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Working Paper

Public venture capital in Germany: task force or forced task?

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Dirk Schilder

Public Venture Capital in Germany – Task Force or Forced Task?

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Abstract

This paper deals with the question of whether public venture capital (VC) is performing its task properly, taking a look at how public VC companies' selection process, investment behavior, and consulting services reflect goals that differ from those of private VC firms. The results present evidence that public VC firms deliver a different market segment than their private counterparts; for example, their selection process and syndication behavior reveal their predominant goal of promoting the local economy. Although the results indicate that public VC firms are doing what is expected of them, the analyses provide evidence that public intervention should be reconsidered.

JEL-classification: G28, G32, O16, D21, M13

Keywords: Venture Capital, start-up financing, public intervention.

Zusammenfassung

“Staatliches Venture Capital in Deutschland – Sonderkommando oder Selbstzweck?”

Dieses Papier behandelt die Frage, inwieweit öffentlich gefördertes Venture Capital (VC) seine Aufgaben erfüllt. Zu diesem Zwecke wird untersucht, inwieweit der Selektionsprozess, das Investitionsverhalten und die Beratungsleistungen öffentlicher VC Gesellschaften ihre Ziel, die sich deutlich von denen privater VC Gesellschaften unterscheiden, widerspiegeln. Die Ergebnisse zeigen, dass öffentliche VC Gesellschaften ein anderes Marktsegment als ihre privaten Gegenüber beliefern. Beispielsweise verdeutlichen ihr Selektionsprozess und ihr Syndizierungsverhalten ihr vorrangiges Ziel der regionalen Wirtschaftsförderung. Auch wenn diese Ergebnisse darauf hindeuten, dass die öffentlichen VC Gesellschaften ihre Aufgabe erfüllen, gibt die Analyse dennoch Hinweise darauf, dass die derzeitige Form der staatlichen Eingriffe genau überdacht werden sollten.

JEL-Klassifikation: G28, G32, O16, D21, M13

Schlagworte: Venture Capital, Existenzgründungsfinanzierung, staatliche Eingriffe.

1. Introduction

Public venture capital (VC) activity is an evident part of the German VC market.¹ However, we do not know much about whether public VC companies are doing what is expected of them. In the literature, public intervention in the VC market is often justified as a means of preventing the market failures that could discourage private VC companies from investing in start-ups. For example, these market imperfections arise with problems accompanying small-scale investments (McGlue, 2002; Harding, 2002). In an attempt to overcome these barriers, public authorities try to promote the local economy with a supply of capital for young and innovative companies. Furthermore, they attempt to establish financial and business networks that currently might not exist due to these market failures. In this way, the public authorities aim to develop a sustainable capital supply through private institutions. This justification, and the related goals, of public activity in the VC market leads to several tasks for public VC firms that might be quite different from the activities of their mainly profit-oriented private counterparts.

Until now, the question of whether public VC intervention is performing these tasks or if it is merely an end in itself has not been completely answered. This paper contributes to our understanding of the task performance of public VC companies by comparing their goals, decision-making processes, and operations with those of their private counterparts. The relevant questions are: “To what extent do public and private VC companies in Germany differ? Do the operations of public VC companies appropriately reflect their goals of overcoming market failures and promoting the economy? Are private VC companies able to do the job now performed by public VC companies?”

The analysis is based on a unique data set of personal interviews conducted at various VC companies in Germany. These data allow a direct comparison of the

¹ See, for example, Sunley et al. (2005), Fritsch and Schilder (2006a), Bascha and Walz (2002), and Plagge (2006)

investment activities of public and private VC companies, and thus the task performance of public VC firms can be analyzed. Furthermore, the ability and willingness of private VC companies to take over investments currently held by their public counterparts can be examined with the survey data. These data enable the paper to focus on direct public VC intervention both through publicly owned VC companies and through VC firms with mainly public funding and influence. Other means of public activity regarding the VC market, such as public guarantees and grants for private investors, are not considered (see, e.g., Keuschnigg and Nielsen, 2002, 2004).

The remainder of the paper is structured as follows. The second section deals briefly with the role of public and private VC companies in Germany. The successive section proposes several hypotheses in regard to the tasks of public VC firms. This section is based on a review of the relevant literature (Section 3). In Section 4, the database is introduced with a focus on the differences and similarities of the two analyzed groups, and contains the empirical results of the comparison of the two groups of VC providers. In Section 5, the question of whether private VC might be able to undertake the current tasks of public VC companies is discussed. Finally, Section 6 concludes and sets out some areas for further research.

2. Public VC activity

2.1 How important is public VC within the German VC industry?

The relevance of the question of whether public VC is performing its task is deeply rooted in the role of public intervention in the German VC market. The importance of direct public VC activity in Germany is mainly unquestioned (see, e.g., Sunley et al., 2005; Plagge, 2006). The regional distribution of public VC companies in Germany indicates their actual impact on the German VC industry.

