF is "a lot" or "Very much". This largely corresponds to similar findings in Sweden, although they may be a little more involved. It is important to note that there is not a uniform opinion on whether this involvement should only be looked upon positively. In fact, our survey displayed opinions of negative impact as well, although the general picture is clearly one of positive impact of the involvement.

We developed different hypotheses on what are characteristics of firms where VCFs are heavily involved. VCFs tend to be more involved in firms who are relatively large, innovative, financially fragile, and with large growth rates. It does not seem as if the ownership share or age of firm are strong determinants of the decision to be much involved in the firm.

Throughout the paper, and in much of the literature, there is an emphasis on the importance of competencies with the VCF. Competencies are essential for fulfilling the role as mentor and to monitor and assist potential firms' management. If the venture capital firms decide to build up such competency internally, it is extremely important to assess to what extent are resources used for competence building sunk. Some competencies may be very industry specific while others are more generic. A way to build up competency would be to specialise in certain segments of the market. This involves a dilemma: specialisation will inevitably mean higher risk exposure, while also making it more difficult to diversify in order to minimise risk. One way to enhance the ability of the VCF to provide efficient value-adding involvement is for the VCF to focus upon the very processes of knowledge generation and –exchange. In other words, VCFs should be aware of when productive interplay with portfolio firms takes place in order to perhaps enhance similar interplay in future or other cases. This type of double-loop-learning (Kolb, 1984) is an important but largely overlooked part of internal knowledge in VCFs complementary to the statistics and formalised decision aid system already in place in most VCFs.

In the present situation, there is a tendency, at least in Denmark that VCFs are under financial pressure and focus upon second-round investments in selected existing portfolio firms rather

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firms, thus stimulating networking across these firms.

than new investments. This situation also calls for new types of competences, as it becomes important to be good at seeing opportunities in merging some of the portfolio firms with other firms. Both the first and third type of the Florida & Kenney-network becomes more important.

On the entrepreneur side there may also be implications. The variance displayed here in what and how much VCFs do indicate that entrepreneurs should be aware of these differences when choosing which VCF to approach. The specific needs of the entrepreneur should be in alignment with what the VCF is able to provide. This requires that the entrepreneur is clear about what are these needs, something that not all entrepreneurs know in advance of seeking capital. Likewise, back-funding sources of venture capital funds like pension funds may recognize that the value added activities of VCFs may influence the long-run performance. Cumming et al (2005) find that in the Australian market pension fund managers are already paying attention to the extent and nature of value added contributions from VCFs when choosing to allocate new capital to venture capital. Consistent with the results in this paper they find that pension funds allocate relatively more capital to VCFs who provide more financial and strategic/management advice as opposed to marketing and administrative advice.

There are obviously limitations to the argument in this paper. We have used quantitative methods for investigating an issue that is admittedly difficult to generalize. The difficulties in this rest with the fact that what venture capital firms do differ according to what kind of firm they invested in. Thus, a seed- or start-up investment may require completely different assistance than that of a MBO-investment. Many VCFs are diversified in their portfolio with respect to stages of development of their portfolio firms. Therefore, they do many different things at the same time. Moreover, there may be differences in their involvement that are dependent upon what type of assistance they provide (this proposition is, however, partly rejected by a study by Barney et al., 1996). In our analyses in this paper we were able to partly take this into account.

But further studies are required to get a better understanding of this phenomenon. The complexities in the interaction indicate that additional studies should be pair-wise and object-oriented, i.e. focus upon a specific project. Moreover, there is a remarkable absence of studies that investigate what Landström (1992) denotes environmental characteristics influencing the interaction. Future studies may include such factors when assessing the VCF-firm involvement.

REFERENCES

Amit, R. Brander, J. and Zott, C. (1998), Why do venture capital firms exist? Theory and Canadian evidence, *Journal of Business Venturing,* **13**, 441-466.

Arrow, K.J. (1974): "The Limits of Organization", New York.

Aslesen, H. and Langeland, O. (2003): “Knowledge economy and spatial clustering: The role of knowledge-intensive business services and venture capital firms in the innovation system”, paper for DRUID conference on Creating, sharing and transferring knowledge. Copenhagen, june 12-14.