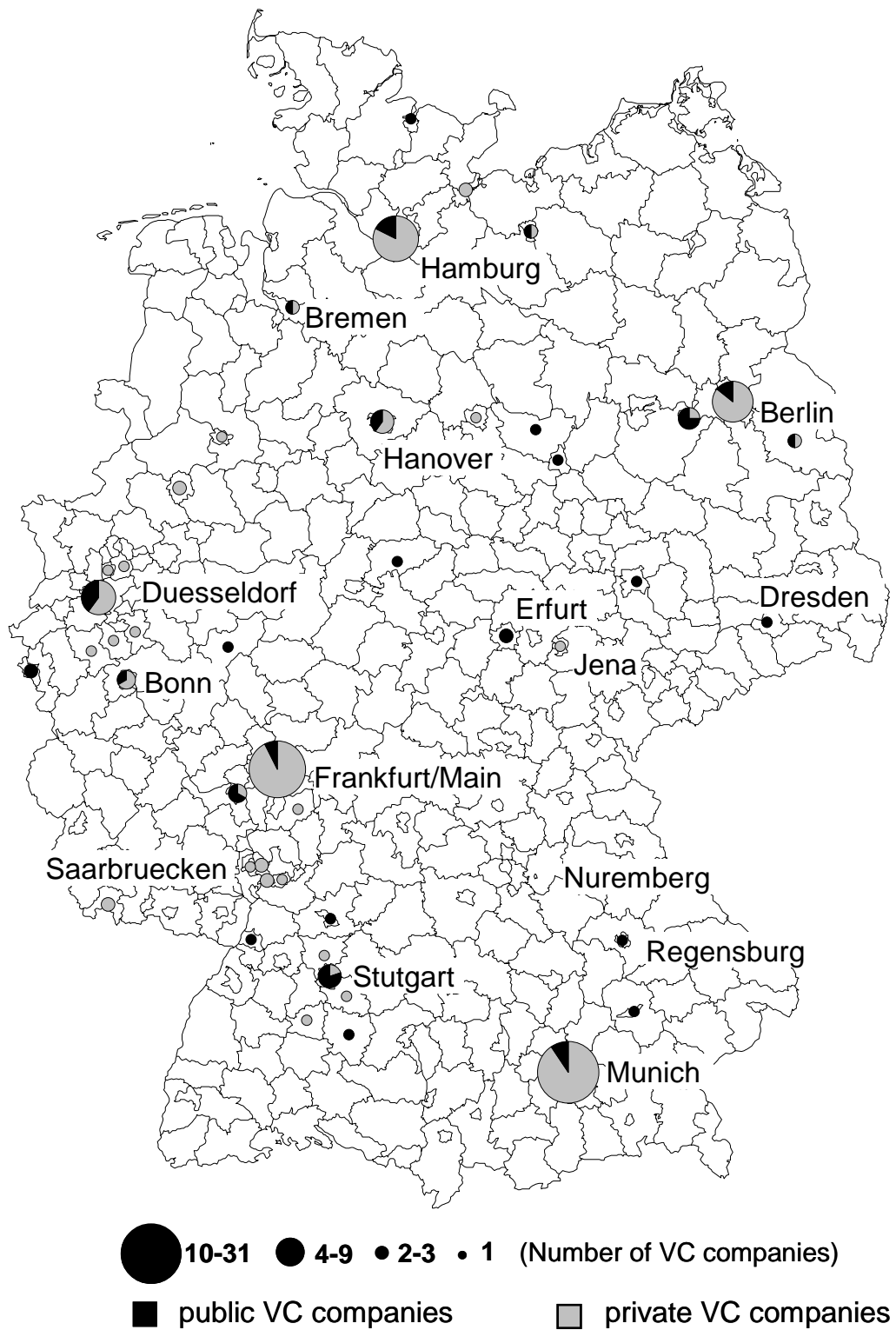


Figure 1: The spatial distribution of VC firms in Germany (symbol size shows total figures)

The regional distribution of the members of the German Private Equity and Venture Capital Association (Bundesverband Deutscher Kapitalbeteiligungsgesellschaften; BVK), as of January 2006, is rather unequal (Figure 1). The gray circles in Figure 1 demonstrate that the private sector of the German VC market is clustered in five regions: Munich, Frankfurt, Berlin, Hamburg, and the Rhine-Ruhr area. The black sections indicate VC companies that can be said to have a predominantly public influence, that is, they are state owned or operate with public capital. These VC companies can be divided into three types: subsidiaries of public savings banks and state banks, the *Mittelständische Beteiligungsgesellschaften* (MBG), and other VC companies having mainly public investors. The MBGs are a specific form of public VC in Germany. They were founded in the 1970s by all the federal states, except Bremen, and have been established in cooperation with local banks and industry representatives. Their investments are restricted to the specific state. Overall, the BVK data clearly show that public VC companies are largely clustered in a relatively to the relatively few areas of the German VC industry.

Of the more than 170 members of the BVK, only around 45 are public VC firms, a definite minority compared to private VC firms. However, Figure 1 clearly shows that their regional distribution is more equal, as no obvious regional public VC core exists. Furthermore, many public VC firms are located in cities where there are no private VC companies, such as Regensburg or Erfurt. Figure 2 shows the number of investments made by the MBGs in the period 2001 to 2005 (German Private Equity and Venture Capital Association, Statistics, 2001–2005). This is illustrative of the strong public VC activity in Germany. The regional distribution of the investments is highly unequal. In 2005, for example, Bavaria and Baden-Württemberg each had more than 80 investments by MBGs, whereas Thuringia had less than 10 investments. Overall, the MBGs account for nearly half the total number of VC investments made by BVK members. However, the invested volume of 182.5 million € in 2005 is only around 16 percent of the overall invested amount, which shows that the MBG investments, on average, are rather small. These small-size investments indicate strong public VC activity in a sector neglected by private VC investments (see Section 3).

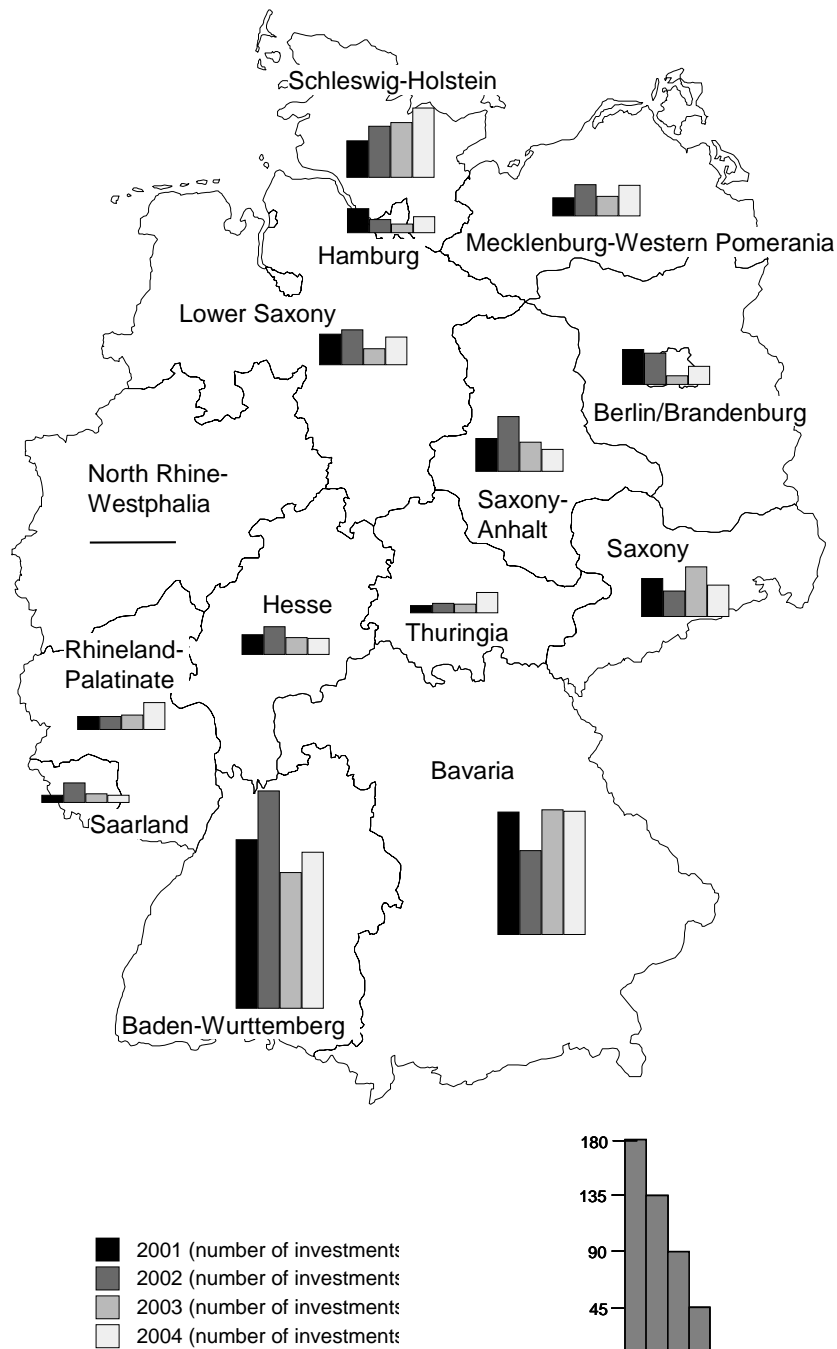


Figure 2: The spatial distribution of investments by the German *Mittelständische Beteiligungsgesellschaften* (symbol size shows total number)

The regional distribution of public VC companies and their investments (Figures 1 and 2) demonstrates that public VC companies play an important role in the German VC market. They are not only represented in the large VC centers, such as Munich or Hamburg, but also can be found in a diverse number of smaller

cities all over the country, for example, Regensburg in the southeast or Dresden in the eastern part of Germany. Although regional proximity between the VC company and the portfolio firm is not a necessary requirement for VC investments (Fritsch and Schilder, 2006a, 2006b), the equal regional distribution might indicate that public VC companies are active at the local scene, whereas private VC companies are more like distant but still attendant landlords. Furthermore, public VC companies display a specific investment behavior in that they are very active in the small-size investment sector, an area private VC companies are often reluctant to enter.

2.2 The rationale of public VC intervention

The justification for public intervention in the VC market is mainly tripartite. First, it is argued from a static perspective that public VC activity should help overcome market failures that may lead to an equity gap for young and innovative companies (McGlue, 2002). Second, assuming a dynamic perspective, it is argued that a young and developing private VC market may just need a stimulus to motivate it (Leleux and Surlemont, 2003). The third type of argument spans the first two and is based on spillover and social effects. It says that public authorities should try to create an environment that will stimulate an entrepreneurial and innovative activity (McGlue, 2002). All three motivations imply that public VC activity should be more or less complementary to the private VC supply. Otherwise, there would be a public crowding-out effect that would hinder private VC investments.

The reasoning behind justifying public VC activity as a means of overcoming market failure in the form of an equity gap is mainly grounded in the specific assumption that the private sector alone is not able to deliver sufficient capital for young and innovative companies. Information failures, such as information asymmetries between the VC company and the entrepreneur, or a moral hazard problem (Harding, 2002) might result in an insufficient supply of capital. Further market imperfections, for example, a lack of suitable exit possibilities for VC investments, can enhance this effect. This kind of an equity gap for young and innovative companies may also emerge in regard to certain investment sizes

(Harding, 2002; Martin et al., 2005). The costs of searching for, monitoring, and supervising investments do not vary significantly between small and large investments. Thus, the overall returns of large investments are higher (Harding, 2002). Therefore, the expected return-cost ratio of small investments is lower than those of larger ones and, consequently, small- and medium-sized companies might face restrictions in the supply of risk capital (Martin et al., 2005).

The second argument for public VC intervention—that the VC market needs a stimulus—is based on a more dynamic perspective. It assumes that the VC market needs some sort of precursor, signaling that, although risky, providing equity to entrepreneurs can be a profitable business (McGlue, 2002). The larger the VC network becomes, the more positive will be the network effects (Sorensen and Stuart, 2001). Thus this justification for public VC intervention posits that public VC activity should help the industry boost itself out of infancy (Leleux and Surlemont, 2003) and, at the same time, that the crowding out of private investments, as indicated, for example, in a study by Cumming and MacIntosh (2006) on the Canadian VC market, will be avoided. Proof of this seeding argument in the literature is inconsistent. For example, Hood (2000) found evidence that the Scottish public VC program SDF was followed by the formation of new private VC funds. In contrast, Da Rin et al. (2006) show for Europe that the spending a large amount of public funds does not seem to stimulate private early-stage investments. However, the seeding argument is not completely disproved and is often used by public authorities (European Commission, 2003).

The third justification argument for public VC activity more or less encompasses the first two arguments. The creation of an environment conducive to entrepreneurial growth is heavily linked to a sufficient supply of capital (Friedman, 1995; Harding, 2000; Zook, 2002), which can be ensured only by the creation of a strong financial network and the support of public VC companies to overcome possible market failures. However, the final goal of public authorities is not only the promotion of entrepreneurship but also the emergence of innovation, economic growth, and employment through start-ups (McGlue, 2002; Hood, 2000; Harding, 2002; Leleux and Surlemont, 2003). These “private returns” might

be multiplied even more by “social returns,” for example, through spillovers achieved by the positive externalities of innovation (Boadway and Tremblay, 2005; Lerner, 1999). For this purpose, VC is regarded as a catalyst for entrepreneurial and innovative activity (Florida and Kenney, 1988; Kortum and Lerner, 2000). However, some studies find evidence that innovative activity does not always follow capital but vice versa, which does serious damage to the assumption of public VC as a catalyst for entrepreneurship (Florida and Smith, 1993; Martin et al., 2005; Fritsch and Schilder, 2006a).

Before turning to examples of some specific tasks undertaken by public VC companies that arise out of these justifications, the reader should be aware that direct public VC intervention in Germany is a regional business. The respective companies generally act on behalf of regional governments, such as at the state or district level, and utilize this government’s money. Therefore, public VC companies have a clear regional restriction and focus. Furthermore, they are deeply interconnected with local businesses and social networks. In the following, I briefly discuss some of the tasks undertaken by public VC companies, based on the three justification arguments set out above, which are greatly different from the goals of private VC firms. Three distinctive differences between the activity of public and private VC firms are hypothesized. The differences in tasks and behavior mainly reflect the regional focus of public VC companies.

First, the development of a functioning VC market of a specific size means that public VC companies either have to attract other financiers to invest in their region (McGlue, 2002) or they must signal local financiers that VC investments are a profitable business (Hood, 2002; Lerner, 2002). This can be done by helping private VC firms overcome the information asymmetries between VC company and entrepreneur (Lerner, 1999), a capability that is grounded in the good regional market knowledge that public VC firms possess due to their strong regional commitment (Sunley et al., 2005). Furthermore, public VC companies have the advantage of a large network of experts, something possibly less available to private VC firms (Lerner, 2002). In addition, the amounts invested by public VC companies can have a large leverage effect through the syndication of investments

with financiers from other regions. Syndication means that several investors are involved with a single investment. The investors share the volume of investment as well as the risk and the work involved (Brander et al., 2002; Lockett and Wright, 2001; Gompers and Lerner, 2001; Doran and Bannock, 2000). The syndication partners can benefit greatly from public VC companies' access to local networks (Fritsch and Schilder, 2006a). Therefore, I expect public VC companies to engage in two types of syndication behavior. They will syndicate with local investors to strengthen the regional financial networks, and they will form syndicates with financiers that are not located in their region so as to attract nonlocal capital and enlarge the local VC supply (Mason and Harrison, 1991).