Barney, J. B., Busenitz, L.W., Fiet, J.O., Moesel, D.D. (1996), New venture teams’ assessment of learning assistance from venture capital firms, *Journal of Business Venturing,* 11, 257-272.

Bottazzi, L., Da Rin, M. and Hellman, T. (2005): The changing face of the european venture capital industry: facts and analysis, *Journal of Private Equity*.

Bottazzi, L., Da Rin, M. and Hellman, T. (2004): Active financial intermediation: evidence on the role of organizational specialization and human capital, RICAFE Working paper no.012, LSE.

British Venture Capital Association, BVCA (1999), *The Economic Impact of Venture Capital in the UK.*, Bannock Consulting, London.

Bygrave, W. D. and Timmons, J. A., 1992, *Venture Capital at the Crossroads*, Harvard Business School: Boston, MA.

Cable, D. and Shane, S. (1997): "A prisoner's dilemma approach to entrepreneur-venture capitalist relationships.", *Academy of Management Review* 22(1), 365-382

de Clercq, D. and Sapienza, H. J. (2001): "The creation of relational rents in venture capitalist – entrepreneur dyads", *Venture Capital*, vol. 3, No. 2, pp. 107-127.

Cohen, W. and Levinthal, D. (1989): "Innovation and learning: the two faces of R&D", *The Economic Journal* 99: 569-596.

Cumming, D., Fleming, G. and Suchard, J.-A. (2005), Venture capitalist value-added activities, fundraising and drawdowns, *Journal of Banking and Finance*, 29 (295-331).

Ehrlich, S. B, De Noble, A.F., Moore, T., Weaver, R. R. (1994), After the cash arrives: a comparative study of venture capital and private investor involvement in entrepreneurial firms, *Journal of Business Venturing*, **9**, 67-82.

Elango, B, Fried, H.V., Hisrich, R.D., Polonchek, A. (1995), How venture capital firms differ, *Journal of Business Venturing*, **10**, 157-179.

Florida, R.L. & Keeney, M. (1988): "Venture capital and high technology entrepreneurship", *Journal of Business Venturing* **3**.

Fredriksen, Ö., Olofsson, C., Wahlbin, C. (1997), Are venture capitalists firefighters? A study of the influence and impact of venture capital firms, *Technovation* 17(9), pp. 503-511.

Fredriksen, Ö. (1997), V*enture capital firms relationship and cooperation with entrepreneurial companies*, Linköping Studies in Science and Technology Thesis No. 625, Linköping University.

Fried, V. H., Hisrich, R. D. and Plonchek, A., (1993), Reserch Note: venture capitalists' investment criteria: a replication, *Journal of Small Business Finance*, 3, 37-42.

Gompers, P. (1995): "Optimal investment, monitoring, and the staging of venture capital, *The Journal of Finance*, 50, 1461-1489.

Gorman, M. and Sahlman, W. A. (1989), What do venture capitalists do?, *Journal of Business Venturing*, **4**, 231-249.

Hellman, T. and Puri, M. (2002): "Venture capital and the professionalization of start-up firms", *The Journal of Finance*, 57, 169-197.

Hsu, D. (2004): "What Do Entrepreneurs Pay for Venture Capital Affiliation?, *Journal of Finance*, August

Isaksson, A. (1999). Effekter av venture capital i Sverige. NUTEK, Stockholm.

Kaplan, S. and Strömberg, P. (2001): "Venture capitalists as principals: contracting, screening, and monitoring. *American Economic Review*, papers and proceedings, May.

Knight, R. M. (1994): "Criteria used by venture capitalists: a cross-cultural analysis." *International Small Business Journa*l, 13, pp. 26-37.

Landström, H. (1992), The relationship between private investors and small firms: an agency theory approach, *Entrepreneurship and Regional Development*, **4**, 199-223.

Leland, H. E. and Pyle, D.H. (1977), Informational asymmetries, financial structure, and financial intermediation, *The Journal of Finance*, **32**, no.2

Lerner, J. (1995), Venture capitalists and the oversight of private firms, *Journal of Finance*, **50**, 301-318.

Macmillan, I. C., and Kulow, D.M. (1989), Venture capitalists' involvement in their investments: extent and performance, *Journal of Business Venturing*, 17, 291-312.