Second, public VC companies' duty to promote local entrepreneurial and innovative activity might influence the way they select investments. This is particularly important in the cases where private investors refuse to invest. In addition to a possible superior selection process due to good regional market knowledge (Sunley et al., 2005), public VC companies' may select investment based on factors not usually considered by private VC companies. For example, the outcome of an investment might not be measured solely by the monetary return of the investment, as it is for private VC companies (Hood, 2000). Although Leleux and Surlemont (2003) could not find a significant relationship between public VC activity and high employment industries, the potential effects on regional economic development might be an important output considered by public VC companies in their selection process. Second, their highly developed access to regional networks (Sunley et al., 2005) enables public VC companies to discover specific regional needs, and this will influence their deal flow. Their close relationship with local incubators or the chambers of industry and commerce can grant access to possible investments. This lead to the assumption that public VC companies will use different selection processes, and possibly orient the direction of their flow of investment, differently than will their private counterparts.

Third, there are several factors that can influence the monitoring and advising activities of public VC companies and make them act differently in these areas

than will private VC investors. Public VC companies' lower return requirements (Bascha and Walz, 2002), in combination with their strong desire to enhance local economic development (Sunley et al., 2005; Tykvova, 2004), allows or even forces them to establish a more intensive and costly contact with the portfolio firms than that usually undertaken by private VC firms. Furthermore, as public VC companies often make investments in enterprises that cannot attract private VC, they may have more problematic cases in their portfolio. These investments require more attention and involvement from the financier, activities that are time consuming and costly. Private VC firms, which have a return maximizing focus, cannot afford such intensive relationships. Additionally, many public VC firms are not only trying to promote start-ups but are interested in many other kinds of businesses. Therefore, public VC companies may focus more on later-stage investments (Bottazzi et al., 2004). Later-stage investments usually require less involvement by the financier than do early-stage investments (Sapienza et al., 1996) because of the lack of management or technical knowledge in the early stages of a company's development, a lack that, in pursuit of protecting its investment, the financier has to provide (Gupta and Sapienza, 1992).

The monitoring and advising activities engaged in by public VC companies might also depend on the financial products they use. They generally prefer products that do not involve voting rights, such as silent partnerships (Tykvova, 2004; Bascha and Walz, 2002). Thus they have less participation in the financed firms' profits than, for example, they would with direct ownership (Bascha and Walz, 2002). This leads to fewer consulting activities by the financiers because they have less incentive to generate fast growth of the financed firm (Schäfer and Schilder, 2006). Furthermore, the fact that many public investment managers are civil servants and government employees might influence their consulting activities. Their different educational backgrounds (Bottazzi et al., 2004) and incentive structures—their payment systems are different from those of private fund managers—may make them less effective consultants (Leleux and Surlemont, 2003). In summary, two assumptions can be made about public VC investments in regard to monitoring and advising: (1) there might be a greater amount of involvement, compared to private VC firms, because of lower return requirements

and a duty to promote the local economy; and (2) their later stage investments, the financial products used and the different incentive structure and educational background of their employees could hinder monitoring and consulting.

3. Do the operations of public VC companies reflect their goals?

3.1 The database

The empirical analyses are based on an interview survey that was conducted between September 2004 and September 2005. The survey consists of 51 face-to-face interviews with investment managers who were actively involved in corporate financing and were mainly specialized in start-up financing. All interviews were based on a largely standardized questionnaire that allowed room for further qualitative information. The questions pertained mainly to investment behavior—the selection of investments and the monitoring and supervising of portfolio companies. A special focus was placed on the syndication of investments. Several pretests gave evidence that the questionnaire was properly relevant for the information sought.

The interviewed institutions were selected by hand based on the regional distribution of the German VC industry. Out of the initially selected 300 financial institutions, 85 agreed to participate in the interview. Fifty-one of these financiers are VC suppliers. For the purpose of this paper, the other 34 financiers, comprising mainly banks and private individuals, are excluded from the analyses. Reflective of the overall VC market, the 51 VC companies show a strong heterogeneity in regard to their industry and regional investment focus, size, age, and institutional background. The participating financiers are all actively investing, which guarantees the relevance of the data for investigating actual VC investment behavior. I interviewed one manager per firm who was actively involved in the financing and supervising process. The interviews lasted between 50 and 90 minutes.

For the purposes of this paper, I divide the VC financiers into two groups: public and private VC companies. There are 23 firms in the first group,

comprising subsidiaries of public savings banks, merchant and development banks, and MBGs. These investors are either state owned or operate with public money. There are 28 firms in the second group, including independent and corporate VC companies as well as subsidiaries of private banks. The firms from the sample are representative of the respective type of VC institutions.

3.2 Structure and investment behavior of public and private VC firms

The data from the interviewed VC companies show a strong heterogeneity between public and private VC firms. This heterogeneity is important as the different objectives of both groups could lead to different investment behaviors, e.g., through the offered products and services. This section provides a descriptive overview of several differences between the two types of companies. The first distinction has to do with the financial products employed. The range of possible answers to the question of how important diverse products are to public and private VC suppliers is from 1 (the investor does not supply this product at all) to 4 (this is the most frequently used product) (Figure 3).