Manigart, S. and Struyf, C. (1997), Financing High Technology Start-ups in Belgium: An Explorative Study, *Small Business Economics*, **4**, 27-47.

Manigart, S., De Weale, K., Wright, M., Robbie, K., Desbrières, P., Sapienza, H.J., Beekman, A. (2002), Determinants of required return in venture capital investments: a five-country study, *Journal of Business Venturing*, 17, 291-312.

Manigart, S., K. Baeyens and W. van Hyfte (2002). The Survival of venture capital backed companies, *Venture Capital*, Vol. 4, no. 2, 103-124.

Mason, C. and R. Harrison (1999). Venture capital: rationale, aims and scope. In: *Venture Capital* (Mason, C. and R. Harrison, eds.), Vol.1, No. 1, 1-46.

Myers, S. and N. Majluf (1984), Corporate Financing and Investment Decisions when Firms have Information that Investors Do Not, *Journal of Financial Economics*, **13**, 187-221.

Nahapiet, J. and Ghoshal, S. (1998): "Social capital, intellectual capital, and the organizational advantage", *Academy of Management Review* 23 (2), 242-266.

OECD (1982): "Innovation in Small and medium-sized Firms". Background report.

Prahalad, C. and Hamel, G. (1990): "The core competence of the corporation", *Harvard Business Review*, 79-91.

Reid, G. C. (1999): The application of principal - agent method to investor - investee relations in the UK venture capital industry, *Venture Capital*, Vol 1., No. 4, pp. 285-302

Rosenstein, J., Bruno, A.V., Bygrave, W.D., and Taylor, N. (1993): The CEO, venture capitalists, and the board, *Journal of Business Venturing,* **8**, 99-113.

Sapienza, H.J., (1989), *Variations in the venture capitalist-entrepreneur relations; Antecedents and consequences*, University of Maryland.

Sapienza, H.J., (1992), When do venture capitalists add value?, *Journal of Business Venturing,* **7**, 9-27.

Sapienza, H.J., Amason, A.C. and Manigart, S. (1994): The level and nature of venture capitalists' involvement in their portfolio companies: a study of three European countries, *Managerial Finance*, 20 (1), pp. 3-17.

Sapienza, H.J., Vermeir, W. and Manigart, S. (1996): Venture capitalist governance and value added in four countries, *Journal of Business Venturing,* **11**, 439-469.

Sapienza, H. J. and de Clercq, D. (2000), Venture capitalist-entrepreneur relationships in technology-based ventures, *Enterprise and Innovation Management Studies*, Vol.1, pp. 57-71.

Schumpeter, J.A. (1939): "Business cycles: A Theoretical Historical and Statistical Analysis of the Capitalist Process", New York, Mc Graw Hill.

Schumpeter, J.A. (1911/34): "The theory of economic development", New York.

Shane, S. and Cable, D. (2002): "Network Ties, Reputation, and the Financing of New Ventures", *Management Science*, Vol.48, No.3, pp.364-381.

Shepherd, D. A. & Zacharakis, A. (2001): "The venture capitalist-entrepreneur relationship: control, trust and confidence in co-operative behaviour", *Venture Capital*, Vol. 3, no.2, 129-150.

Smith and Smith (1999): "Entrepreneurial Finance", Wiley.

Stiglitz, J.E. and Weiss, A. (1988), Credit rationing in markets with imperfect information, *American Economic Review*, **71**, 393-410.

Timmons, J. A. and Bygrave, W. D. (1986): Venture capital's role in financing innovation for economic growth", Journal of Business Venturing, Vol. 1, No 2, pp. 161-176.

Wells, W.A. (1974), "Venture capital decision-making", ph.d. dissertation, Carnegie-Mellon University.

Wijbenga, F., Postma, T.J.B.M., van Witteloostuijn, A. and Zwart, P.S. (2003): “Strategy and performance of new ventures: a contingency model of the role and influence of the venture capitalist”, *Venture Capital*, Vol. 5, no.3, 231-250.

Wright, M. and Robbie, K (1998). Venture Capital and Private Equity: A Review and Synthesis, *Journal of Business Finance & Accounting*, **25**, 521-570.