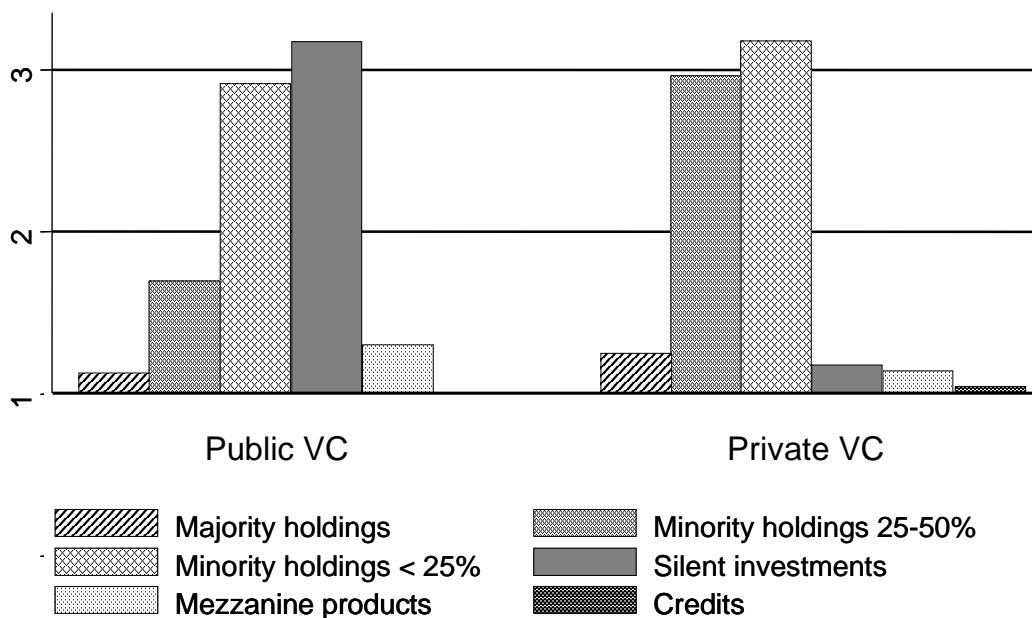


Figure 3: Importance of financial products (mean values)

Figure 3 illustrates that private VC firms are strongly focused on direct equity investments, mainly as minority holdings with up to 25 percent or between 25 and 50 percent of the portfolio companies' shares. In contrast, public VC companies

prefer minority holdings up to 25 percent and are considerably in favor of silent investments. The latter product is located between equity and debt in balance-sheet terms. Other mezzanine products, credits, and majority holdings appear to be less appealing to both groups. These findings are in line with former research (Tykvova, 2004; Bascha and Walz, 2002). The financial products used are congruent with the different aims of both groups. Direct investments are usually accompanied by many rights of influence and a participation in the portfolio companies' return. This type of investment makes it possible to achieve a private VC company's goal of generating profit. In contrast, public VC companies predominantly use a product that usually has no voting rights and a fixed interest rate, the use of which reflects their aim of supplying capital for their investments, instead of exerting influence on the portfolio firms or generating as much profit as possible.

Public and private VC companies show further heterogeneity in their share of early-stage investments within their portfolios (Figure 4). On average, private VC firms put more than 60 percent of their investments in companies that are in early stages of development; public VC suppliers have a mean of 34 percent of their funds in early-stage investments. This finding supports the assumption that public VC firms have a duty and/or a tendency to promote companies at all stages of their development, not only start-ups. This finding is surprisingly counterintuitive, however, as the lack of private capital is said to be very large for early-stage investments (Martin et al., 2005).

The resources available to each of the two groups are another point of difference (Figure 4). Resources are measured by the average number of investments each investment manager is required to monitor and advise. The ratio of portfolio companies to investment manager is important because the more companies a manager has to supervise, the less time he or she can spend on each one. Within private VC companies, each manager is responsible for an average of 3.5 investments, whereas the mean of the portfolio companies per manager for the public VC firms is 9.7. The investment managers of public VC firms have a clear time restriction for their monitoring and consulting tasks. These results indicate

that public VC companies might engage in fewer monitoring and consulting activities compared to their private counterparts. First, later-stage investments need less financier involvement as they are usually at the point where they can sufficiently manage their own business (Gupta and Sapienza, 1992; Sapienza et al., 1996). Second, public VC companies' fewer resources, and the related restrictions on time and knowledge, lead to less consulting and monitoring, services that are costly and time consuming.

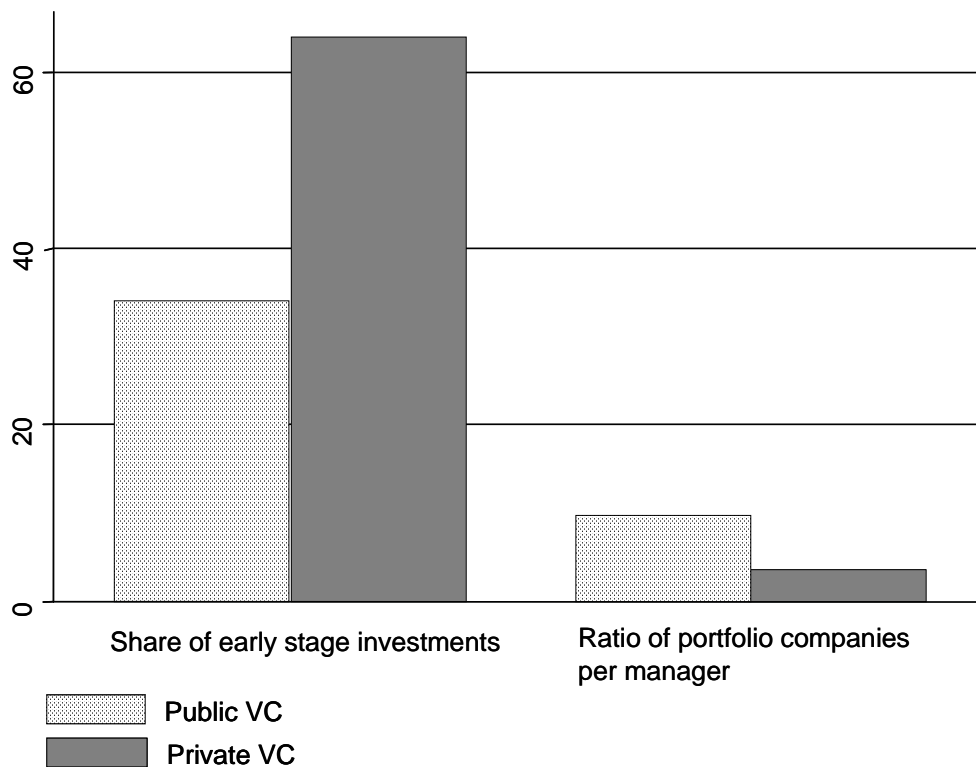


Figure 4: Share of early-stage investments and ratio of portfolio companies per investment manager (mean values)

Public VC companies distinguish themselves from private VC firms in regard to the spatial dimension of their investment behavior (Figure 5). Public VC companies are often restricted by law or by their articles to regional investment activities. This regional restriction can range anywhere from a district, which would contain many public savings banks' VC subsidiaries, up to a federal state, which is the investment area of the MBGs. The questionnaire asked: "Which share of your portfolio is within the following circumference: at site; not at site but within 100 kilometers; more than 100 kilometers but within Germany or

abroad?” Unsurprisingly, the public VC companies in the survey have 81.6 percent of their investments at the same site or within 100 kilometers and only 0.5 percent abroad. In contrast, more than 68 percent of private VC investment is over 100 kilometers away from the VC companies’ location and only 18 percent is at the same site. The results reflect the regional limitations of public VC companies and prove that they do, indeed, fulfill their duty to promote regional economic activity and are characterized by a strong regional commitment.

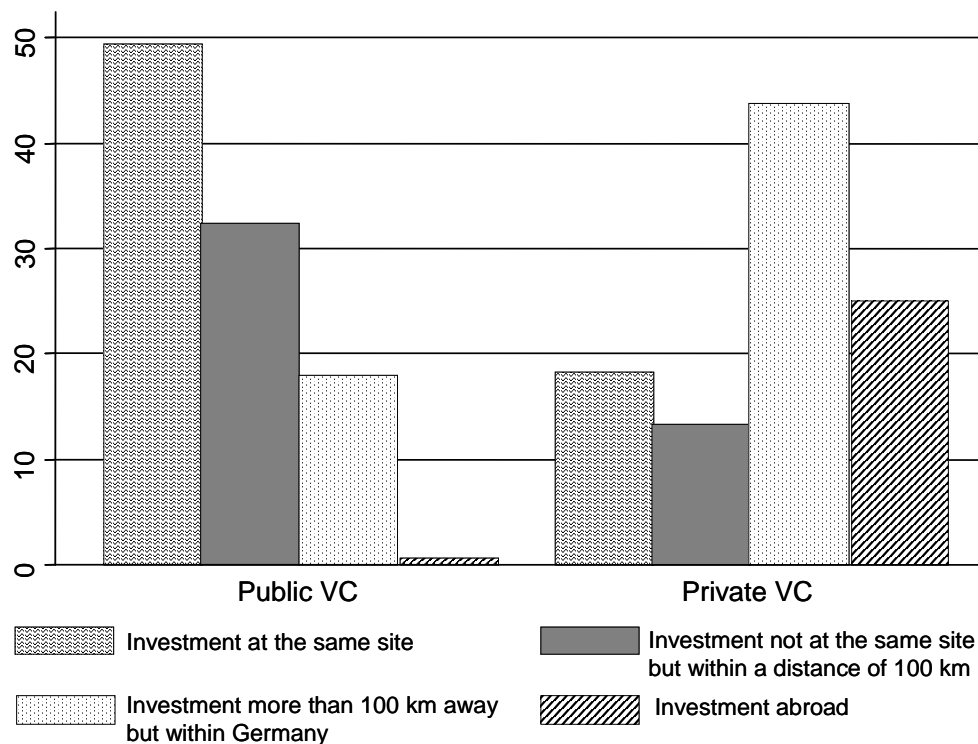


Figure 5: Average share of investments within a certain distance (in percentage of the total portfolio)

Another geographic-related difference between the public and private VC firms is public VC firms’ syndication behavior, particularly the distance to the syndication partner (Figure 6). The interviewees were asked: “Which share of your overall syndication partners is within the following circumference: at site; not at site but within 100 kilometers; more than 100 kilometers but within Germany or abroad?” On the one hand, public VC companies might syndicate with investors that are far away and in this way try to attract investors from outside of their resident region. This would create a further flow of capital for the economy and ease the liquidity burden for local companies. On the other hand,

public VC firms might try to build a strong regional financial network by syndicating with local or regional investors. The data seem to support the second assumption. Public VC companies have only 35.6 percent of their syndication partners within a distance of more than 100 kilometers; however, almost 40 percent of their syndication partners are located at the same site. In contrast, almost 70 percent of private VC companies' syndication partners are located at a distance of more than 100 kilometers and 21 percent are located abroad, distributions that parallel the spatial distribution of their investments (Figure 5). Unfortunately, we do not have data on the role the investors usually play within a syndicate, i.e., if they are lead- or co-investors. Having this information would allow an even better evaluation of the objectives of the two types of VC providers.

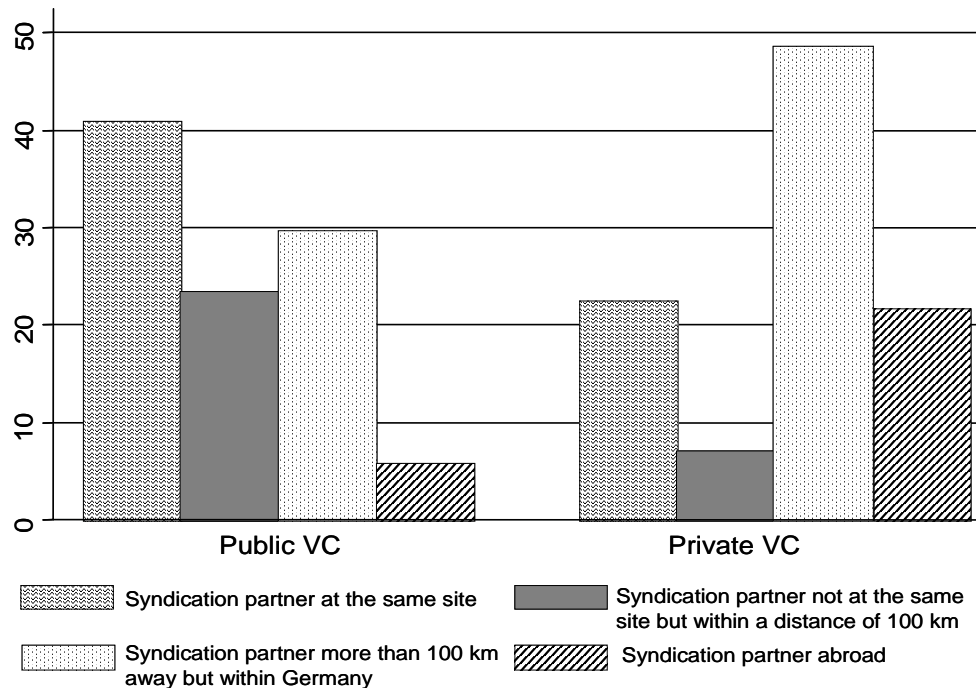


Figure 6: Average share of syndication partners within a certain distance (in percentage of the total portfolio)

On the whole, there are some very distinctive differences between public VC companies and their private counterparts. Initially, these differences appear to support the assumption that public VC companies are properly performing their tasks, especially the duty to promote the local economy. However, a detailed analysis of their investment behavior is necessary before the assumption can become a truth.

3.3 *The selection process of public and private VC companies*

An initial look at the heterogeneity within the data set indicates that public and private VC companies are very different. A detailed analysis of their selection processes and their monitoring and consulting activities might allow more insight into whether public and private VC companies behave in ways that will facilitate achieving their different objectives. Therefore, a Wilcoxon-Mann-Whitney test is employed to compare both groups. This test allows the comparison of two subsamples by assigning a rank to each individual observation. Therefore, the test is able to reveal the relation of two groups even if the assumption of a normal distribution is violated or if the variances between the subsamples are explicitly different. A positive value indicates that the sum of the ranks for the public VC companies group must be larger than the sum of the ranks for the private VC firms. For example, the positive value in the third row and the last line of Table 1 shows that the public VC investors regard possible exits of their investments as less important than do their private counterparts.