Table 1. Firm size

Number of employees	*N*	*Percent*
0-4	74	29.1
5-19	70	27.6
20-49	40	15.8
50-199	44	17.3
>200	9	3.5
0	17	6.7
Total	254	100

Source: Survey. N is all firms in the sample for which it was possible to add financial data.

Table 2: Contributions of venture capital, high scores/shares

Contribution	*Denmark*[a]	*Sweden*	*UK*
Relations to other financing sources	50		
Strategy	39	19	29[b]
Sounding board for new ideas	38	21	60
Financial advice	35	37	36
Contacts and networks	32	23	
Increase the R&D activities of the firm	17		
Increase the general level of competence within the firm	17		
Increase the ability to develop new products	12	3	
Increase knowledge on the market	10	6	23[c]
Recruitment	9	8	13
Increases abilities of the firm to manage innovation projects	6		
Increase the technical know-how of the firm	4		
Other contributions (share who list one or more)	21		0
Challenging status quo			47

Note: [a] In the Danish survey high scores are calculated as: Share of respondents answering Very large effect + large effect compared to all responding. In the Swedish survey high scores are the two top levels of a 6-grade scale. In the British survey the numbers just denote the share of firms in non-MBO's who ticked the contribution.

[b] "Corporate strategy/direction + marketing strategy".

[c] "Contacts or market information".

Source: Own survey, Isaksson (1999) and BVCA (1999).

Table 3: The degree of involvement of the venture capital firm, Denmark. %

Not at all	*To a small extent*	*To some degree*	*A lot*	*Very much*	*Do not know*	*No. of obs*
10	16	21	29	19	4	112

Question: "How involved do you think the venture capital firm is in your company?"

Source: Own survey.

Table 4: The degree of Involvement of the venture capital firm - Sweden, %.

Not at all					*Very much*
3	11	13	16	34	23

Table 5: Impact of involvement by the venture capital firm, %

	Closed down	*Developed slower*	*No change*	*Developed faster*	*Do not know*	*No. of obs*
The UK	55	43	1	0	1	87
Denmark	24	40	21	4	11	112
Norway	42	41				76

Source: Own survey, Aslesen and Langeland (2003) and BVCA (1999).

Table 6: Measurement of variables

Variable	*indicator*
Ownership share (%)	Ownership share held by formal VCFs
Employees 1999 (No.)	Number of empl. In full time equivalents
Age of firm	Number of years since establishment
Innovation	Number of new products, processes or services in 1999
Revenues	Revenues in 1999 in mill. DKK
Geographical distance	Whether the firm is located away from the VCF*
Debt-Equity ratio	Debt / equity in 1998
Profitability	Result before taxes / equity in 1998
Solidity	Equity/total liabilities in 1998
Growth in employment	Growth from 1998 – 1999
Growth in revenues	Growth from 1998 - 1999
Growth in liquidity	Growth from 1997 - 1998

Notes: * This is a rough estimation based upon whether the postal code indicate that the firm is located in the Copenhagen area. As we know that 98% of the VC funds are managed from the Copenhagen funds (The Danish Growth Fund, 2002) it is assumed that most of the funds are in Copenhagen. For the firms where we know the name of the VCF, the data have been adjusted to the regionally located VCFs.

Table 7: Descriptive statistics for Two groups of Firms.

Variable	*N (Active/Passive)*	*Active VCFs*		*Passive VCFs*	
		Mean	Median	Mean	Median
Ownership share (%)	44/42	46	46	46	41
Employees 1999 (No.)	52/53	79*	25	46*	20
Age of firm	48/49	15	7	14	8
Innovation	35/39	12*	2	7*	3
Revenues	34/37	80*	27	46*	20
Geographical distance	46/49	1.72		1.60	
Debt-Equity ratio	34/26	0.84*	0.62	0.74*	0.26
Profitability	47/47	-10*	-1	23*	8
Solidity	46/47	29	33	16	26
Growth in employmnet	46/50	76	28	55	17
Growth in revenues	34/37	53	30	33	10
Growth in liquidity	23/24	66*	51	19*	1

Notes: * Means significantly (95%-level) different from each other.
** Less reliable data because of low number of observations or outliers