Table 1 depicts the average importance and the rank sum comparison of certain variables regarding the selection of new investments by public and private VC companies. Both public and private VC firms organize their selection process in teams, expressed by the total number of people involved in the selection process of a single project. However, the difference is not statistically significant. Furthermore, there are obvious differences in the methods public and private VC firms use to contact potential targets for investment. The range of possible answers to the interview question on the types of contact methods used is between 1 (this way is never used) and 4 (this form of approaching new investment possibilities is always used). Most of the contacts for both public and private VC companies result from active marketing, syndication partners, or a direct request by target firms. Public VC companies more often make use of intermediaries such as the chambers of industry and commerce and start-up centers than do private VC firms. The difference is statistically significant at the 1 percent and the 5 percent level, respectively. This indicates that public VC companies are more deeply involved in the local business networks than their private counterparts. In

performing their task of promoting regional business development, this deep involvement in local networks makes it possible to detect market failures. The deal flow via syndication partners is more developed for private VC firms, as proved by a statistically significant difference at the 5 percent level. This shows that public VC companies are required to be more active in the search for syndicated investment partners, rather than simply waiting to be asked.

Several issues determine how public and private VC firms make investment decisions (Table 1, third part). On the questionnaire, the possible ratings for these variables were: not important (1), of minor importance (2), amongst other things important (3), very important (4), and dominant (5). For these variables, even stronger differences between the two groups can be found than in the case of the deal flow. Public VC companies are less concerned about the expected risk-return ratio and prefer long-term investments; they are also less concerned with investment exit strategies. All three differences are highly statistically significant. These findings may be due to public VC firm preference for silent investments (Figure 3). This product generally matures between seven and ten years, which can be regarded as long term, and normally has fixed interest payments that limit the risk-return ratio. Furthermore, the financier does not have to worry about exiting an investment. Finally, the composition of the VC company's portfolio is less important for public financiers than it is for private investors. This can be grounded in a stronger industry specialization by private investors, and in the duty of public investors to promote all kinds of industries. Many public VC firms cannot reject investing in a biotech start-up just because they already have two biotech investments in their portfolio. However, some important factors are equal for public and private VC firms and do not show significant differences. Both groups look for a promising strategic orientation of the investment and well-skilled management. The selection process of public and private VC investors is further evidence that public VC companies are driven by their considerably different aims, especially their strong commitment to the local business community.

Table 1: Selection process of public and private VC companies (mean values and results of Wilcoxon-Mann-Whitney test)

	Public VC (mean values)	Private VC (mean values)	Wilcoxon- Mann-Whitney test
Number of people involved in selection process (within a single investment opportunity)	3.65	4.44	0.42 (0.68)
Contact possible investment target by:			
• Active marketing by VC firm	2.78	2.57	-1.39 (0.17)
• Address by syndication partner	2.44	2.82	2.53* (0.01)
• Direct request by target firm	2.87	2.96	1.24 (0.22)
• Address by accountants or auditors	2.26	2.04	-1.02 (0.31)
• Address by Chambers of Industry and Commerce	1.87	1.21	-3.65** (0.00)
• Communication to start-up centers	1.70	1.36	-2.11* (0.04)
Main factors influencing the investment decision:			
• Expected risk-return ratio of the investment	2.61	3.64	3.19** (0.00)
• Short-term horizon of the investment	1.87	2.39	2.04* (0.04)
• Long-term horizon of the investment	3.04	2.07	-3.16** (0.00)
• Previous composition of the portfolio	2.87	3.57	2.26* (0.02)
• Promising strategic orientation of the investment	4.30	4.21	0.10 (0.92)
• Well-skilled management of the target firm	4.61	4.25	-0.90 (0.37)
• Exit possibilities for the investment	2.78	4.22	4.16** (0.00)
Number of observations	23	28	

** significant at 1% level; * significant at 5% level; prob > |z| in parentheses

3.4 *Monitoring and advising by public and private VC companies*

A second way of assessing appropriate task fulfillment by public VC companies is by looking at their monitoring and consulting activities. The different components of the consulting provided by public and private VC companies (Table 2) are important as these services determine the character and the quality of the offered VC investment. The interviewees were asked to rate these variables as never (1), seldom (2), frequently (3), and very frequently (4). The average number of contacts between the investors and the financed companies per month—personal contacts as well as contacts via telecommunication—provide evidence for the exchange of knowledge between the investor and the portfolio company (Table 2). With an average of 0.9 face-to-face contacts and 2.5 contacts via telecommunication per month, public VC companies have a much less intensive interaction with their portfolio firms compared to their private counterparts, thus supporting the hypothesis that public VC firms do less consulting than do private VC firms.

Furthermore, public VC investors offer a smaller spectrum of consulting services (Table 2). They do not differ significantly from private VC firms in the provision of business-related services such as accounting, controlling, marketing, or financing. However, they offer a much more limited amount of consulting in technical problems or patent protection, as compared to private VC firms, a difference that is statistically highly significant. One reason for this might be that private VC firms tend to specialize in certain industries. Public VC investors usually invest in several different industries, either because of a limited pool of target firms or because of their duty to promote different industries. Another possibility for this difference is services offered might be related to employee qualifications. For example, private VC firms usually employ more scientists than do public VC firms (Bottazzi et al., 2004). Therefore, the evidence from Sunley et al. (2005), who state that public VC investors offer less hands-on support, is supported. This indicates that public VC companies deliver a market segment that demands less consulting. However, if the only thing that distinguishes them from

their private counterparts is that they offer fewer services, their contribution to the local economy is questionable.

Table 2: Consulting activities of public and private VC companies (mean values and results of Wilcoxon-Mann-Whitney test)

	Public VC (mean values)	Private VC (mean values)	Wilcoxon- Mann- Whitney test
Number of face-to-face contacts (per month)	0.90	1.26	1.70 ^a (0.09)
Number of contacts via telecommunication (per month)	2.50	7.39	3.45** (0.01)
Frequency of consulting in:			
• accounting	2.57	2.32	-1.10 (0.27)
• controlling	2.70	2.46	-1.28 (0.20)
• marketing	2.00	2.50	2.39 (0.02)
• technical problems	1.35	2.18	3.53** (0.00)
• strategic problems	3.13	3.61	2.73** (0.01)
• network advantages	2.65	2.89	1.50 (0.14)
• financing	3.30	3.50	1.12 (0.26)
• patent protection	1.35	2.54	4.21** (0.00)
• juridical problems	1.39	2.14	3.28** (0.00)
Number of observations	23	28	

** significant at 1% level; * significant at 5% level; ^a significant at 10% level;
prob > |z| in parentheses

The above discussion makes it obvious that there are clear differences between public and private VC companies. First, public VC firms rely on their role within local business networks to generate their deal flow. Second, their selection process is mainly determined by their focus on different financial products and, therefore, by their objectives. Third, they offer less diversified consulting than do their private counterparts. This last finding may imply that public VC firms'

contribution to the local economy is limited. Furthermore, the results furnish evidence that the two groups of VC investors are not in competition with each other as they each supply different market segments. The public VC firms do not appear to provide “real” VC, which is equity investment combined with a heavy flow of information; rather, they offer a scaled-down version, what I term “VC-light.”

The results emphasize the different objectives of the groups. Public VC companies, because they are more involved in the local business community, can discover what is in need of promotion and can help financiers overcome the problems of a young and developing VC market. However, they appear to be limited in their ability to meet the consulting needs of their portfolio companies. This is a very interesting and somewhat disturbing finding. As discussed, public VC companies often finance enterprises deemed too risky or too time consuming by private VC companies. That public VC companies take on these somewhat doubtful investments without the resources, time, or money to provide adequate consulting seems hazardous at best, and irresponsible at worst, considering that the money they work with does not belong to them, but to the public they are mandated to serve.

4. Can private VC companies do the public VC firms’ job?

The analyses provide evidence that public VC companies have different objectives than their private counterparts. These goals determine their different tasks; this is especially true for the goal of promoting the local economy. However, the results do not clearly indicate whether or not private VC companies might also be able to offer the “light” version of VC currently employed by public VC firms. If they could, there would be no need for public VC activity, at least in its actual design. In the following, I present some findings derived from statements by the interviewees in the survey. Since the results are based on many different interviews, I summarize the interviewees’ views instead of quoting them directly. In this fashion I attempt to discover whether private VC firms can take

on the tasks of public VC companies and whether the latter really act as a task force for enterprises neglected by private VC investors.

Several conclusions about the possibility and the will of private VC companies to replace public VC investors can be drawn from statements made by the investment managers during the interviews. First, the size of the deal is an important factor. Private VC companies typically prefer larger deals. The transaction costs for small deals do not differ much from the costs for large deals, but the returns from large investments are higher. Therefore, the ratio of return to effort is much better for big deals (Harding, 2002). Furthermore, large deals minimize the costs of searching for the investments. For example, if you want to invest 10 million Euros, you can either search for 100 investments each requiring 100,000 Euros or you can search for 10 investments with 1 million Euros each. The search costs for the second choice will be much less than for the first. As already mentioned, this preference for large investments on the part of private VC firms leads to an undersupply of equity within the segment of small investments.

Second, the original VC business was characterized by extremely high risk. This can be compensated for only by a very high profit opportunity, which is just possible within certain industries (Sahlman, 1990; Bygrave, 1992). Public VC companies in Germany do not solely focus on this concept of VC and, therefore, they do not need the high-yield investment opportunities, which allows them to invest in a wider range of industries. This diversified investment strategy is in line with these companies' duty to promote the economy, something not especially feasible when concentrating investment in a specific industry. Furthermore, private VC firms have to justify their investments to their own investors. Anyone who invests in a VC fund is searching for an investment with high risk combined with high return opportunities. Several interviewees stated that VC companies that do not invest in high-yield investments fail at their jobs. Therefore, in their opinion, many private VC companies are not willing to take on the tasks of their public counterparts, although they might in theory be able to do so.

Third, some interviewees mentioned that private VC companies have a certain negative reputation among entrepreneurs that they do not impute to public VC

companies. Entrepreneurs often have extreme reservations about direct investments. They fear that by giving away (in return for financing, of course) a part of their start-up that they will lose control over it. One VC manager even said that entrepreneurs regard the private VC companies as hungry grasshoppers—“coming by, destroying everything, and jumping away.” In contrast, public VC companies, because they favor silent investments over direct ones, do not have such a negative reputation. This negative attitude toward private VC firms has allowed another player into the start-up financing game: banks. They increasingly offer mezzanine products and other financial products comparable to those offered by public VC companies. Moreover, some interviewees said that private investors, so-called Business Angels, might be able to offer the public VC companies’ VC-light, as it requires fewer resources. As far as investment size goes, this could be an important development as Business Angels actually prefer smaller investments, which are just the type of investments private VC companies avoid.

These findings indicate that private VC companies in Germany are not able or willing to undertake public VC activity. One of the interviewees summed it up nicely: “You can never turn a public official into a real Venture Capitalist—and vice versa.” However, other financiers, such as banks or Business Angels, might be able to take over the tasks of the public VC companies.

5. Conclusions and implications

This paper analyzes the VC activity of public authorities in Germany. The results indicate that public VC companies in Germany are performing their tasks. Public VC firms serve a market segment that differs considerably from that served by private VC companies, and this difference is clearly reflected in the goals that each type of company pursues. For private VC firms, the goal is simple—make as much profit as possible. The goals of public VC firms, however, are more varied and more complicated. First and foremost, their aim is to promote the local economy and local entrepreneurship, to which end they prefer silent investments over direct ones. Furthermore, it is reflected in their selection process of new investments. A second major goal, that of enhancing regional business and

financial networks, is achieved by their syndication behavior. However, the analysis gives evidence that public VC companies are not able to handle the degree of consulting services desired, perhaps even badly needed, by their portfolio firms. This indicates that public VC is more or less a scaled-down version of the original VC concept since it is comprised of less hands-on support.

The interviewees provided the answer to the question of whether private VC firms are willing and able to take on the tasks of their public counterparts. That answer is “no.” On the one hand, private VC companies do not want to invest in the companies in which the public authorities are invested because such companies typically do not fit into their risk-return requirements. On the other hand, private VC firms are not able to take over public VC companies’ work because many entrepreneurs have strong reservations about involving themselves with private VC firms.

Generally, public VC companies in Germany are mainly doing what is expected of them. They help ensure the supply of equity for local economies; they help establish strong financial and business networks that could enable the creation of a growing VC market and an entrepreneurial environment. However, the analysis shows that public VC companies do not offer “real” VC as originally conceived, but instead offer something that could be called “VC-light”, with less hands-on support and different financial products. The possibility is raised, and this is especially relevant for policymakers, that other types of financiers, such as banks and Business Angels, might be able and willing to take over the tasks now performed by public authorities. The data used in this analysis did not permit any findings on whether public VC exerts a crowding-out effect, but the findings from the data do imply a need to reconsider how the German system of public VC actually works. Therefore, further research is needed to evaluate the necessity and, particularly, the success of public intervention in the German VC market.²

² First steps in this direction have recently been made by Da Rin et al. (2006).

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